

Travel 2.0 - The **NEXT** **GENERATION** OF TRAVEL

MARCH 2017



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Foreword

Travel & Hospitality Industry (T&H Industry) is one of the key sectors of the Indian Economy. Not only is the sector one of the highest foreign exchange earners, but it is also one of the largest employers, employing about 5.5% of the total workforce. An industry of such a magnitude, contributing more than 7% of the country's GDP, assumes a lot of importance for thought leaders to ensure sustainable growth.

The growth trend in the Foreign Tourist Arrivals (FTAs) in India, which is about 8 million (0.6% of the population) is quite less when compared to the ASEAN nations (15.3%), OECD nations (48.7%), GCC (85.5%) and other emerging economies (5.5%). This not only highlights abysmally low penetration levels, but also underlines the untapped potential that can be capitalized with the right mix of infrastructure, safety & security, and speed & convenience of the entire travel life-cycle from bookings to sharing feedbacks.

The explosive growth in Domestic Tourist Visits (DTVs) that grew at a CAGR of 13.6% over the last 24 years – standing at 1.43 billion tourists is a testimony of the fact that with speed, safety and convenience of transaction from a traveler's perspective, the future growth would also continue to be on an exponential trajectory.

Therefore, with the objective of bringing out the immense potential in T&H Industry that can be tapped by adopting digitalization, the knowledge report from Avalon Global Research (AGR) and FICCI 'Travel 2.0 – The Next Generation of Travel' aims to unravel how technology was and is going to be an enabler in defining the future of this industry. This report not only focuses on the evolution of T&H industry from the analog age to the digital age, but also brings in the role of digital adoption in each stage of such evolution. The report also highlights how the customer perception is changing from a mere user of the T&H products and services to experiencing the products and services. Such trends are now defining the rules for the operators of this industry on how to continuously innovate and customize the package of the travel offerings, thereby creating value differentiators. The report brings in key suggestions for all stakeholders of the T&H Industry that not only catapults the speed and convenience of the business from a user perspective by further integrating digital platforms, but also enhances and takes the user experience to the next level.

We are very certain that this knowledge report would be an extremely useful reference, and will give all stakeholders the much needed direction towards digital revolution for a sustainable growth of the T&H Industry in India.

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Executive Summary

The travel and hospitality (T&H) industry in India has undergone a sea change over the last four decades, thanks to the technological leapfrog. Technology in the Indian travel industry has come a long way since the Global Distribution System (GDS) to the use of mobile applications.

The introduction of GDS marked the beginning of technology adoption in the industry. GDS changed the process of travel bookings, making it easier and swifter than ever before. The wave of increased internet penetration and the emergence of Online Tour Agencies (OTAs) at the advent of the new millennium further progressed technology adoption. Social media platforms emerged as a major influencer in the 2010s, riding on the higher adoption of smartphones.

The travel and hospitality industry grew both organically and inorganically after the year 2000. Growth was characterized by higher competition among players and emergence of India as a 'global tourist hotspot'. This coincided with the rise of India as an economic power, which triggered the influx of business travelers.

The introduction of 'budget airline' concept played a major role in boosting domestic travelers, thereby paving a way for the advent and growth of various support industries. Entry of big brands in the budget hotel segment coupled with increased affordability further drove domestic tourism growth. In the domestic travel circuit, another top segment was spiritual tourism owing to better connectivity to holy places.

Extensive efforts by the government to promote India as a tourist destination coupled with the presence of a large number of Indian diaspora resulted in outbound tourism growing at a CAGR of 10.46% over the last five years. Relaxation in forex rules and investor friendly business policies have added to the increase of business travelers – both inbound and outbound.

In 2015, leisure travel spending dominated the overall travel spending, accounting for 83.2% of total travel spending. This comes on the back of changing attitude of Indians towards travel and higher spending due to availability of easy finances.

The typical T&H landscape value chain players are categorized as Service providers, Aggregators and End users. The emergence of OTAs has brought many technological innovations in the online travel segment

The emergence of OTAs in the early 2000s led to a revolutionary change in the T&H landscape. The OTA service model offers multiple services through a single platform. Higher penetration of smartphones and internet further fueled the adoption of OTA platforms.

With this, the travel booking process underwent a significant shift from physical to web bookings, and now to mobile platforms. The aggregation and integration of all modes of transport and stay options under a single platform has encouraged users to shift in favor of OTAs. The Indian T&H industry is also further set to boom in the near term as tech-savvy millennials largely prefer to book their travel online.

The Indian government has been a key contributor towards the T&H industry's digital growth by facilitating pathways for easier technology adoption

In the past few years, the government has extensively pushed digitalization across the sector, with a huge step in this endeavor being the introduction of E-Visa in January 2015. The government has recognized huge potential of this segment as a contributor to the country's GDP. In 2015, the industry's contribution to total GDP stood at 7.05%. During the same period, inbound tourism grew at a healthy CAGR of 6.25%.

The future of the sector looks promising. There should be a concerted approach towards robust data capturing and integration, paperless transactions, multi-lingual capabilities, and customization. The T&H industry carries the potential to reach the next level with adoption and enhancement of technologies such as cloud computing, Internet of things (IoT), virtual reality and many more.

The internet connectivity in rural areas remains a cause for concern. To top it all, lack of trusted and secure payment mechanism also currently plagues the country. Most of the apps and websites in India do not offer language preferences, despite Hindi being the most spoken. In order to successfully reach the masses, it will be imperative for stakeholders to touch upon these areas.

Presently, technology has reached various levels in the T&H sector, bringing transparency and swiftness to the entire process. These include: booking different modes of travel under a unified platform, several online payment modes, mobile app as a virtual guide and the option to share and review through social media.

However, there are certain limitations in the roll-out of technology which could be well addressed by relevant entities. Apparent disconnect between the government and private entities when it comes to sharing data limits the process of collecting, managing and analyzing this information. Integrating the two can help the Ministry of Tourism keep a tab on things that are currently unaccounted for such as purpose of domestic visits, number of hotels and reason for stay, statistics on intercity travel using all forms of transportation.

Automation in the form of Internet of Things (IoT) and robotic technology is an area where the industry is taking baby steps. The implementation of cloud technology on an entity level will further help service providers cut down costs, improve productivity and help expand their businesses.

Virtual Reality (VR) and Augmented Reality (AR) are two technologies that come with enormous potential to have a bigger impact among consumers while experiencing digital travel. These technologies would require proper infrastructure to support them.

Additionally, risks including lack of secure payment gateways and transfer of personal user information across platforms can be mitigated by building a secure infrastructure with participation from the government, its institutions and private players.

Taking cue from successful experience of other economies, the Indian T&H industry too can display its huge potential if the stakeholders embrace digital technology

Countries like Australia and Belgium have leveraged digital platforms to ease their travel process and enrich consumer experience. These nations largely worked to adopt digital platforms such as social media, big data analytics, automation of documentation process, digital payment methods, just to name a few. These initiatives helped them accelerate industry growth while enhancing the overall experience of their travelers.



01

**Role of Technology in
Transforming Travel
Industry from Analog
to Digital Age**

1.1 Evolution of Overall Travel Industry in India

The Indian travel industry has evolved over the years, driven primarily by stakeholders' adoption of technology coupled with strong government initiatives

The travel industry has come a long way since the Reserve Bank of India's (RBI) restrictions on forex entitlements, P form approvals, manual bookings, fixed air ticket prices, monopoly in the airline segment and traditional 'lock and key' operations seen during the 1970s and 80s. The introduction of Global Distribution System (GDS) in the 90s was followed by the end of airline monopoly. The new millennium witnessed the birth of dynamic

pricing, e-tickets, low cost airlines along with digitalization in airline and hotel distribution. These enabled customers to make informed decisions. Growing internet penetration, emergence of online travel agents, and initiatives taken by the government and private entities have furthered industry's transition from 'Analog' to the current 'Digital' era.



Figure : Evolution of Travel and Hospitality Industry

1970s

- Monopoly in the airlines segment
- Fixed prices and limited destinations offered by airline carriers
- Manual Booking Process
- P form approval required for traveling abroad along with stringent restrictions on Forex entitlements

1980s

- Automation introduced in certain operational processes in hotels
- Continuation of manually booking airline tickets
- No change in the monopoly scenario in the airlines segment
- No change in price dynamics and destinations by airlines
- P form approvals abolished and Forex restrictions were relaxed
- 1981-1990 : FTA CAGR: 3.3%

1990s

- Tax incentives were offered to players/ investors to attract investments
- GDS was introduced providing dynamic inventory for travel agents
- Rise in number of 3-4 star hotels
- Monopoly in airlines ended with the introduction of private domestic airlines
- Advent of Travel Management Companies (TMC)
- Online travel bookings due to penetration of the internet
- 1991-2000 : FTA CAGR: 5.2%
DTV CAGR: 14.2%

2000s

- T&H became a joint Central – State government sector
- Automatic route was granted for FDI in hotels and tourism
- Low cost airlines intensified competition, giving rise to dynamic pricing
- E-ticketing and Online Travel Agents made bookings easier
- Introduction of web distribution of rail tickets by IRCTC
- Inventory of airline carriers increased many folds
- Liberalized Remittance Scheme aided in smooth transfer of foreign currency for payments
- Corporate TMCs were being sought after for business travel solutions
- 2001-2010 : FTA CAGR: 9.6%
DTV CAGR: 13.6%

2011+

- 5/20 rule replaced with the 0/20 rule for airlines to offer international services
- Government initiatives such as PRASAD and Swadesh Darshan were implemented to promote pilgrimage tourism
- Social media platforms emerged as a major influencer
- OTAs and other travel and social media apps introduced
- More international and tier III & IV locations added to carriers' inventory
- Exponential increase in online booking of hotels, airlines and railways
- 2011-2015 : FTA CAGR: 6.2%
DTV CAGR: 13.4%

1.2 Evolution of Technology Trends in Travel and Hospitality

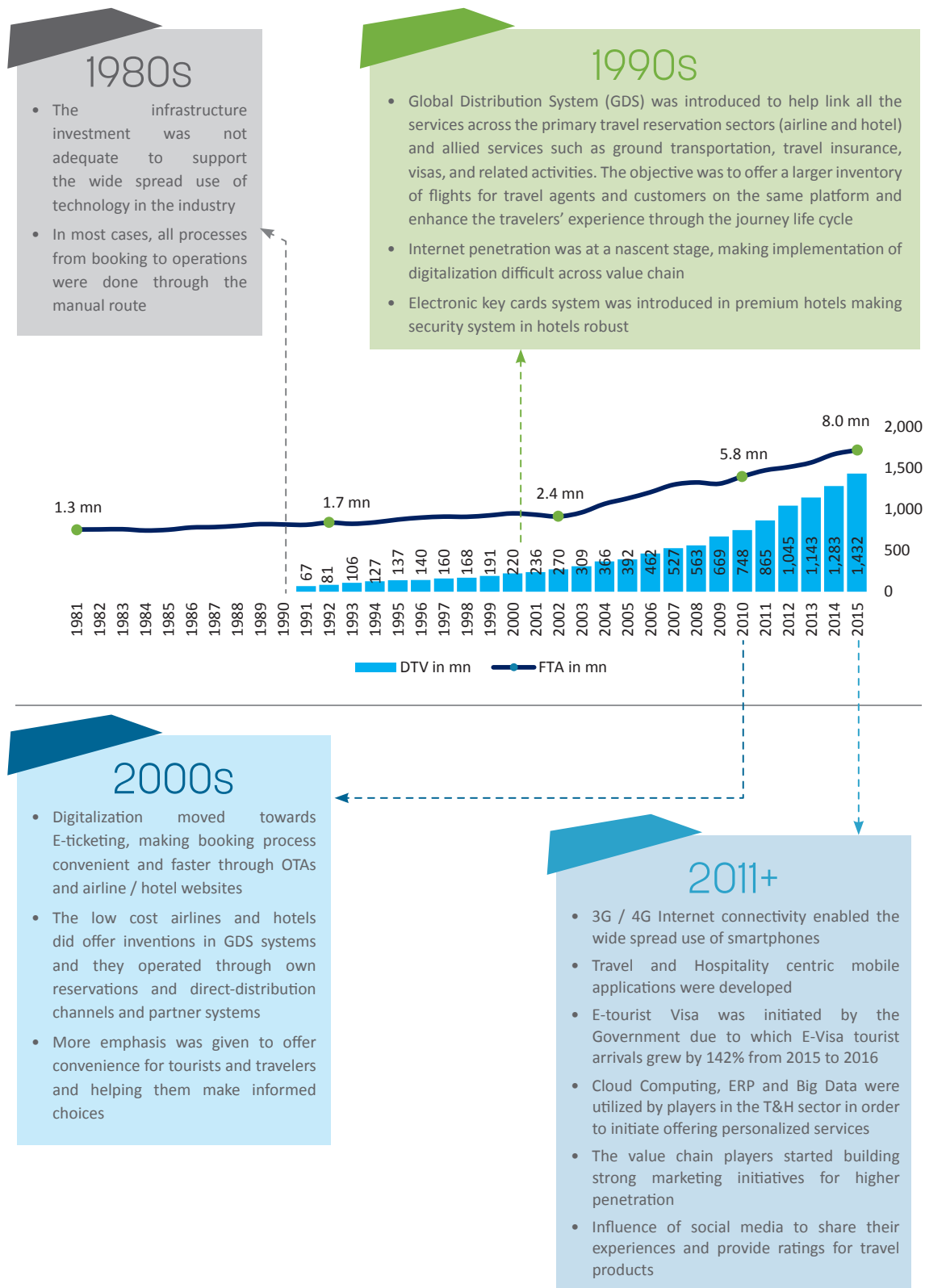
During this evolution period of T&H industry, technology played a pivotal role. Technology too evolved at every stage, making adoption of digitalization much easier for members in the value chain

The gradual move from manual tickets and website based bookings to the current use of the more convenient smartphones coupled with private and government efforts to promote digitalization has translated to higher footfalls in Domestic Tourist Visits (DTVs) and Foreign Tourist Arrivals (FTAs). From a customer point of view, choice of selecting the best packages/ travel products

from multiple inventories, the ease of bookings and options for seamless online transactions have made traveling more convenient and faster. Additionally, service providers such as airlines and distributors such as tour operators, TMCs and OTAs, adopted digitalization and automation to develop greater productivity and offer the customer a unique travel experience



Figure : Number of FTAs and DTVs from 1981-2015 in mn



Note : Statistics for DTV from 1981-1990 are not available



02

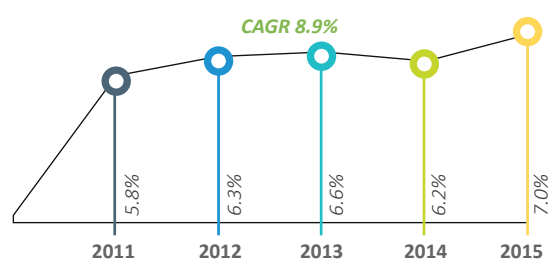
**Travel and Hospitality
industry in India -
Present Scenario**

2.1 Overview

Being India's largest foreign exchange earner, the T&H industry contributed to 7.05% of total GDP in 2015

The Indian travel and hospitality industry is one of the largest foreign exchange earners (USD 21.07 bn-2015) for the economy. Rising disposable income and enhanced services offered by hospitality industry are the key factors that are leading to an increase in leisure trips, thereby giving a boost to the overall segment. Increasing share of India in global business and trade is increasing business travel, thereby contributing to industry growth.

