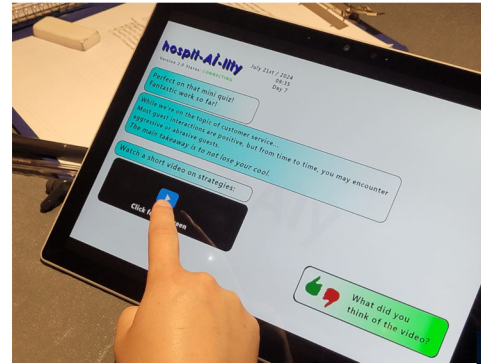# Artificial Intelligence: Game Changing Technology for Travelers and Travel Businesses

Date of Publication: 1.22.25

**A marketing & technology report by
D. Edward Levy**

Big Shifts in the Technology Landscape

The technology landscape has seen monumental shifts in recent years although those changes are 75 years in the making. In 1950, noted mathematician Alan Turing published 'Computer Machinery and Intelligence', identifying the potential for machines to learn and solve problems in similarity to human processes. Dr. Turing's paper examined the capabilities of machine learning and proposed a test to compare machine produced results versus human output.

'The Turing Test' became the foundation for research and innovation in the field of artificial intelligence (AI) and has seen explosive and rapid advancements in recent years. AI technology has roared onto the technology scene and has seen real world applications in almost every industry. AI is broadly defined as a computer or system that is programmed and trained to process information and perform tasks like a human. AI systems are built with 3 essential duties:

1. Acquire and analyze data
2. Identify and solve problems
3. Decision making

AI infrastructure is software based and requires appropriate hardware to provide complete functionality, Learning technology depends on quality data sets to establish its base points of reference and to ensure accuracy when making decisions.

Some terms associated with AI:

 - Generative AI: technology that can create new content such as images and video, using vast amounts of previously recorded data sets
 - Machine learning: hardware that is programmed to analyze data and past decisions to make future decision autonomously
 - Natural language processing and generation: a reference to how computers interact with humans
 - Neural networks: a computer system set up to process information and tasks similar to how a human brain function

The scope of AI has grown considerably since Dr. Turing's writings in the 1950s and the technology has pushed into the mainstream over the last 2 years. AI based infrastructure will continue to see increasing adoption across industries and consumer facets as more uses of the technology are discovered.

AI Technology Hits the Mainstream

Although the term Artificial Intelligence has been around for over 50 years, it has only been in the last decade the acronym AI has steadily gained in popularity. Specifically, use of the term AI in media exploded in 2023, eclipsing the previous year's total 3 fold. The technology itself is hitting the mainstream as well as companies race to adopt AI solutions to improve operations and drive business. AI is making major headways in consumer facing technology with its advanced communication and engagement capabilities. Businesses that rely on customers for revenue are implementing AI solutions that streamline the customer service process as well as create additional revenue opportunities.

In addition to consumer facing interfaces, AI technology has seen successful results when applied to operational and back end systems. Companies that have complex operating structures have realized business benefits by adopting AI technology to analyze processes and create efficiencies.

While the hype for AI is red hot, the reality is that the technology can provide valuable benefits and conveniences to consumers and businesses when utilized in an assistive nature. Some industries that have are actively utilizing AI based technology are:

 - Shipping, Transportation and Airlines
 - Insurance
 - Medical and Healthcare
 - Retailing and Contact Centers
 - Travel

The travel industry in particular is set to experience seismic shifts with the advent of AI backed technologies and infrastructure. The customer centric nature of the travel business and the need for high level of consumer engagementpositions AI as a practical technology for the industry. But how does it all come together?

Use of the term AI in Media - instances in thousands
Data by Now Corpus
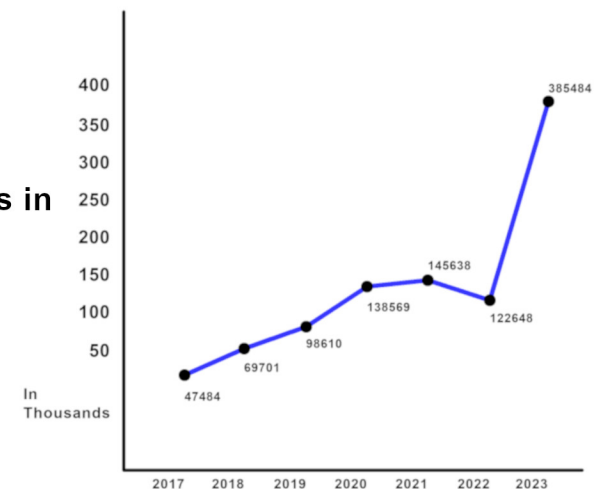
The Nuts and Bolts of AI