Figure : T&H contribution (%) to India's total GDP



Tourism & Hospitality Industry in India, 2015

In 2015, the T&H industry contributed 7.05% share to India's GDP, and was ranked 11th among 184 countries in terms of T&H contribution to total GDP.

Travel & Hospitality Snapshot (2015)

GDP: Direct Contribution (in USD)	USD39.1 bn
GDP: Direct Contribution (%)	2% of total GDP
GDP: Total Contribution (in USD)	USD121.9 bn
GDP: Total Contribution (%)	7.05% of total India's GDP
Employment	23,454,500 (5.5% of total employed citizens)

Economic Impact, 2015, World Travel Tourism Council

2.2 Type of Travel

Over the years, the T&H segment has witnessed a sharp increase in footfalls from both domestic and international destinations. The growth has accelerated further due to ease of connectivity and an increase in the number of distributors offering international destinations at varied price and interest points

2.2.1 Type of Travel based on Destination

Inbound travelers

(Individuals residing outside traveling to India)

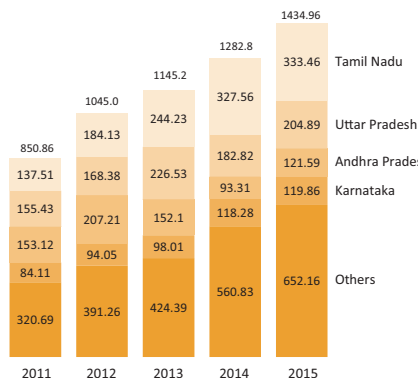
- The largest number of inbound travelers in 2015 were the US nationals, accounting for 15% of total travelers, followed by Bangladesh (14%) and the United Kingdom (10%)
- The implementation of 'E-Visa' in January 2015 has contributed to an increase in the number of Foreign Tourist Arrivals (FTAs)
- The government's efforts to promote India as a 'wellness and medical' tourist destination is also one of the reasons contributing to the rise of inbound travelers

Domestic Tourist Visits (DTVs)

(Individuals traveling domestically)

- The number of individuals traveling within the country in 2015 increased by 11.6% over the previous year
- Elements such as better rail and road connectivity, budget tour packages, range of hotel options and evolving lifestyles drive domestic visits
- Another reason that has led to a surge in domestic visits is the fact that urban travelers prefer to take five-six short weekend trips instead of one traditional big vacation in a year
- Higher number of business travels
- DTVs also include trips taken by foreign nationals domestically

Figure : Domestic Tourist Visits by State (in mn) 2011-2015

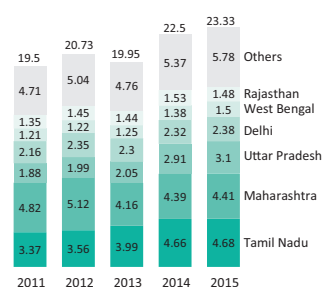


Outbound travelers

(Individuals of Indian nationality traveling abroad)

- While a large number of outbound travelers depart for business purposes, there is a substantial number of Indians that take holidays out of the country
- This trend is mainly fueled by an increasing middle class and the entry of international Low Cost Carriers in the Indian market

Figure : Foreign Tourist Arrivals by State (in mn) 2011-2015



Ministry of Tourism

MARCH 2017 |

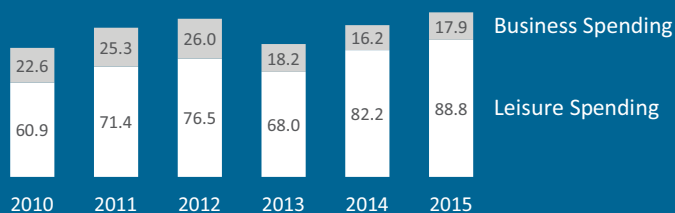
2.2.2 Travel by type of traveler

Leisure travel has always had a lion's share in the overall T&H segment. However, the business segment experienced dynamic growth over the last five years

- Leisure travel has dominated travel spending in India over the past five years, accounting for a little over 83% of the total spending
- According to the Global Business Travel Association, India is the 10th largest business travel market in the world, expected to be the seventh largest market by 2020, surpassing Brazil, Italy and South Korea
- Typically, corporate travel bookings can be done in two ways - assisted or non-assisted. In assisted bookings, the user seeks the assistance of certain entities to help him/her book tickets and hotels at the best available deal. The entities aiding in these kind of bookings are travel management companies (TMCs). These companies equipped with an access to GDS and travel portals, help in making bulk and real-time bookings
- In non-assisted bookings, the traveler books the trip on his/her own using transactions available online and a culmination of reviews and feedbacks



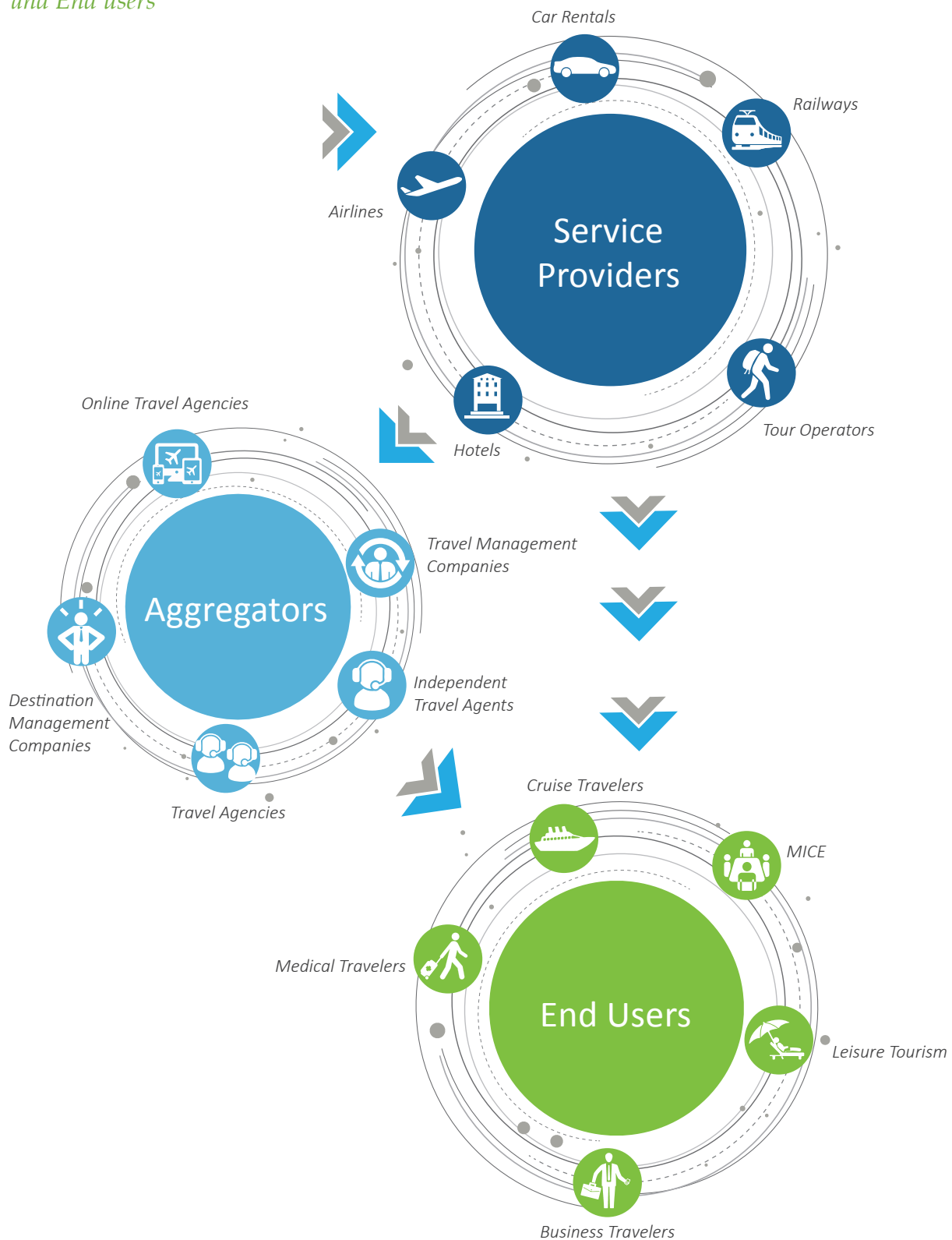
Figure : Business vs Leisure Spending, 2010-2015 in India (USD bn)

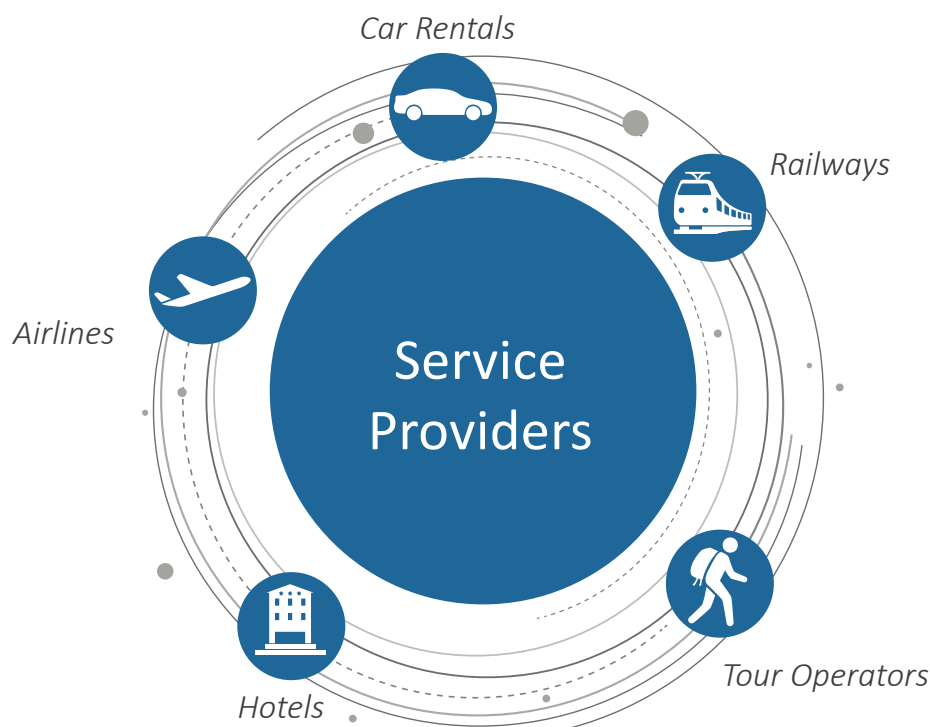


Economic Impact, World Travel Tourism

2.3 Travel and Hospitality Value Chain

The T&H industry value chain players are categorized as Service providers, Aggregators and End users





Airlines

- The Indian aviation industry was estimated at USD 16 bn in 2015 and is expected to become the third largest market by 2020
- Total number of travelers flying by airline services in FY16 stood at 85.57 mn in India
- Bookings are done mostly online either directly via an airline website or OTAs, travel agents and other aggregators

Railways

- A network of 19,000 trains connecting 8,000 stations, carrying 23 mn people daily
- Indian Railways (IR) passenger tickets revenue FY16 - USD 6.5 bn
- Revenue from passenger ticket sales contributed 27% of overall Indian Railways revenue in FY15, while freight provided 68%. The remaining 6% was from other sources such as parcels and miscellaneous items
- The Indian Railway market is expected to grow at a CAGR of 9.07% to USD 44.5 bn by end of FY20 (from USD 25.2 bn in FY16)
- IR runs an online portal "IRCTC" that has been the popular mode of booking, apart from travel agents and ticket reservation counters at railway stations

Tour Operators

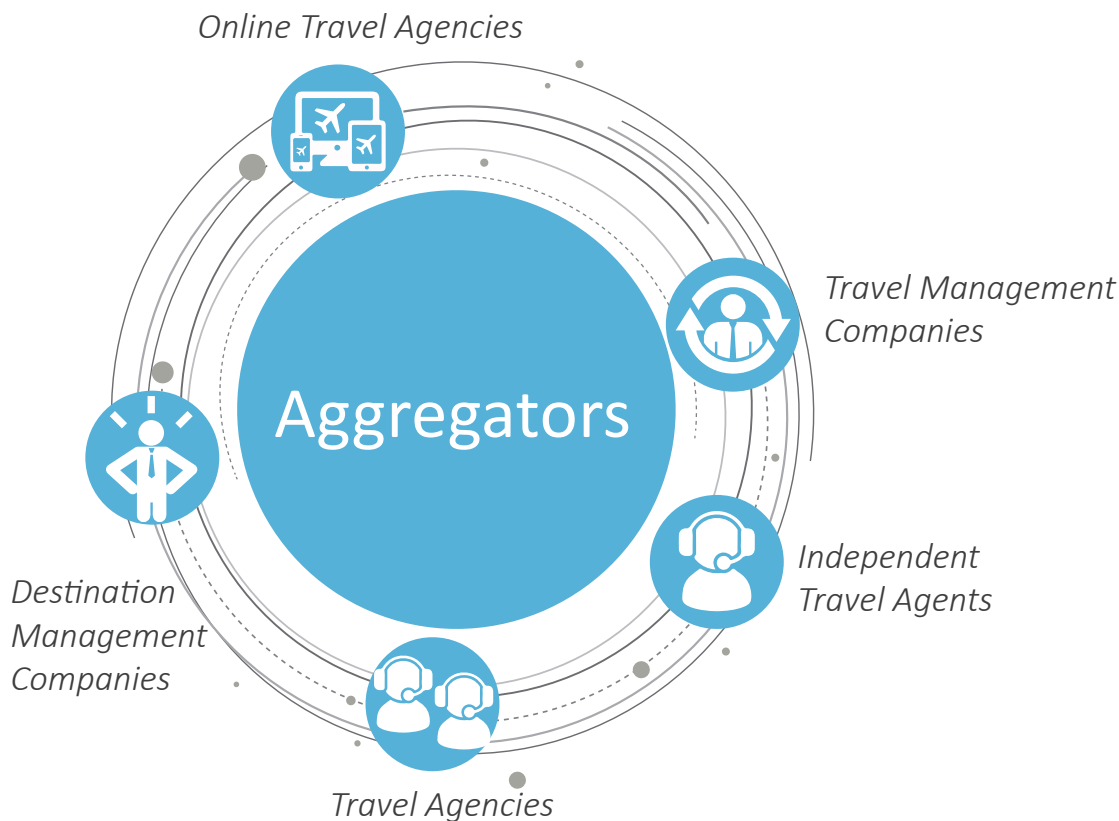
- One-stop-shops for holiday planning and execution
- Offer customized holiday packages with itinerary and tour executives

Car Rentals

- The car rental market was estimated at USD 9 bn (2015), with 90% of this market being organized and the rest being unorganized. This market is expected to increase at a CAGR of 24.6% from FY15 till FY19
- In addition to public taxis, the private organized sector includes:
 - Taxi on-demand services such as Meru, Uber, Ola, etc.
 - Self-Drive-Zoomcar, Autoriders
- Most of taxi on-demand services offer online (mobile app and web-based) and offline services and extensively use GPS

Hotels

- India currently has over 200,000 hotel rooms spread across hotel categories and guest-houses and is presently facing a shortfall of over 100,000 rooms
- The online bookings are either through hotel websites or aggregators such as OTAs, independent travel agents, Destination Management Companies and Travel Management Companies
- Cruise operators, water activities, safaris and insurance are all provided by miscellaneous operators



Online Travel Agencies (OTAs)

- Online Travel Agencies provide travel services ranging from travel tickets to travel insurance across all travel product segments
- The Indian OTA market presently accounts for 44% of the total T&H industry
- Make My Trip being a market leader is closely followed by Cleartrip and Yatra
- International OTAs include Expedia, Airbnb and Kayak

Travel Agencies

- Brick and mortar shops where travel agents assist in holiday planning and travel booking
- Book tickets, accommodation, tours and provide insurance, visas and other allied services

Travel Management Companies (TMCs)

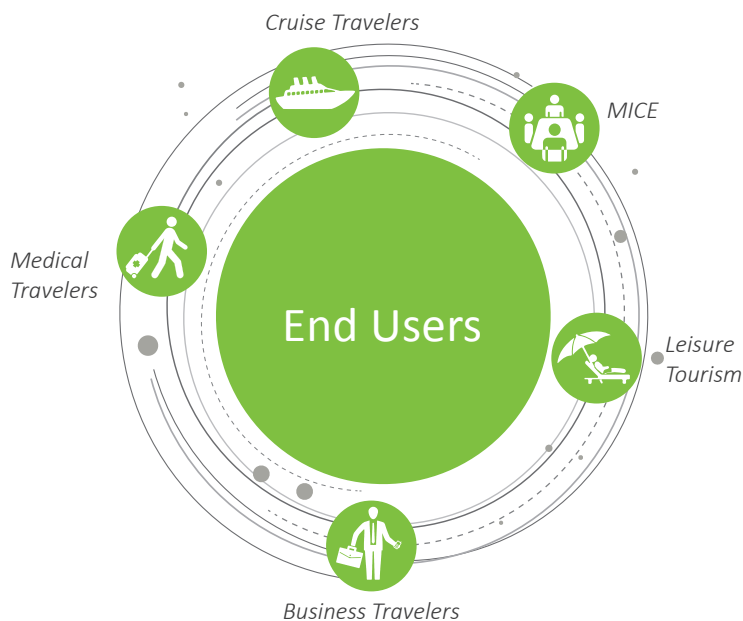
- TMCs often implement corporate travel for multinational companies. e.g.: ATP Group

Destination Management Companies (DMCs)

- These companies offer services based on its knowledge and experience of a region. This includes airport pickups, passes to concerts, galas, dinners and information on activities in and around that region

Independent Travel Agents

- These agents are self-employed and usually have tie-ups with various vendors to help facilitate necessary bookings. These agents help travelers customize their trips and in some cases work with travel agencies on a commission



Business Travelers

- Business spending accounted for 16.8% of total travel spending in 2015

Medical Travelers

- Medical visas issued between January and June 2016 totaled 96,856, compared with 134,344 issued between January and December 2015
- India is poised to become a medical tourism hub. Expert doctors and trained staff, well maintained facilities and cheaper cost of surgery are the key reasons for this unprecedented growth in the number of foreigners arriving into the country on medical grounds

Cruise Travelers

- The Government of India is capitalizing on India's 7,500km long coastline by promoting the country as the next hub for cruise tourism

Leisure Tourism

- Holiday spending accounted for 83.2% of the total travel spending in 2015
- This segment of tourism can be further categorized as follows:
 - **Spiritual tourism:**
 - Temple tourism dominates the domestic tourist visits, with a majority of domestic tourists traveling for pilgrimages or yatras
 - **Adventure tourism**
 - India's versatile geography makes it an attraction for adventure tourists

- According to a study by Ministry of Tourism, close to 3.1 mn people (Indian and foreign nationals) traveled within India for adventure purposes in 2015
- **Visiting Friends and Relatives (VFR)**
 - According to a UN report, 16 mn Indians are settled abroad as of 2015. As a result, a large number of Indians travel abroad with an intention to visit friends and family
- **Sports Tourism**
 - A number of major sports tournaments have been conducted in India over the last few years, be it the Commonwealth Games, 2010 or the ICC World Cup, 2011 or the Formula One Grand Prix held in Noida (Delhi / NCR)
 - This led to the emergence of sports tourism which saw foreigners from all over the world arriving to watch the games
- **Wellness Tourism**
 - Tourists come to India for the purpose of promoting health and well-being through physical, psychological, or spiritual activities
- **Education Tourism**
 - Student tours segment includes students traveling domestically or internationally for an educational or recreational purpose
 - Educational tours to places such as NASA, ISRO, Louvre, etc. are gaining popularity as an extension of classroom teaching. Tour operators offer specialized packages for students in order to make it lucrative segment
- **Weekend tourism**
 - In recent years, opting for multiple weekend getaways are gaining popularity among urban Indian families

MICE:

- MICE is meetings, incentives, conferences and exhibitions
- These are trips often arranged and organized by companies or associations for members/employees to congregate and share ideas

2.4 Online Travel and Hospitality Market

The internet/web-based travel has a significant share in the T&H segment. Smartphone/tablet penetration and direct customer interaction through various social media platforms have resulted in T&H aggregators reaching out to customers with numerous services at nominal rates.

The Indian online travel industry is estimated at USD 11.24 bn, accounting for 61% of the e-commerce industry in 2015.

Of the total revenue, domestic air tickets and railway tickets contributed 41% and 28% respectively to the online travel market.

The main push comes from the OTAs such as Make My Trip, Go Ibibo, Cleartrip and Yatra, who strive to offer an array of services right from the planning stage to receiving a feedback on the experience.

Figure : Share of service providers in Indian Online Travel Market (2015)

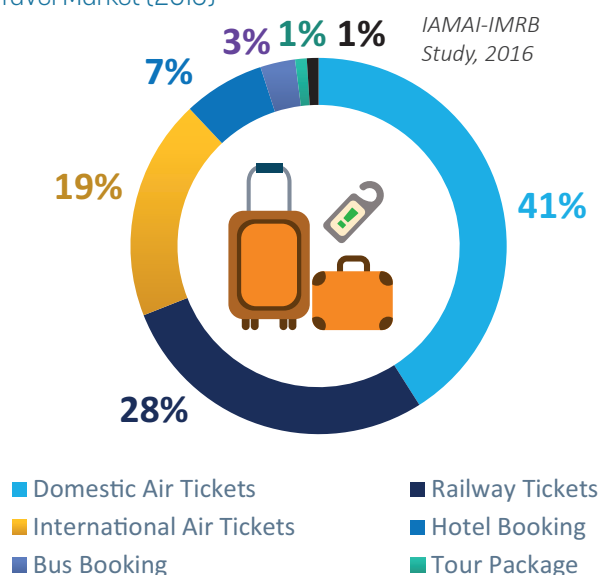


Figure : Offerings Comparison of OTA, Tour Operators, TMC/DMC and Online Travel Guides

Aggregator	Air Tickets	Railway Tickets	Bus Tickets	Hotels	Homestays	Holiday Packages	Cruise Packages	Car Rental/Cabs	Travel Guide	Corporate Tour packages	Executive Apartments	Tour Itineraries
Online Travel Agencies	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Tour Operators						✓	✓		✓			
TMC/DMC	✓			✓				✓		✓	✓	
Online Travel Guides									✓			✓

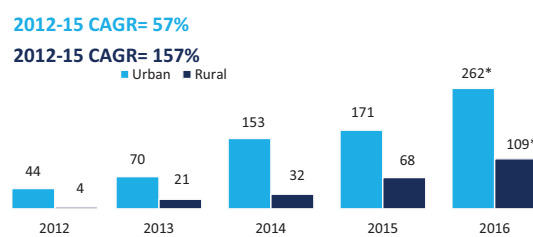
2.5 Trends in T&H Technology / Digitalization Adoption

India has experienced many technological advancements in recent years and has strived to establish varied trends during the same period. Various government initiatives have also helped the steady adoption of digitalization in the T&H Segment

2.5.1 Infrastructure development to improve internet connectivity

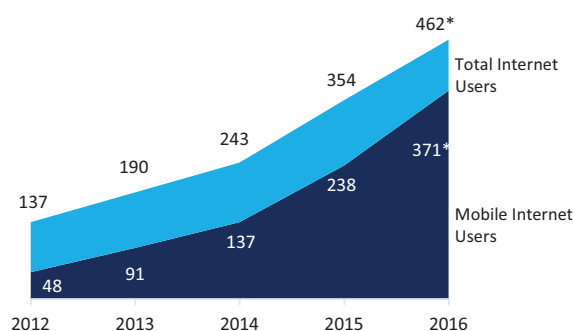
Telecom companies are dedicating their resources towards building infrastructure that supports 4G network for faster internet speeds. The telecom segment is currently facing fierce competition over free data service offerings. The reduced rates and faster connectivity has enabled increased use of mobile applications and online bookings in tier II and III cities. The total number of internet users in India is expected to touch 730 mn by 2020

Figure : Mobile Internet Users in India (in mn)



IAMA/

Figure : Internet Users in India (in mn)



IAMA/

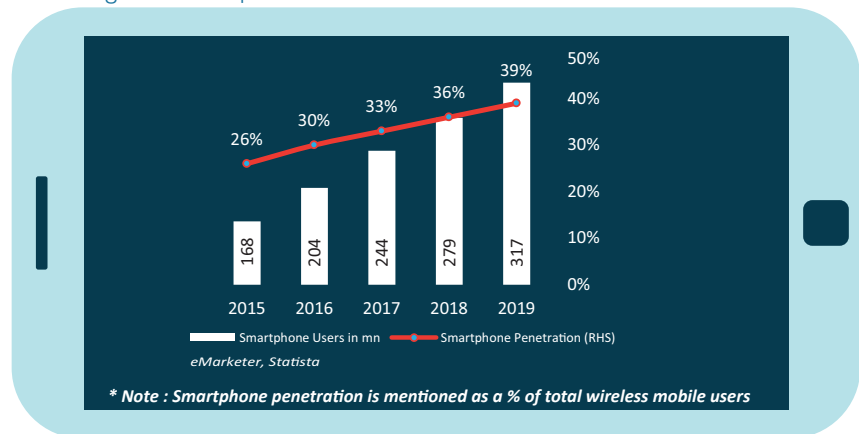


2.5.2 Availability of inexpensive smartphones

Availability of inexpensive smartphones has prompted enormous adoption of mobile internet. There has been a significant shift from web-based bookings to app-based bookings. Smartphones act as conduits for relaying marketing initiatives, providing services such as flight booking, hotel reservations, among others. As of 2015, 21.3% of the Indian smartphone market is contributed by 25 tier II and III cities.