Artificial Intelligence, or AI, is a blanket term that refers to the entire scope of machines and their ability to learn and perform tasks autonomously. Looking back from Dr. Turing's early work in the field, AI technology has come leaps and bounds in capability for processing data, performing tasks and engaging humans. Highly effective programming eco-systems, such as Python, enable continued innovations that build up from 5 core abilities common to all AI infrastructure:

 - Learning
 - Reasoning and Decision Making
 - Problem Solving
 - Perception
 - Language Processing

Machine Learning technology begins with a neural network that is set up to process information much like a human brain does. Executable code is designed to pull and manipulate data so that the machine can recognize patterns, make decisions and predict potential outcomes.

Neural Networks can make changes to its own parameters to achieve better results and can 'learn' better decision making as more instances are encountered. The learning part of AI dictates the need for quality data 'sets' that the technology can use as initial reference points and historical data. The quality of the data set is critically important as better data can provide for better future decision making and more accurate outcomes when making predictions. To illustrate this, AI technology that uses plain language as an input must have a complete language data set to recognize each potential word meaning and context possibility to consistently deliver high quality human to machine interactions.

Another example would be technology that constantly updates travel trends and consumer preferences to offer the most appropriate travel solutions and products to travel consumers.

Advanced Technology Delivers Advanced Features

The concept of automating tasks is not a new one and industry has been striving for centuries to innovate and streamline operations in a bid to control costs and generate more profit. Automating tasks in the digital world is not a new idea either but next generation technology that is able to learn and think can make well calculated decisions and assessments delivering tangible and observable benefits in the business world.

Some features and capabilities of AI and machine learning technology:

 - *Customer Facing Technology*: Innovations in AI have advanced plain language understanding and the technology can deliver seamless frontline customer service either by messaging or voice interactions
 - *Operational Technology*: Fast processing speeds and quality data sets enables AI to analyze and monitor operational processes and strategize efficiencies for future needs and cost / resource preservation.
 - *Data Analytics*: Python coding in AI infrastructure can efficiently handle complex formulas and algorithms, delivering any type of needed data or predictive information.
 - *Task Automation & Monitoring*: The processing power of AI technology positions it as an effective device controller, elevating management functionality as well as consumption monitoring for systems that use resources.

Many industries are investing resources into development and adoption of AI based technology but one such industry, the travel industry, is betting big on AI and continues to innovate and deploy technologies to both the consumer and the operational side of the business.
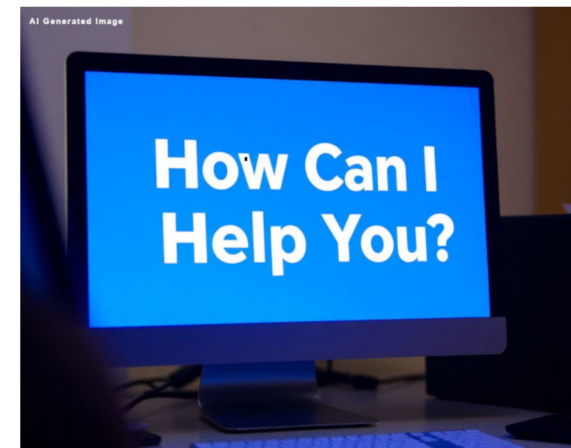
Travelers Engage with Technology

The travel industry saw its first major technological upheaval with the creation and adoption of the internet. Online and digital presence allowed travel providers and businesses to sell their products and service outside of traditional methods such as in person travel agency visits. Accessing the internet supplies all the relevant information and services that travel consumers were seeking and catered directly to the research and purchasing phases of travel buying.

When smartphone devices came onto the scene, a second major shift for the business occurred and providers and businesses turned to mobile apps to sell their products and services. As adoption and usage of the internet and mobile devices continued to grow, consumers began to rely heavily on technology during all phases of the trip. Travel consumers can research, plan and purchase travel as well as executing travel processes during the trip, such as check in, reviewing itineraries and accessing localized suggestions and resources while abroad.

Technology even provides conveniences and benefits after the trip is complete. Business and corporate travelers have an even greater dependence on technology when planning complex itineraries and schedules as well as reconciling spending and time tracking.