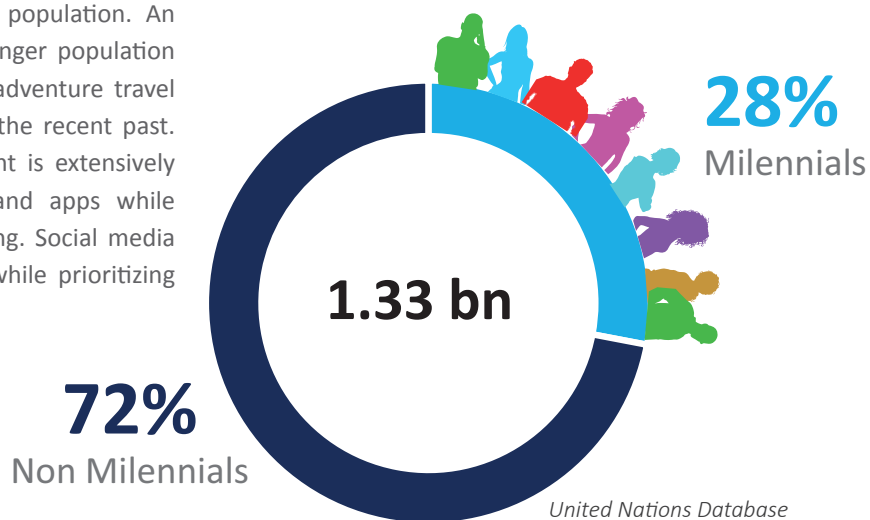
Figure : Smartphone Penetration in India*



2.5.3 Rise of the millennials

Indians under 35 years (millennials) represent 28% of the population. An emerging trend of younger population taking on leisure and adventure travel has been observed in the recent past. The millennials segment is extensively using online portals and apps while planning and transacting. Social media also plays a key role while prioritizing travel choices.

Figure : Share of Millennials in 2016



2.5.4 Increasing penetration of online booking platforms

Figure : Hotel Bookings in USD bn

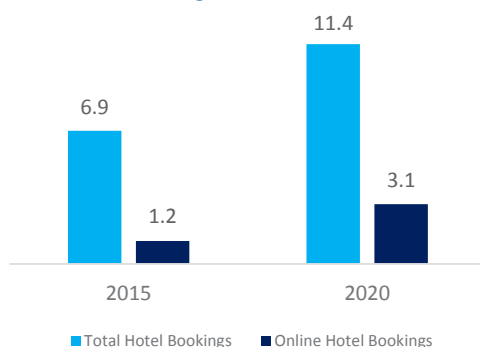
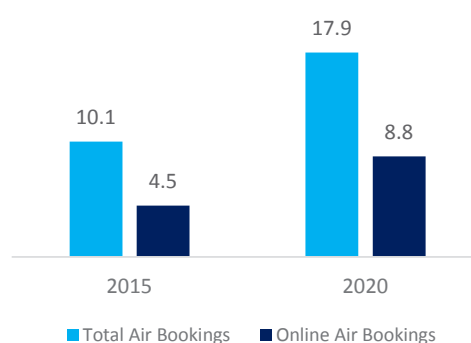


Figure : Indian Airline Bookings in USD bn



PhoCusWright:- India Online Travel Overview Ninth Edition Air Growth Erupts, Mobile Drives Hotel Sales, July 2016

The share of online bookings for domestic air travel and hotel reservations account for 44% and 17% of their respective markets. The integration and availability of these services by OTAs on a single platform has given a major boost to the industry. Additionally, TMCs also offer online booking platforms to its corporate travellers.



2.5.5 Consolidation of OTAs to integrate platforms

The trend of major OTAs partnering/acquiring other entities has been observed in recent years. The consolidation of travel aggregators results in an enhanced user experience as people have access to multiple modes of travel and further

incentivizes customers to prefer OTAs over other service providers. A major move includes the partnership between Makemytrip (MMT) and travel review portal HolidayIQ, and MMT's USD 82.8 mn acquisition of rival ibibo Group.

2.5.6 Adoption of Big Data and real time analytics

Adoption of big data analytics is a major turnaround in the digitalization of the T&H industry. It helps service providers and OTAs implement customization in their offerings. Service providers are leveraging this technology to offer personalized information to the users directly. In the hotel and airline segment, this

technology is helpful in fetching information such as customer buying patterns, grievances and feedbacks to understand the guest's buying preferences and identifying areas to capitalize on by providing customized experience and cross selling additional services.



2.5.7 Government Initiatives

The Indian Government has launched various schemes under digitalization in order to attempt increased technology adoption. The key initiatives include:

- The Ministry of Tourism's 'Incredible India App' to assist the international and domestic tourists to access information about the Ministry of Tourism
- 'SwacchParyatan App' to communicate complaints about garbage pile ups at Archaeological Survey of India protected monuments
- Wi-Fi connectivity: The Ministry of Tourism collaborated with Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL) to equip 100 tourist spots with a Wi-Fi connectivity by the end of March 2017
- E-Tourist Visa: Electronic Visa Application (E-visa) was introduced in 2014 and implemented in 2015 to further facilitate growth in foreign tourist arrivals. It is currently offered to a total of 161 countries as opposed to 113 countries earlier. A total of 1,079,696 tourists visited the country from January to December of 2016, representing a 142% growth from the number of e – visa arrivals in 2015
- Discounts and Incentives on online bookings: In FY18 budget, the government levied service charge on online rail bookings along with offering a 0.5% discount on the same. Such initiatives by the government coupled with promotional discounts and cashbacks offered by e-wallets would further encourage the use of digital payment methods



2.6 Limitations while Adopting Digitalization

In spite of travel and hospitality accounting for 7.05% of GDP, there are still certain gaps and limitations that can be filled to further boost the sector while adopting digitalization

Limited penetration of mobiles and internet in lower tiers

- Today, a third of all holiday bookings are done via mobile phones
- Although there were 371 mn mobile internet users in India as of June 2016, 71% of these users were from urban areas
- In the rural areas accessing the internet through mobile devices is still in its nascent stage. These areas have tremendous potential to drive growth in OTA sales through mobile bookings

Outdated conduct of business in value chain

- Even today, there are a substantial number of travel agents operating out of brick and mortar set ups hesitant to digitalize their business and invest in the same
- The right guidance and incentivisation could encourage them to take a step towards digitalization

Reluctance to book hotels online

- A majority of the hotel bookings are still being done through traditional methods or direct check-ins. This is mainly because users do not entirely rely on OTA reviews and suggestions
- Users have complained that the hotels did not have a record of the bookings done via OTA
- If OTAs were to improve this area of their service, it would encourage more people to book their accommodation online

Mobile Payment Security Issues

- Booking tickets online means that the user has to share personal information, including the place of residence, credit card information and scanned IDs
- Chip manufacturing company Qualcomm claimed in December 2016 that none of the mobile payment apps in India are fully secure. These portals are susceptible to data breaches and digital theft

Lack of technically skilled workforce

- Trained employees are required to handle the backend IT operations of an online system to ensure smooth functioning
- A skilled workforce is capable of safeguarding the tech, ensuring no one is misusing it while at the same time efficiently making use of it

Absence of a multi-language option in travel apps and websites

- According to IAMAI, just about 30% of the Indian population can speak English. Apart from government websites, news apps/websites and certain entertainment websites, most of the data online in India is in English
- Pilgrim travelers, accounting for a majority of leisure travelers in India, usually prefer to access information in their native language. Hence, travel websites and apps should provide local language options for users who wish to transact in the native language

2.7 Extent of Digitalization across T&H Industry

The increasing adoption of digitalization in the T&H segment helps travel service providers to overcome the challenges of competition, reach, service quality and customer preference. Digital transformation helps improve customer experience and increase business efficiency.

TRAVEL

Digitalization at airports:

- Airport digitalization is at a very nascent stage as compared to global standards
- 26 airports in India are equipped with self-check in kiosks
- In April 2016, Mumbai airport introduced baggage self-check in kiosks

Personalization by big data and analytics:

- Airlines are using big data to customize and personalize the flying experience of a customer based on past journey details
- Additionally, they are also providing a service where travelers can web check-in, check schedules, delays, etc.

Online Travel Agencies (OTAs):

- Offer airline, train, bus and ferry tickets, accommodation bookings and travel insurance by real time loading and integration of these services on one platform
- Most services are app based
- OTAs have also started offering personalized services through big data and analytics tools

Digitalization in the taxi segment:

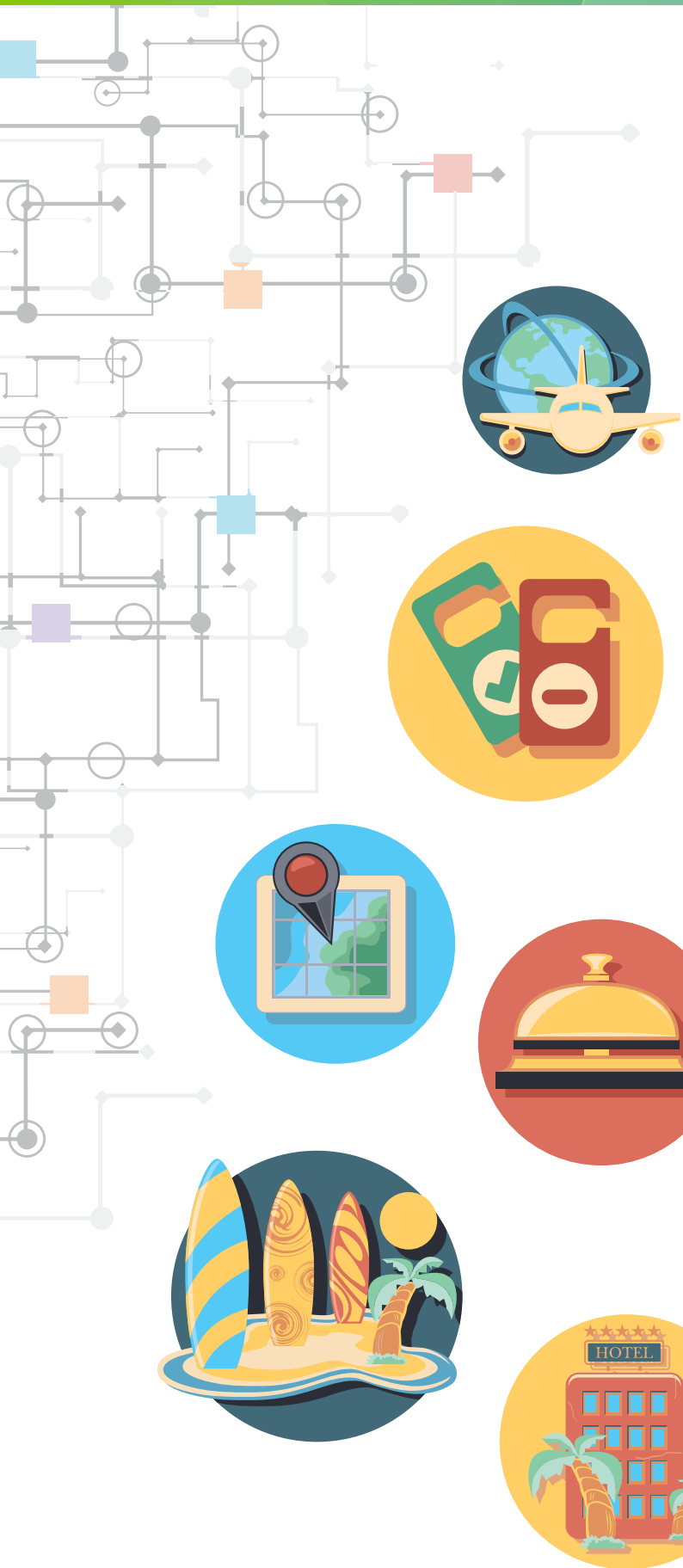
- Indian taxi market size is estimated at USD 12 bn
- Ola is market leader with 52% share followed by Uber at 26.5%
- Ola and Uber mobile apps allow easy bookings and payment on-the-go

Social media marketing:

- India has ~150 mn social media users which has led to an abundance of customer reviews across all platforms
- In recent years, the aviation industry has started leveraging this social media presence to attract more customers

Issuance of E-Visa and online passport application:

- The Government launched E-Visa scheme in November 2015
- The E-Visa scheme extends to 161 countries
- Passport Seva, a portal where Indian citizens can apply for a passport online



HOSPITALITY

Adoption of Property Management System (PMS) and Enterprise Resource Planning (ERP)

- Hotel chains in India are equipped with automated systems like PMS and ERP to maintain various processes such as energy management, quality management, manpower management
- While a PMS allows various departments to function independently, ERP facilitates the seamless transfer of information between these departments; enabling live tracking of revenue, thereby spotting opportunities for further improvement

SaaS Technology

- Adoption of the SaaS technology in hotels helps management in gauging customer preferences, pricing and revenue options, customer loyalty, digital marketing, etc. However, adoption of this technology in India is at a very nascent stage

Personalization

- Luxury hotel chains are integrating smart technology with the usual services to make the guest experience more personalized
- Leela and The Taj have introduced in-room internet protocol based touch phone, smart technology like iPads, iRemotes and hands free bathroom phones

Social Media Marketing

- Customer reviews, social media mentions and best price deals are all instrumental in the decision making process
- Hotels increase online presence by live tweeting contests, quizzes and awarding winners with vouchers and points that can be redeemed later on



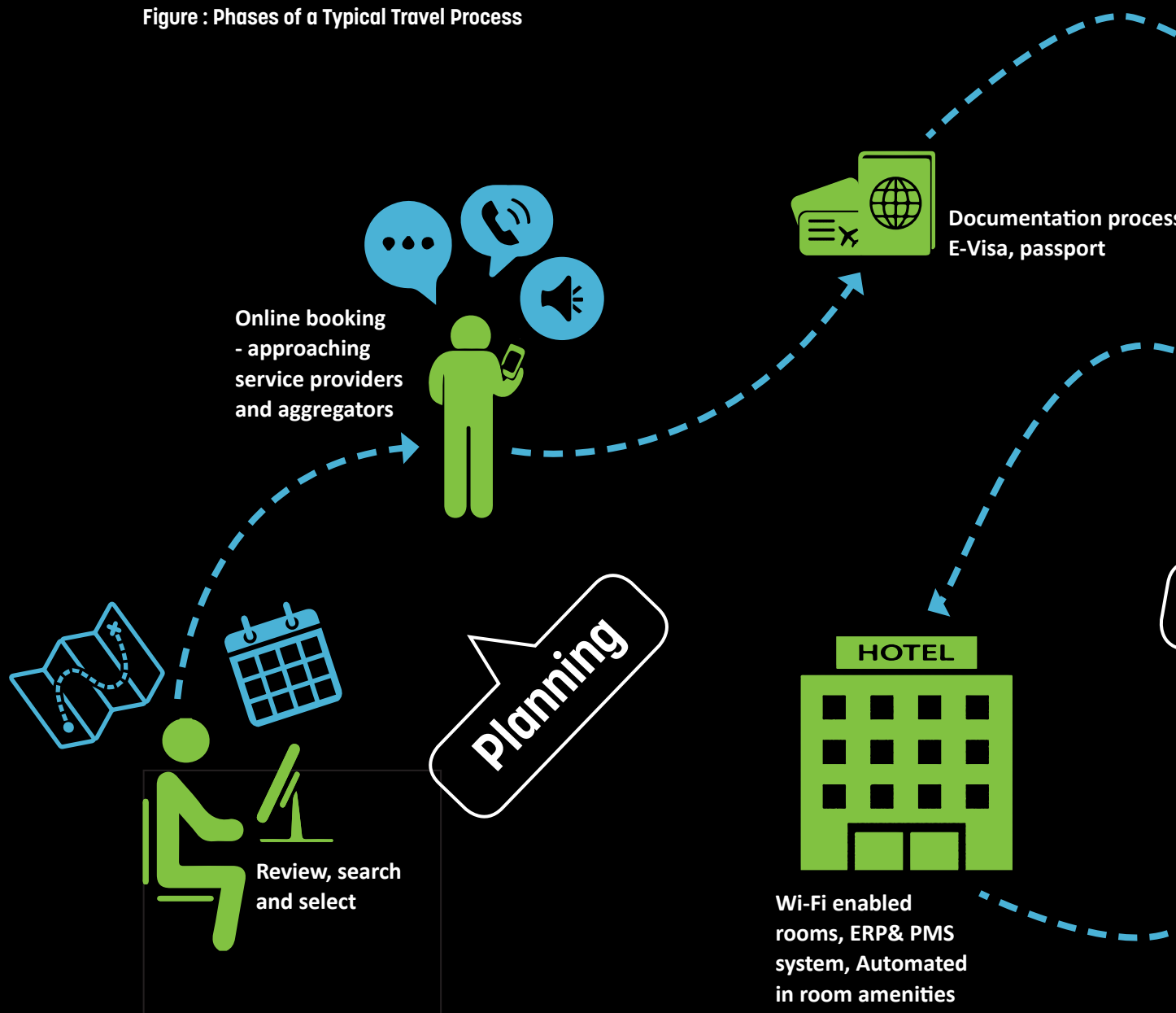
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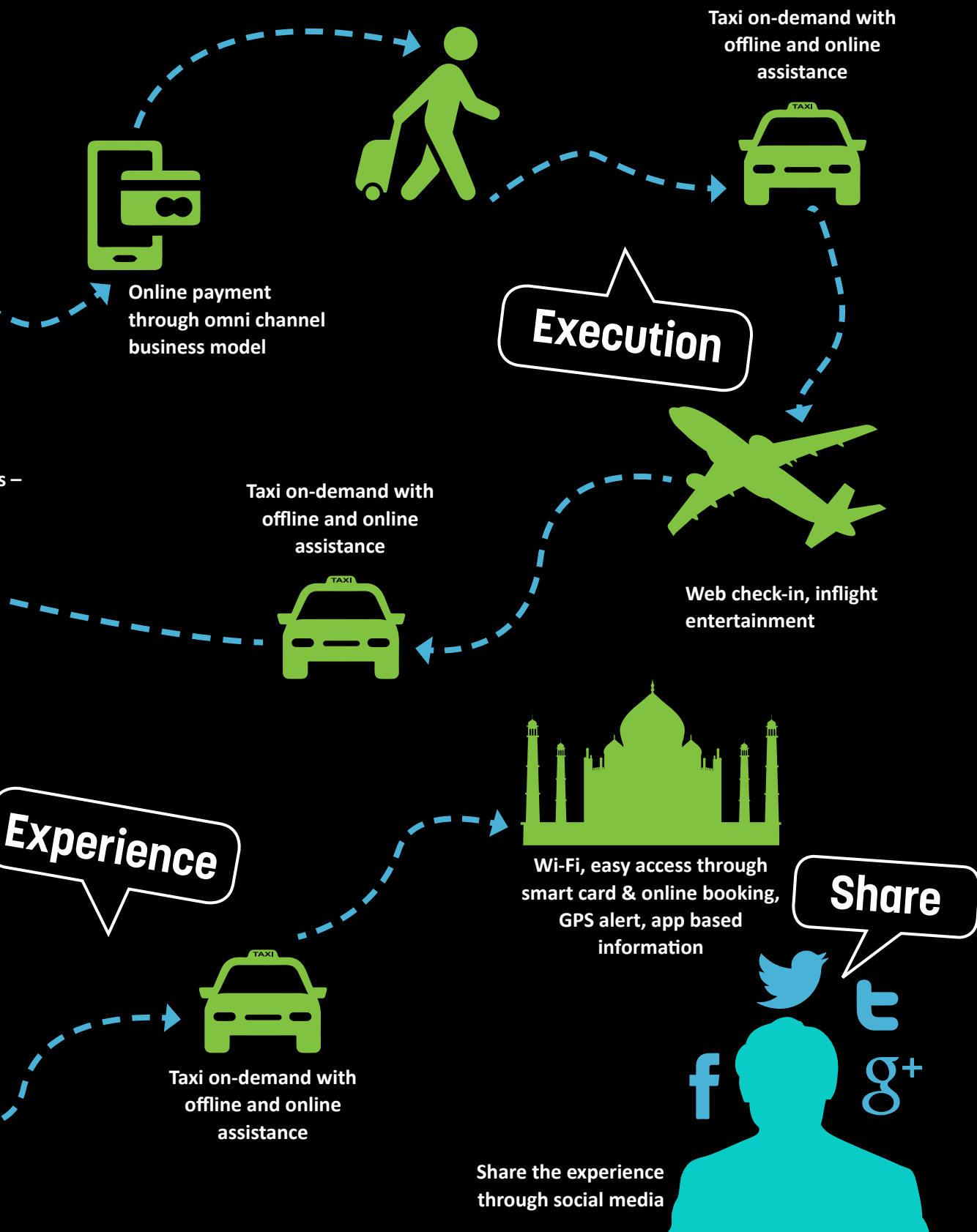
Travel 2.0 - The Process and Benefits

Typical Travel Process and Role of Stakeholders

The inclusion of technology in the travel process has enabled stakeholders to offer better services to the end users, eventually driving growth of the whole industry

Figure : Phases of a Typical Travel Process





3.1 Digitalization while planning travel...

The inclusion of advanced technology in travel planning has helped travelers in planning their trip from the comfort of their own homes through websites and mobile applications

Searching and Selecting Travel Products

- The digitalization of travel has led to the emergence of mobiles apps where users can readily avail following services:
 - Ticket bookings
 - Price comparison
 - Discounts, rewards and loyalty points
 - Reviews and feedback collection
 - Real-time travel plans
 - Suggestions regarding locations/destinations
 - GPS tracking - making travelers well aware and informed of the wide variety of choices and services they can get from travel service providers
- The ease of availability of the above listed processes to the users makes it challenging for the aggregators to offer unique services to the users such as big data analytics. Big Data is being widely adopted by many OTAs in India with an aim to deliver a real-time, personalized and targeted travel experience
- Big data offers capabilities of storing, dissecting and dicing data in order to analyze and draw inferences from it. These inferences are drawn on the basis of - when one will buy (buying propensity) and how much one will pay (willingness to pay)
- It helps to generate useful and actionable information with an aim to retain the customer. For e.g. if the user prefers a four-star property and a non-smoking room every time, the OTA will only show properties that are four stars and above with non-smoking rooms; elevating the booking experience



Google Trips: launched in October 2016 in India, Google Trips is a travel app by Google that organizes the various aspects of a trip including tickets, reservations, list of attractions, etc. all into one app. It further suggests things to do, what to eat, where to eat and what to buy depending on the location—all using big data.

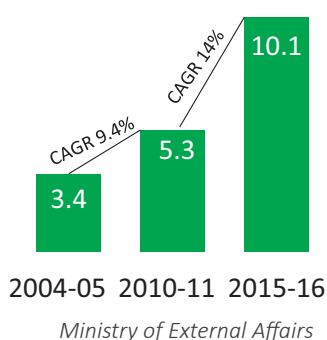


3.2 Digitalization while executing travel...

Government-initiated processes like E-visa and online passport applications as well as technology such as biometric scan for visa processing have reduced the time required to complete travel formalities. Digital payment methods and adoption of omni-channel system have also simplified travel payments



Figure : Number of passports issued in India (in mn)

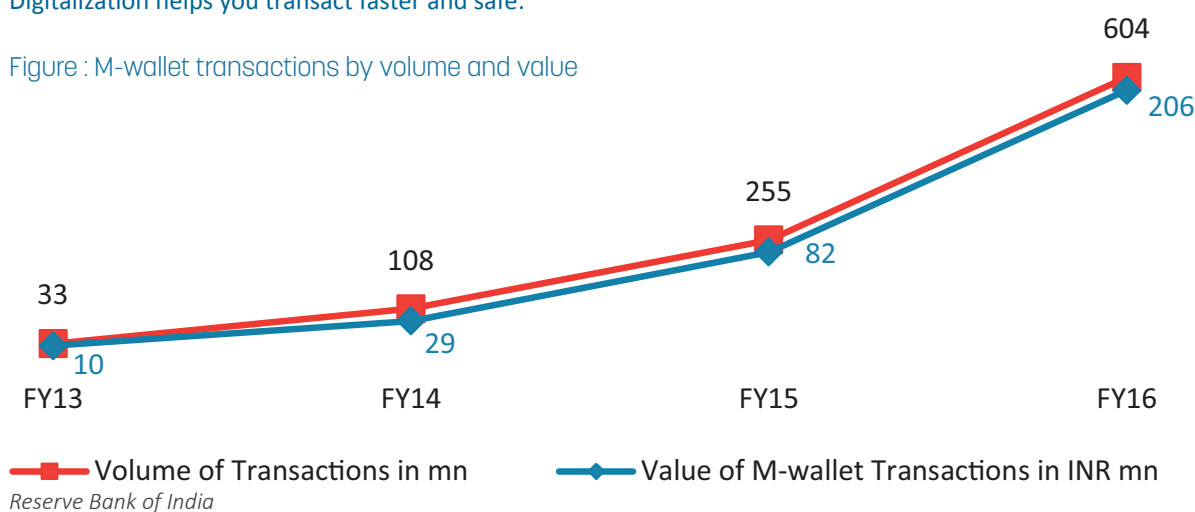


Digitalization streamlines documentation process

- The 'Passport Seva Project' was launched in 2010 by the Ministry of External Affairs in partnership with Tata Consultancy Services (TCS) with a view to make the process of passport applications and issuance seamless and standardized. Additionally, the service enables centralized collection of information
- Starting January 2015, travelers were allowed to apply for an E-Visa for entry into the country, thereby easing the visa application process
- Visa outsourcing companies such as VFS Global enable faster processing of visa applications by leveraging technology to service peripheral activities such as biometric verification, application scrutiny, etc.

Digitalization helps you transact faster and safe:

Figure : M-wallet transactions by volume and value

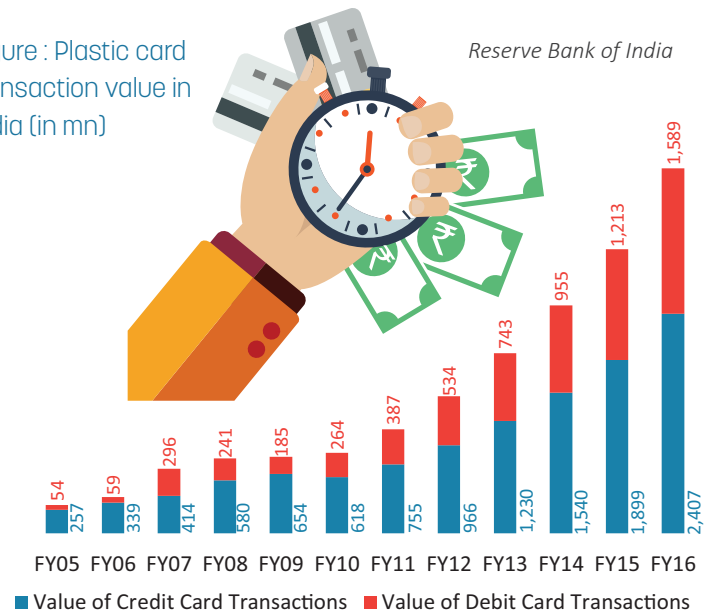


Online Payment

- In India, there has been a development in IT infrastructure that now supports digital transactions such as payment via credit/debit cards, net banking and e – wallets
- In some cases, these payment modes offer discounts, cashbacks, and reward points that further entices customers to use digital payment methods. A substantial rise has been seen in bookings after the adoption of online booking methods

Figure : Plastic card transaction value in India (in mn)

Reserve Bank of India



Omni channel model has been adopted by many travel companies in India including the government-owned IRCTC. Such service providers have embraced web-based and app-based interface

- **Adoption of Omni Channel business model**
 - Higher internet penetration and its accessibility through rapidly increasing number of mobile devices including smartphones and tablets, has significantly changed the shopping experience across industries, including the travel and hospitality segment
 - Customers desire convenience when it comes to the overall process of booking and payments and expect it across all channels of interaction
 - The omni-channel approach provides a seamless customer experience across all available shopping channels
 - Travel company Thomas Cook shows that 93% of travelers either browse for content online or show a preference for booking online. Since travelers are

likely to use multiple channels /screens (desktop, laptops, tabs, smartphones, etc.) for planning and booking their tickets and hotel rooms, travel companies must strive to provide a consistent and superior customer experience by implementing seamless cross-device communication

- Corporate TMCs, OTAs and service providers such as hotels and airlines have omni channel interfaces
- **Online Travel Insurance:** Additionally, overseas travelers can apply for travel insurance online through various private and public entities such as ICICI Lombard, Bajaj Allianz, etc. These services are also provided through OTAs and TMCs, making it easier to purchase travel insurance through single platform
- Forex cards allow travelers to use a prepaid card for cashless transactions while traveling abroad. The same is offered to inbound tourists to transact within the country. The benefits of using a forex card include:
 - These cards are widely accepted all over the world
 - It is easily portable as against carrying around forex currency