Travel consumers, both leisure and business, have shown strong preferences for using online and mobile services when engaging with travel. Satista research from 2023 indicated that 72% of consumers used technology to book their travel purchases versus using a travel agent. While the industry is quick to embrace innovations to drive business, consumers are enthusiastically embracing technology in the hope of elevating the experience and creating conveniences that makes the entire travel purchase process much smoother and more user friendly. Mainstream use of Artificial Intelligence technology in the travel industry will amp up those experiences and conveniences for travel consumers.

'59% of respondents have used an AI solution for travel purposes' March 2024 - Statista

AI generated image
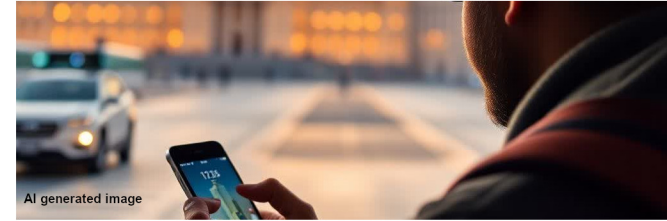
Next Generation Innovations for the Travel Consumer

The travel industry is serious about AI based technologies and continues to prioritize investment and resources in implementation and adoption of the infrastructure. The travel related AI technology market is forecasted to explode from $894 million in 2024 to over $5 billion by 2034, a CAGR 18.94% (Precedence Research). One of the major focuses of implementation is customer facing technologies as travel businesses look to enhance travel consumer experiences and ultimately, generate more business.

AI is well suited for human engagement with its high level of language and input comprehension. Innovations are at a point where travel consumers can ask any question in any form and receive valid and accurate responses back from the interface. Travel, being a preference and trend based business, starts with research and information gathering which AI can perform efficiently. Travel consumers can use AI to:

 - Get specific and detailed travel information on destinations and experiences
 - Ask for reviews or comparison among different products or services
 - Plan complete itineraries including air travel, accommodations, transportation, insurance and add on products
 - Complete purchases and receive confirmations
 - Receive recommendations that are appropriate to the individual user

Business and corporate travel needs are also met head on with AI technology. Travel planners can execute complex itineraries, plan meetings and events as well as keep accurate track of spending and resources using the technology.

Major OTAs and travel brands have already implemented their own consumer facing technology with the aim of increasing bookings and transactions by offering these next generation conveniences. Travel consumer engagement and interactions are one side of AI's capabilities which can extend to other facets of the travel business.

Adopting AI Technology in Travel Operations

The travel industry is a resource heavy business and relies on consumables for day to day operations. Travel businesses are quick to adopt new technologies that help mitigate costs and create efficiencies and AI technology is the next frontier in operational infrastructure. AI solutions have been applied to various, back-end functions within the travel industry including:

 - Resource monitoring and management
 - Fleet and asset scheduling and positioning
 - Foodservice inventory management
 - Facilities maintenance
 - Transport hub passenger processing and security
 - Marketing and brand positioning

The travel business has always been a data driven business, and even the slightest adjustments and optimizations in operational processes can result in significant savings and increases in revenue. The machine learning model can refer to and analyze vast amounts of historical and real time data that can generate better, more accurate decision making. AI solutions can use their data processing power to perform automated tasks and recommend strategies for better performance in any particular facet of the travel business.

Managing operational costs has always been a top priority for travel businesses but with the ever increasing price of resources and maintenance, controlling and reducing those costs have become essential in maintaining and driving overall profitability. With its advanced abilities and features, AI technology can deliver significant benefits to travel businesses by analyzing and improving all facets of back-end travel operations.
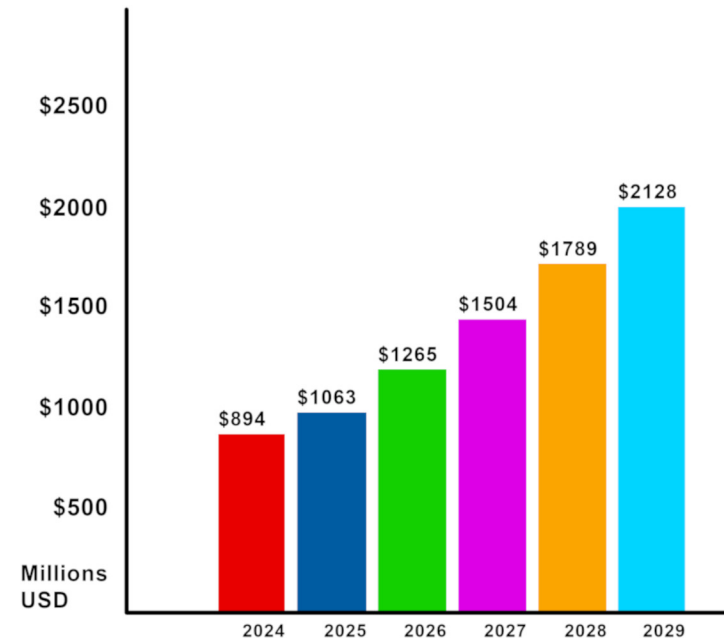
A New Way to Learn