- It is cheaper than traditional debit and credit cards, and offers better exchange rates than buying currency notes

- **Full Fledged Money Changers**

- These are licensed institutions that offer foreign exchange services
- They consist of tour operators such as Thomas Cook, banks, hotels, forex dealers in airports and independent dealers in the country

- **Communication services:**

- When traveling overseas, passengers often use international calling cards. Companies such as Matrix who provide these calling cards have set up kiosks at international departure terminals such that travelers can buy the cards at the airport itself. However, with establishments world over providing Wi-Fi, either free or at a nominal cost, travelers are using this service instead of calling cards. Apps like Whatsapp facilitate audio and video calling over data/Wi-Fi, eliminating the need for these calling cards

The inclusion of technology in airport operations, in-flight experience and inter-city and local transfers has made the journey hassle free along with increased efficiency in airport and airline processes

Digitalization of Airline Services:

- Airlines offer online facilities such as changing and / or cancelling bookings, Web check in etc.
- E-tickets on smartphones can be used in place of a physical copy of the ticket as airports are equipped with technology to scan QR codes and barcodes from the smartphone
- Kiosks for self-check-in are available at airports for printing boarding passes. This helps in the reduction of queues at check-in counters
- Kiosks for self-check in of baggage are also available from where a passenger can print the baggage tags and can then proceed to drop off the baggage at a designated location

In flight Amenities:

- Apart from an in-flight entertainment system for each passenger and availability of on board Wi-Fi access, the airlines have initiated offering personalized entertainment options based on a preferred language of the

traveler. However, these choices are limited to customized offerings for the first class passengers and are still at a very nascent stage in India as compared to other global airlines. These services are mainly offered in outbound flights

Digitalization in Car Services:

- Taxi on-demand services such as Ola and Uber provide app based booking of taxis. These apps provide fare estimates, selection of different classes of vehicles based on comfort and price range, real time location of the vehicle and allows the user to save payment details for instant payment through plastic money, net banking or payment wallets. These apps also present the option of booking rides at a later date.
- The advent of these services has eased local and intercity travel for local as well as foreign travelers. Apart from app based services, some car companies also offer web based services to its customers

Like the travel industry, digitalization has helped the hospitality industry to implement changes as per customer demands, and is readily investing

in a fast and robust infrastructure to increase desirability among travelers - be it for business or leisure

Hotel Infrastructure:

- Today, most hotels come equipped with Wi-Fi as guests nowadays travel with smartphones, tablets and laptops. Guests demand uninterrupted network connectivity during their stay, leading to hotels investing in robust infrastructure to support the same

Presently, about one fourth of all the hotel bookings in India are made online either through OTAs or through hotel websites. According to TRAI, India had more than 1 bn wireless subscribers in August 2016 and the number is only expected to grow in the coming years. With the launch of app versions of the OTAs, it is imperative that hotels adopt the PMS system that will help manage their online bookings easier.

- Apart from offering high density Wi-Fi, hotels are also offering access to audio-visual (AV) and digital facilities for conferences during business meetings

Hotel Property Management System (PMS):

- PMS software aids in the automation of all internal operations in a hotel including online bookings
- It is usually a cloud based system that streamlines business by combining the operations of different entities such as HR, front desk, housekeeping, vendor management and Customer Relationship Management
- The concept of PMS was first adopted by large hotels to organize their revenue systems due to their multiple location presence.

Nowadays, smaller hotel chains as well standalone entities are also turning towards PMS as a cost effective solution

Enterprise Resource Planning (ERP)

- ERP is an advanced version of PMS. An ERP integrates the data (e.g. walk ins, departures, stay overs etc.) and gives performance indicators on a real time basis (e.g. revenue, room occupancy variance etc.). Information sharing between different departments becomes easier with ERP
- Luxury hotels like the Taj group and Alila Hotels have already implemented ERP system in their hotels



3.3 Digitalization while experiencing travel...

There are numerous avenues within the travel technology ecosystem that are helping tourists and travelers enhance their experience when visiting tourist attractions and other places of interest. This is achieved with the help of smartphone applications, new technology built into entertainment systems, and automation.

- **Digitalization allows simpler access to destinations:**

The process of booking tickets for concerts, restaurants and other activities has become smooth and convenient with the advent of online booking through smartphone apps and other technologies.

- In India, apps like bookmyshow, insider, etc. provide listings of events and concerts, with an option to book tickets through these apps itself. Discounts and cashbacks are offered to customers based on various promotions involving digital payment modes. For example, bookmyshow offers cashbacks if tickets are booked through a specific payment mode
- In recent years, QR code and barcode have also been adopted

Adoption of smart cards and chipset bracelets also allow hassle free payment options during events. In 2015, Enchanted Valley Carnival event in India had adopted smart cards and electronic bracelets to facilitate payments during the event

- **Mobile apps act as a virtual tour guides:**

- Apps such as 'Nearbuy' provide details about other places a person may visit within the vicinity, thereby making it easier for tourists to understand and plan better
- GPS apps provide accurate locations and real time traffic updates to help travelers plan their route and schedule



Geographic Information System (GIS) technology providers such as Google maps and MapmyIndia provide a 360-degree real time information of nearby locations. This technology is mostly used in vehicle & personal navigation and tracking purposes

- **Digitalization helps enhance Digital Experience: Virtual Reality (VR)** – T&H service providers have recently started exploring the Virtual Reality scene in order to personalize and enhance the customer experience. The Government is using VR to its advantage by using it to promote:
 - Tourism in Gujarat: Offering a 360-degree live action videos of certain tourist locations within the state
 - Tourism in Kerala: Offering 3D virtual reality 'The Great Backwater Experience', at Delhi airport

Such VR experiences offer great opportunities for service providers while marketing their services and also government can use it as a key marketing tool to attract foreign tourists.

4-D Technology - The first 4-D museum in the country is scheduled to open in Gujarat in 2017 for providing a life like experience for visitors. Additionally, Imagica, India's largest amusement park offers rides with combination of 3D images and motions while also offering 4D experience



3.4 Digitalization to share and review the travel experience

India has close to 150 mn social media users. Buying practices are thereby heavily influenced by reviews and ratings based on user experiences.

Using social media to share the experience and improve services:

- A modern traveler today extensively uses social media to chronicle their travel experience. Be it checking into a location on Facebook, uploading a photo on Instagram or tweeting an experience on Twitter
- This trend is expected to prevail and in fact would increase with more social media platforms being introduced. The hotel representatives thus have started interacting with these travelers and leveraging this online presence to get more customers

Majority of travelers when booking online rely heavily on reviews and comments from other users. As a result, hotels and restaurants have become proactive in not only replying to these reviews but are also actively improving their services based on the reviews

Hotel social media teams are promoting their brands by conducting activities across social media platforms. These teams read, review, analyze bookings in order to identify trends that can help them entice new clientele while retaining old customers





04

Challenges of Travel 2.0

Challenges in data integration among industry participants

Certain pitfalls related to infrastructure limitations, expensive software integration tools compatibility and skilled employment are leading to hurdles in integrating i.e. collecting, managing and using data generated through digital sources

4.1 Absence of interlinking between government bodies and private enterprises to share data

The integration of data related to travel industry between Central and State government bodies is currently limited to only identifying and sharing data related to DTVs, FTAs, etc. from the Ministry of Tourism. However, lack of data from private players such as OTAs, airlines, hotels, and travel aggregators is still a prevailing issue with regards to data integration between the government and private entities. The key reasons for the absence of such data integration include:

- Private players are not legally obligated to share annual indicators with the government or general public. Additionally, such entities are not substantially incentivized to share their proprietary data such as total yearly footfall, website & app traffic and realization data in their respective annual reports. Unfortunately, very few entities, mainly public listed companies (makemytrip, ITC, etc) in the travel and hospitality landscape are under such obligation, wherein they provide some insightful data in their annual reports and investor presentations

- Presently, there is no centralized portal to facilitate seamless data integration between government and non-government entities with regards to travel and hospitality

4.2 Issues with implementing data integration across value chain

The biggest hurdles in implementing data integration within the travel and hospitality landscape is the limitations related to infrastructure. These include power outages, limited coverage of fibre optic networks, and other software related issues.

4.2.1 Frail network infrastructure:

Apart from facilitating easy access to various integrated platforms to the travelers, smoother network connectivity and faster internet access also helps in exchange of real time updates such as photos, reviews etc. from the travelers which can be further analysed through big data analytics and other open source programming frameworks

However, poor network infrastructure and frequent power outages in tier III & tier IV tourist areas result in disruption of internet connectivity, minimizing the chances of data sharing. Additionally, only a limited volume of India's population uses faster version of mobile internet (i.e. 3G, 4G) limiting their web experience due to limited features and capabilities

Nearly 60% of Indian users download apps under 2G network. Only a fraction of users enjoy 4G network connectivity while downloading apps. Internet penetration in India has reached 30%, with broadband penetration at 16%. However, in India, internet speed remains low as average broadband speed stands at ~3mbps as compared to a global standard of 6.3 mbps

4.2.2 Lack of quality data:

Organizations such as travel companies in the travel and tourism industry are still lacking relevant quantity and quality of electronic data, which is reducing the growth in the adoption of data integration tools. The absence of refined data is a key barrier in data integration initiatives.

4.2.3 Added cost:

Data integration is an expensive project for Indian companies in terms of licensing and deployment of the integration tools. Data integration is also possible using other methods; for example, in case of data warehousing projects, service providers have codes available that will replicate the functionality of a large-scale data integration tool. Other examples would include storing codes for procedures within the database. Hence, many industry players may avoid spending on data integration software. It also requires hiring of talent and custom-coded development of tools.

4.2.4 Lack of skill development:

In the case of data integration tools like Informatica or IBM, skilled personnel are required for creating and designing those interfaces. Identifying people with the desired skill set to handle and operate the entire data integration lifecycle is a tedious endeavour. Data management and data integration related professionals are expensive to hire as well. In India, there is still a significant shortage of skilled professionals who can evaluate business needs and impact, write the algorithms and program platforms such as 'Hadoop'.

The Economic Survey 2014-15 stated that as per the Labour Bureau Report 2014, the present skilled workforce in India is only 2%, which is much lower when compared to the developing nations





05

Key Suggestions

5.1 Automation using Internet of Things (IoT) and Robotics

Adoption of automation processes such as Internet of things (IoT) and Robotic technology at various stages will minimize the human intervention and help increase the efficiency and profitability

Hotels can adopt various automation systems in order to provide their guests the convenience of controlling multiple functions in their room

- Automation can help hotels offer their guests quick access to services like checking in, room service, ordering extra amenities, etc.
- Some hotels, both in India and abroad are now adopting IoT to automate certain functions in their hotels. This includes automatic door unlock and automation of functions within the room such as turning the lights on and off into apps to further enhance the guest experience
- There are tremendous advantages of adopting these state-of-the-art automation technologies and will help hotels save time during various functions. By using mobile phones to check in, users no longer need to carry key cards with them and drastically cut down the risk of theft. By allowing check in and check out on an app, the guest not only saves on time required to do so, but the need to repeatedly submit the proof of identity (especially for a frequent guest) is eliminated completely
- In India, the aforementioned IoT inclusion in travel technology can be expanded to more hotel chains

A leading international chain of hotels launched a mobile app which facilitates services such as room service and check out thereby eliminating the need of a concierge

Airport automation with the inclusion of robotic technology is gaining popularity globally and is helping in achieving higher efficiency

- Automation at Indian airports is still at a very nascent stage. Most airports in India provide self-check in kiosks. Off late, the Mumbai International Airport has launched baggage check in kiosks, where the passenger can print the baggage tags, attach it to the bags and drop it off at the designated point
- Automation using robotic technology can help Indian airports expedite processes such as check-in, customer service, luggage handling and many more
- Mandatory adoption of technology such as biometric scan at the airport can help better validate the identity of the tourist. The technology offers benefits such as:
 - o Ease/convenience to the tourist while check in process
 - o Increased security measures
 - o Enhanced speed of check in process and making the experience enjoyable for the travelers
- International airports in India can adopt this concept at a basic level first and then implement it on a larger scale
- A robot or hologram could greet travelers when they first enter the airport. This can serve as a FAQ counter where travelers can get information about procedures and timings - just like the robot at Tokyo airport
- Bengaluru International Airport Limited's (BIAL) plans to deploy robotic assistants for check-in and security to assist airport staff is an example of a small step in the direction of automation
- Dubai International Airport, in 2014, launched 'e-gates' wherein passengers holding Emirates IDs can clear passport control services in no time and with no human intervention. By linking the immigration with a national identification card, the government has made the entire immigration process quicker, smoother and hassle free

At Geneva Airport in Switzerland, a robot is in position to scan the boarding pass, check in and send the baggage to the cargo hold area. At Haneda Airport, Tokyo, the robot is interactive, where in fliers can ask it questions on arrivals and departures, check in procedure, immigration rules, etc.