After being decimated during COVID-19 lockdowns, travel volume and traffic have returned to pre-pandemic levels in 2024 and are expected to grow steadily during the next few years. One of the lockdown challenges that still exist for travel business is hiring frontline staff that provide guest facing services. Travel providers still struggle to bring in quality and enthusiastic candidates which leads to gaps in service and quality, Two critically important factors in the success of any travel brand. The highly advanced capabilities of AI technology can help mitigate those 'service gaps' by delivering fast and highly effective training to new hires in the travel industry.

Travel businesses depend on their frontline teams to deliver guest services and handle day to day operations. Having skilled and capable people on the front lines can improve guest experiences, reduce unsolved problems and issues as well as increase productivity and accuracy.

AI's high level of engagement and ability to understand plain language inputs positions it as a perfect, real time, training tool and with quality data sets and engaging interface models, can get new travel hires ready to work and contributing much faster than traditional methods. AI training solutions can also provide important ongoing support to new hires, reducing expensive turnover and maintaining consistent team strength.

Generative AI in Travel
Market Value - in millions USD
Data by Precedence Research

| Year	Value
2024	$894
2025	$1063
2026	$1265
2027	$1504
2028	$1789
2029	$2128

The Travel Industry Leaps Head First

Artificial Intelligence is not a new term and has been the focus of research for over 50 years but more recently, AI technology has become mainstream and is set to change many, if not all industries. One such industry that could greatly benefit from AI capabilities is the travel industry. Early adopters of innovations and technology, travel businesses are fully embracing machine learning systems to help improve all facets of the operation. From customer facing technologies to back-end systems, AI infrastructure brings significant benefits to the industry and can positively impact both sides of the travel business.

AI systems can deliver a high level of engagement and interaction with human users, illustrating the appropriateness of the technology for travel users in researching and purchasing products and services. The core ability to process data and learn from previous instances are sought after features for resource heavy categories such as transportation and accommodation providers. In a highly competitive marketplace, travel businesses seek operational, marketing and customer service advantages that can drive the business. AI and machine learning models can create tangible benefits travel businesses need to stay competitive. Quick to adopt technology, the travel industry is full speed ahead on AI technology and continues to invest resources in developing new innovations and abilities.

The Relationship Between Travel and Technology

Travel and technology have always paired well together having had a strong connection for centuries. From astronomer's navigation tools to the early Kodak Cameras of the late 1800's to today's highly capable smartphones, technology has always found a place in travel for both travelers and travel businesses. The industry has always been an adopter of new innovations and is constantly seeking new ways of creating opportunities and optimizing operational functions to run better businesses.

The mass adoption of the internet and mobile devices are two key milestones for the industry that fundamentally shifted the way consumers and the travel industry do business with each other. Mainstream adoption of AI technology is positioned to be the 'next big thing' in travel technology and is positively impacting consumer facing technology and back-end infrastructure. Artificial intelligence technology is a game changer for the travel industry and will continue to set new standards for travelers and travel businesses.
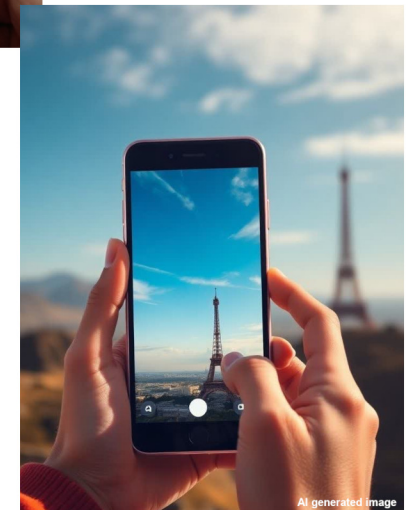
Artificial Intelligence: Game Changing Technology for Travelers and Travel Businesses

Thank you for reading.

For more information or
interview / quote requests please contact:

Mr. D Edward Levy
E - del@traveltechnologysolutions.net
W - traveltechnologysolutions.net
X - @traveltechsol
bsky - @d-edward-levy.bsky.social

Sources available upon request.