5.2 Exploring the potential of Big Data

The T&H segment should further explore the potential of big data analytics and implement it in every aspect of travel rather than just booking. This makes the overall process more responsive and focused around the traveler's needs as well as preferences, thereby enriching the traveler's experience

The hotel industry is another data-rich industry that captures huge volume of different types of data. The efficient use of analytics can help hotels understand the repeat customers and serve them better

- The hotel industry captures huge amount of data every time the guest checks in and out of the hotel

- The analytical exploration of the data would help hotel industry go beyond their traditional loyalty programs and focus on a more granular understanding of customer behavior, needs, and expectations. Big Data analytics can help in numerous ways to yield better results:

TO PROVIDE THE BEST RATE FOR ROOMS

Certain hotel chains have started using a combination of big data and yield management to gauge the best price at which a particular room can be sold

This is achieved by analyzing the historical data and factoring in the likes and dislikes of guests so as to offer the best rate

TO IMPROVE EFFICIENCY

Hotels have already provided guests with the ability to book hotel rooms using a mobile app, thereby making it convenient to book on the go

Hotels in the West are now trying to go one step further and provide guests with personalized services such as mobile check in, digital key on reaching the premises, liberty to choose the add ons in a room and loyalty points attached with the same

Certain hotels are using big data to forecast occupancy rates so that the company can better manage its finances

TO PROVIDE MORE THAN LOYALTY PROGRAM

Hotels all over the world are offering loyalty programs to their most valued customers

These programs entail users to discounts, complimentary stays and free services when they visit any property of the hotel chain

By using big data analytics, hotels can go beyond the traditional loyalty programs and can explore in depth customer profitability, buying preferences and opportunities that could attract more clients

If Indian hotels were to apply this strategy, the traditional loyalty programs could be replaced with a data centric program. This would have a huge impact on the profits of these programs

The airlines can adopt “collect and analyze” approach through big data and use it to boost ancillary revenue

- Millions of people take flights all around the world every day. Airlines therefore receive and store large amounts of data on a daily basis. This data is now being used by the aggregators to identify gaps in customer service and deliver a better performance
- Indian airlines can make good use of this data so that it can help them serve the fliers better

To personalize offers

- United Airlines has begun analyzing the various factors mentioned in a customer profile. The big data analytics analyses variables such as customer information, previous trips details, previous searches and payment process etc. so as to offer tailor made packages to the fliers
- Domestic airlines should put into use such strategies to retain customers by offering personalized services while simultaneously increasing their customer base

Baggage Status Updates

- Delta Airlines has introduced an app that allows customers to track their baggage when transiting/traveling. The simple baggage tag will be replaced with an RFID (Radio Frequency Identification) system. By doing this, Delta has addressed one of the top most concerns travelers have when flying, that is of their baggage getting lost
- In India, such a system could go long way in solving the perennial problem of airlines of missing baggage. For this system to be

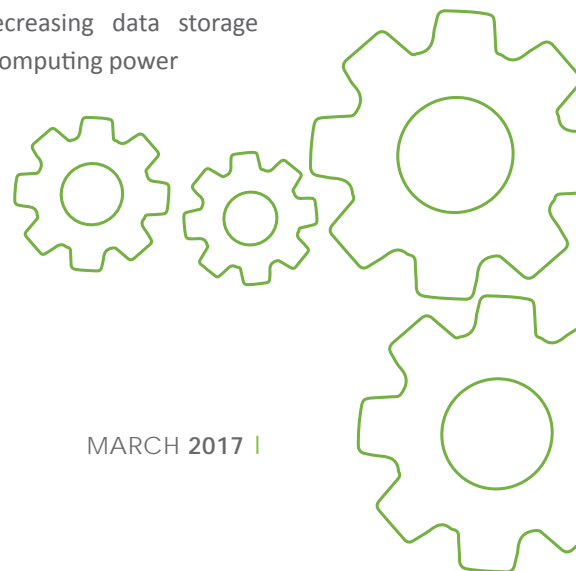
implemented in India, it will require a large amount of infrastructural advancements which can be developed in co-ordination with the Government agencies and private technology providers

Retargeting through big data can help increase potential customers

- The value of big data is currently being utilized at its best to understand customer preferences and offer more personalized services. However, there is still immense scope to utilize big data analytics where in service providers and aggregators can execute retargeting. Customized advertisement, promotional offers and loyalty programs are offered to the users based on the services and products that they have used in the past on frequent basis
- Retargeting has a potential of converting window-shoppers into buyers

Capturing data from various modes can help understand the changing trends and preferences

- To yield more value from big data analytics OTAs should also focus on data capture and integration from varied sources. OTAs can capture data from all modes of travel (train, air, road etc.) and hospitality services (business class hotels, luxury hotels, service apartments etc.) to analyze purpose of travel and changes in preferences
- With tremendous growth in data volume from various modes, the service providers and OTAs should also focus on improving data storage capacity, decreasing data storage costs and enhanced computing power



5.3 Adoption of Cloud Technology

The Indian travel sector is still at a nascent stage when it comes to adopting cloud technologies. This will help travel companies cut costs, improve productivity, and expand business

- Cloud computing has the ability to provide the travel industry with speed and scalability, the key factors that will help manage ever increasing tourist footfalls
- Post capturing of data from various modes of travel and stay by the help of big data, cloud computing technology can also help integration of the data under single platform. This way, a wide array of data will be available on one common platform and operators would have real time access to the data
- In travel segment cloud computing offers scalability; travel companies and OTAs face varied traffic depending on seasonal demand; hence, cloud computing can allow companies to reduce or increase their storage as per their needs without investing in actual resources which demands money as well as additional space
- Cloud computing offers immense security to the data that is being stored, thereby safeguarding the confidential information that users share when making an online reservation
- Apart from these attributes, the cloud offers mobility, an ability to access data from anywhere across the world. For multinational or multi location companies, this saves a lot of expenditure on installation of data systems at each location
- An integration of cloud computing in the hospitality industry will result in improved efficiency and increased customer satisfaction
- In the aviation segment, international airlines such as Delta and Lufthansa have already rolled out cloud computing and now boast of a much more stable and efficient working system
- Cloud computing in India has been adopted in various industries; however, is still to be completely integrated into the travel industry

5.4 Enhancing customer experience using virtual and augmented reality

Experience oriented technologies such as virtual reality (VR) and Augmented Reality (AR) are in at its infancy in Indian T&H segment. However, the industry can explore the use of such technologies as a key marketing tool

The hospitality segment can leverage virtual reality to not only attract more customers but also enhance the guest experience

Virtual Tours of the hotel at time of buying:

- In today's digital age, customers rely heavily on reviews and feedback before making any bookings. Hotels can take it one step further and offer potential guests an immersive 3D experience, that can include a glimpse into the room types, restaurants, spas and recreational spaces, ultimately assisting in making a decision
- Global hotel chains aggregators like Airbnb are using VR to showcase hotel amenities within a hotel-be it to future guests or investors

A leading international hotel chain, announced the "VRoom Service" where guests get an opportunity to experience virtual reality from within their rooms. At present, viewers can experience journeys to faraway locales including Andes Mountains, Rwanda and Beijing

Using VR to shortlist places of interest:

- A spin off of the virtual tour concept could be introducing a similar service for local attractions. This way the guest can first virtually experience the location, and then choose to either go there or look for another place of interest
- An implementation of these concepts in India might elevate India's position as a luxury destination in the future



In the airlines segment, adoption of virtual reality can offer first-hand experience to the travelers and also improve their travel choices

- Much like hotels, airlines can also use virtual reality to provide an immersive and interactive experience to fliers before booking
- In that, fliers can experience first-hand the complete flier experience, right from boarding the plane to touring the destination on landing; additionally, airlines can also showcase first class seats to encourage people to book these seats
- International airlines including Delta, Turkish Airlines, United and Lufthansa are already offering VR experiences at kiosks. Airlines like Qantas have taken this technology to the next level, wherein it plans to provide on-board VR entertainment options

Travel agents too can use VR to their advantage by offering pre-holiday experience to the travelers to make their destination choices easier and quicker

- Post emergence of OTAs, physical travel agencies have seen a decline in revenues as people now prefer to book online. In India, this has led to the closing of a number of mid-sized travel agencies
- In order to offer more enhanced services, international travel companies such as Thomas Cook launched a VR experience to urge customers to visit their marketing offices and experience a vacation destination before booking. This service provides a huge advantage over OTAs as the latter's experience of the location will be restricted to 2D images and videos

- The local Indian travel agencies should also build infrastructure to provide this facility so as to not only attract customers but also gain an edge over the OTAs

Virtual Reality as a technology right now is very expensive and hence will need to find takers in order to start showing any results. But with the invention of cheaper alternatives to the expensive VR equipment in the future, there is hope that this technology will get cheaper

Augmented Reality too can be implemented at various segments, where it can act as a virtual guide for travelers

Augmented Reality (AR) using smartphones offers a background picture in real time with local information overlaid on it. AR technology has the ability to identify the locale and indicate on the map the points of interest as present in the geographical area indicated by the map, acting as a virtual guide for the traveler

Indian Government bodies such as the Gujarat Tourism, Kerala Tourism and Ministry of Tourism should look for an easier adoption of AR with affordable implementation solutions. The roll out can proliferate from a city level to the state level gradually

AR technology can also be implemented in the hospitality segment wherein:

- International guests can translate menus/ service instructions into their language
- To help guests select rooms at the point of booking by showcasing the room types and the amenities available inside the hotel
- Hotels can imagine the interior decor before investing in a large scale renovation project

5.5 Increasing focus on providing content in customer's native language

Travel companies can focus on content marketing, communication in the customer's own language helps overcome linguistic barriers and also builds international image among foreign tourists

- Most of the travel apps have a default language setting as English thereby making it difficult for non-English speaking users to access it
- Additionally, the multilingual feature should also be expanded to other key international languages so that foreign tourists can also leverage the services while they are in India
- As majority of Indian population travels by train, this was needed to be addressed by providing multi lingual booking options. Tapping this opportunity, in 2015, Make My Trip launched train bookings in six languages other than English
- Only limited apps offer multi-lingual feature to its customers. In order to reach to a majority of internet users, apps in India will have to provide alternative regional language options

Government led travel portals, which act as a guiding database for foreign tourists, can also be multilingual in order to be more informative for the non-English tourists. Hence, government and private players should take initiatives to provide information in various foreign languages on travel websites



5.6 Engaging customer while offering customized services

The service providers and aggregators should experiment with service offerings to keep consumers engaged

- Service providers can decrease the distribution cost by directly involving customers through mobile app, web portal and social media
- On the other hand, the aggregators can mitigate this loss by further experimenting with big data and offering personalized

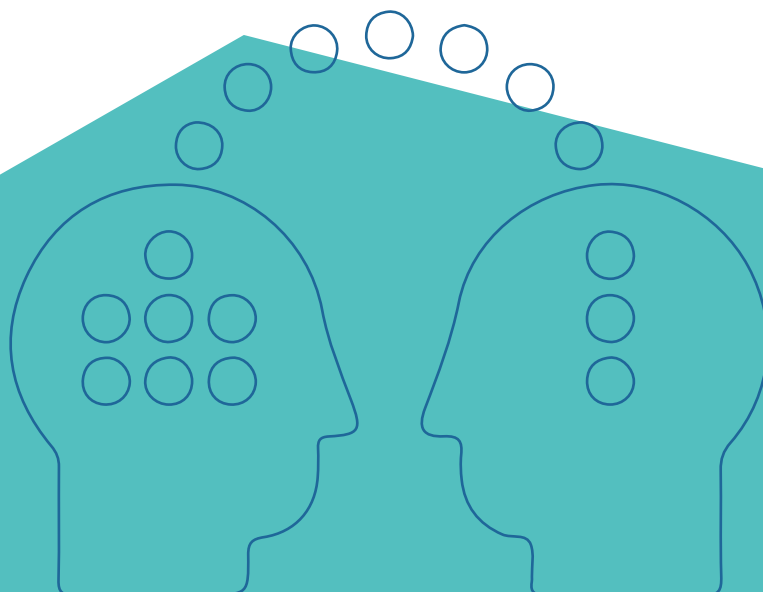
services and packages from different suppliers under one umbrella. The aggregators can focus more on customers' choices and offer them preferred and personalized services in order to keep them engaged and feel valued

5.7 Increasing knowledge exchange between providers and aggregators

Service providers and aggregators can share experiences and opinions on technology development with parallel support from the government agencies

- In the critical era of digital adoption wherein every service provider is striving hard to understand the need of an hour, it becomes essential to break the taboo and share the knowledge and experiences with professionals in the industry. Government

agencies can arrange seminars, productive debates on technology and events wherein the stakeholders can meet and exchange knowledge. This is helpful to generate new ideas and innovate



5.8 Increasing participation of private players in Government services

Government bodies can work in partnership with private players by awarding certain technology revamp contracts so as to bring in efficiency and speed of delivery to end users

- The Passport Seva Project (PSP) is Public Private Partnership (PPP) between the Government of India and Tata Consultancy Services (TCS). This service was launched with the intention of providing Indians with a hassle free passport application process
- It is one of the few citizen centric measures that the government has undertaken to take the IT-driven public services closer to the citizens
- The government should take similar initiatives so as to further integrate private players into the government processes



06

Challenges in Implementation of Key Suggestions

Mitigating Risks using technology in T&H industry

Inclusion of technology in the T&H industry poses threats not only to the aggregators who constantly require to innovate but also consumers in the form of data theft, privacy risks. Such risks need to be mitigated by implementing corrective measures



LIMITED INSIGHTS GENERATED FROM DATA COLLECTED

- Searching and booking for travel options online results in a large amount data being generated- both by size and volume
- Most of this data is, however, not properly analyzed due to the absence of right tools and technologies
- Limited information about a specific traveler can limit capturing of insights that can be obtained from this data and may result in incorrect analysis

MITIGATION

- By improving data collection and adopting advanced data analytic tools, travel companies will be in a position to efficiently analyze and utilize the data
- Companies can tie up with data mining and analytic companies to acquire, store, analyze and recall travel data
- This will enable companies to serve their customers better, gauge customer expectations and formulate marketing strategies



DATA THEFT

- The biggest risk to technology in the T&H sector is data theft
- With millions of travelers booking their holidays and tickets online, payment and identification information is entered and uploaded onto the internet
- Users run a risk of this sensitive data being stolen or misused, should there be a data breach or theft

MITIGATION

- Collaborating with a technology partner can help online travel aggregators and hotels to develop a security system that can secure customer data in case of hacker attacks
- The security system can be built with layers of firmware to avoid sensitive and private information from being easily accessed by a third party



OFFLINE MODE IN MOBILE APPLICATIONS

- Travel apps such as airline apps, itinerary apps and hotel apps, need to be able to be accessed by users -in offline mode while they face poor network connectivity
- Some of these apps, however, stop functioning in the absence of data making it difficult for users to access their flight tickets or reservation information in an emergency

MITIGATION

- App developers can launch offline modes of these apps in case users want to access the app when not connected to the internet. In this situation, apps can be designed to retain data that may be required to be accessed later on



INNOVATION IN A LIMITED SPACE

- Aggregators today run the highest risk of reaching a stagnation when it comes to their product profile
- These companies have a limited space in which they can be creative and innovative with their offerings while keeping their customers' expectations in mind

MITIGATION

- By extensively using big data analytics and social media feedback, companies can find ways to combat the stagnation and curate their product profile such that they can cater to customers on a personal level
- Ability of the company to come up with creative deals will be the key factor in retaining and acquiring customers



INTEGRATION OF DATA CAPTURING

- In a situation where there is a successful implementation of the concept of one card catering to all travel needs, including passport control, hotel check in, forex etc., chances of lapses in validity may occur
- In such a case, if a passenger's passport is deemed invalid after the commencement of a journey, the data may or may not be relayed to arrival destination or the hotel. This may lead to a data discrepancy

MITIGATION

- Such a discrepancy can be avoided by updating the data in real time while simultaneously giving a real time access to the service providers
- A real time relay of the data can help all the users in the value chain to be in touch with an updated status



PRIVACY RISK

- Once a travel portal has accessed basic customer details such as name and email address, the normal marketing strategy is to retain the customer by sending promotional emails
- In some cases, when the customer clicks on these emails, these portals gain access to their location and start prompting them with deals based on that location
- This kind of tracking can pose a privacy risk as sensitive information can be easily misused

MITIGATION

- The promotional and marketing emails can be presented in such a way that they act as reminders rather than trackers
- Additionally, the aggregators can also give users an assurance that at no point of time is their location or daily internet pattern being recorded/tracked





07

Global Case Studies

7.1 Travel and Hospitality: Australia

Australia has leveraged digital platforms to enhance traveler experience, aiding in improvements in recent foreign tourist traffic that have grown at a CAGR of 5.2% from 2010 to 2016. This is much higher than growth witnessed from 2000 to 2010

ISSUES IN THE PAST

- Limited carriers flying to Australia
- Limited internet access
- Traditional business models catering more to local tourists
- Lack of global awareness about Australia's tourism offerings

TECHNOLOGY RELATED INITIATIVES BY THE INDUSTRY

- Leveraging social media channels, aggressive promotions and marketing efforts to attract international tourists
- Dedicated tourism research unit named "Tourism Research Australia" helped by a seamless data collection from online sources using big data analytics and other research tools
- Widespread availability of payment modes such as NFC, mobile pay, QR codes, etc

CURRENT STATUS

- 7.4 mn Foreign visitors in 2016
- 5.2% CAGR in foreign arrivals from 2010 to 2016, higher than 1.6% witnessed from 2000-2010



7.2 Travel and Hospitality: Belgium

Belgium has improved its tourism industry with the help of aggressive social media marketing and digital advancements among other initiatives undertaken to promote travel. This has helped the country attract higher foreign traffic, which has grown at a CAGR of 2.4% during 2010-2014

ISSUES IN THE PAST

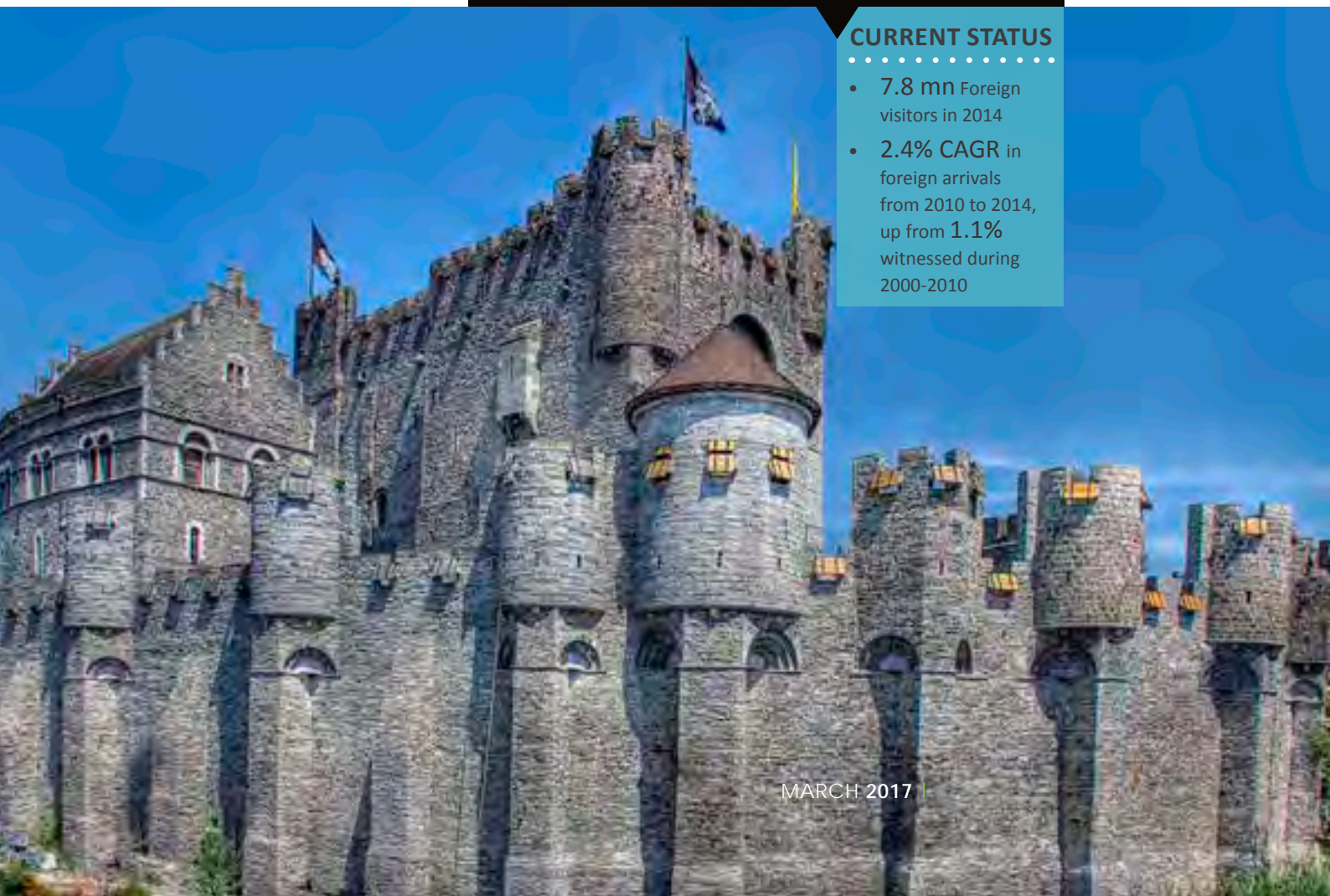
- Belgium was among the lesser known tourist destinations within Europe owing to safety concerns
- Lack of infrastructure to support large-scale tourism
- Unavailability of relevant technologies in early years

TECHNOLOGY RELATED INITIATIVES BY THE INDUSTRY

- Using the internet as a marketing tool to promote cultural events in the country. To promote Tomorrowland, one of the biggest musical concerts held in the world, social media and big data analytics was used
- E-Tourist visa availability enabled seamless booking processes
- Apps for smartphones provide news, videos, images, etc for tourist locations, along with providing digital transaction platforms

CURRENT STATUS

- 7.8 mn Foreign visitors in 2014
- 2.4% CAGR in foreign arrivals from 2010 to 2014, up from 1.1% witnessed during 2000-2010



Annexure

Startups in Travel Technology

Overview

The Indian travel start up segment boomed in the early 2000s with the emergence of OTA players in the travel segment. The trend intensified further as travelers saw this as an opportunity to book their travel from the comfort of their own homes, providing them an easy access to the real time data whenever required.

The rapid emergence of start-ups in travel segment also attributed to the success of travel start-ups in the West, which led to investors willing to provide funding for the same. As a direct result of this, startups were able to expand their product profile and provide more services on the same platform.

Presently, the travel startup space in India is entering an interesting phase with new entrants

seeking to get a share of this highly fragmented and specialized market. These emerging startups are typically differentiated by their business models.

Transactional Models: These models allow travel transactions to be executed on their websites. They can be further categorized as:

- **Marketplace models** offer tours and package which people can book through aggregators (typically through online local agents)
- **Inventory models** own the packages and tours and earn off the sales of the same

Non-transactional Models: These are websites that provide information related to travel and aide travelers in gathering information on the intended place of visit. These kind of models are further categorized as:

Analyzing the key factors for success and failure

Key factors for success

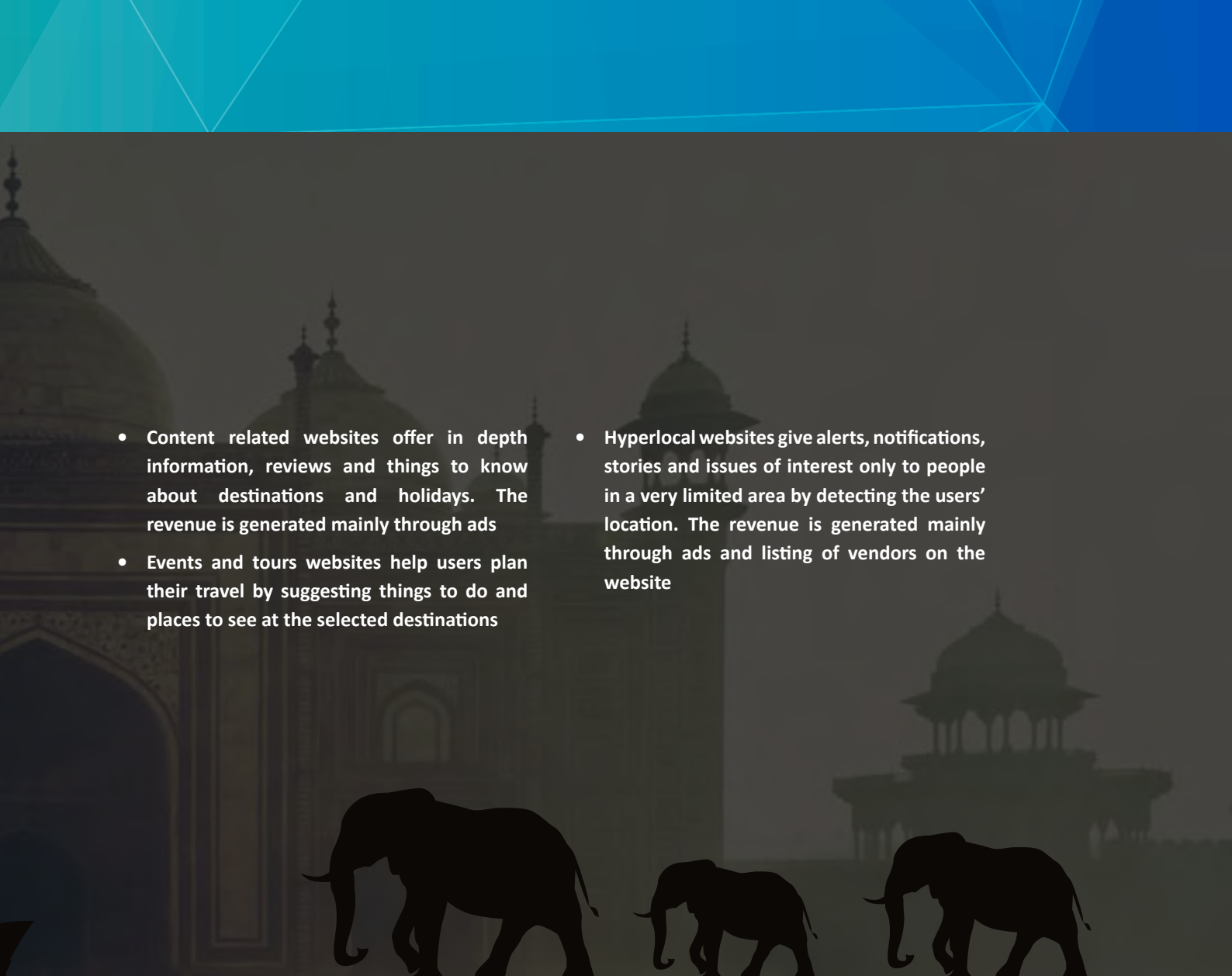
In the 2010s the startups that have been successful, focused on offering very niche, customized and customer centric solutions to their users such as theme based holidays, destination travel, community building and service offerings by specific travel type and many more.

The global travelers' needs are changing. The purpose for travel is not limited to leisure or business purposes. The modern traveler wants to visit a place for adventure, cuisine experimentation, to attend music festivals and a lot more than just sightseeing.

The newer startups are focusing on these new needs and are designing/customizing their offerings such that they are specifically curated for the new traveler.

Some successful tech start ups focus only on business travelers' demands and offer online portals which facilitates end to end solution for various needs of a business traveler.

An increased acceptance of these has led to more number of VCs willing to invest in start ups with unique offerings.

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- The background of the top section features a dark, atmospheric image. In the foreground, the silhouettes of three elephants are walking from left to right. Behind them, the silhouettes of several domed buildings, likely a temple or palace, are visible against a lighter, hazy background. The top of the image has a blue geometric pattern.
- Content related websites offer in depth information, reviews and things to know about destinations and holidays. The revenue is generated mainly through ads
 - Events and tours websites help users plan their travel by suggesting things to do and places to see at the selected destinations
 - Hyperlocal websites give alerts, notifications, stories and issues of interest only to people in a very limited area by detecting the users' location. The revenue is generated mainly through ads and listing of vendors on the website

Key factors for failure

Few startups fail to take-off because the market they are catering to is already saturated with established players offering the same products but at better rates and with offers and discounts attached.

The startup is sometimes a replica of an already existing company in the same sector. In such a case, improper execution leads to a failure of the business.

Such start-ups lack the unique offerings required to attract potential customers.

Lack of funding is also the most common reason for failures.

Due to the over saturation from the supply side, there are limited vendors an emerging startup can partner with. Hence, often startups fail due to lack of support from the agents that can provide the services that the startup is selling.



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