



How **AI-enabled video analytics** can enhance passenger experience at the airport



# Contents

Summary .....	2
Passengers' expectations .....	2
How AI-enabled video analytics can help airports to meet passenger expectations .....	3
Queue monitoring .....	4
Monitoring adherence to health and safety standards .....	4
Monitoring retail space .....	5
Conclusion .....	5
References .....	6
About TCG Digital .....	6

## Summary

COVID-19 has changed the travel industry protocol, which is to stay relevant in the coming years. In pre-COVID times, passengers didn't mind waiting in long queues; whether at check-in, security, or at the immigration counters. The pandemic has had quite a significant impact on travelers' behaviors and their willingness to travel. Passengers, today, are looking for less friction and faster airport service without compromising on their health and safety measures. In view of this changed scenario, airports must address the passengers' expectations accordingly.

## Passengers' expectations

Health and safety are the primary concerns for most passengers. It is clear that today, when passengers think about air travel, they are subjected to mental stress and discomfort that may be linked with the following questions:

- Will my family and I be safe while inside the airport?
- What is the wait time at the different touchpoints (e.g., at the check-in counter, security, immigration etc.) and how soon can I get past them?
- Is the airport congested? Can I spend my time in the non-crowded areas of the airport?
- Is the airport clean and maintaining proper hygiene standards? How frequently is the airport staff disinfecting the commonly touched surfaces, counters, elevator buttons, escalator rails, chairs, couches, and other counter surfaces?
- What actions are the airport authorities taking to impose mask mandate and social distancing, if applicable?
- Overall, what measures are the airport authorities taking to keep me safe and make my journey less stressful?

The customer wants to have a seamless experience of the whole trip, and in that context, the airport has a significant role to play, especially in the passenger's airport-experience aspect of the entire journey.

If the airport aspect of the customer journey is not delightful enough to meet their expectations, or should they be dissatisfied at any of the touchpoints, then their whole perception gets changed. While safety is a significant concern, passengers do not want to compromise on higher service expectations.

As per the recent industry survey, 32% of travelers plan to arrive earlier at the airport and 60% plan to arrive at the airport at the same time as before the pandemic. Thus, it is essential to keep the passenger journey as efficient as possible, so that travelers can spend their idle time at the shopping and dining areas, and thereby, contribute to the increasing non-aeronautical revenue for the airport.

## How AI-enabled video analytics can help airports to meet passenger expectations

AI-driven video analytics converts raw footage into actionable data. The algorithms extract, recognize, and classify objects to break the live or archived videos into structured data that empowers business users to make informed decisions in real-time. As most of the activities inside the airport are dynamic in nature, airport operators can leverage the power of video analytics to make such informed decisions that may be predictive, proactive, and reactive in nature.

The figure 1 highlights the different touchpoints at the airport.

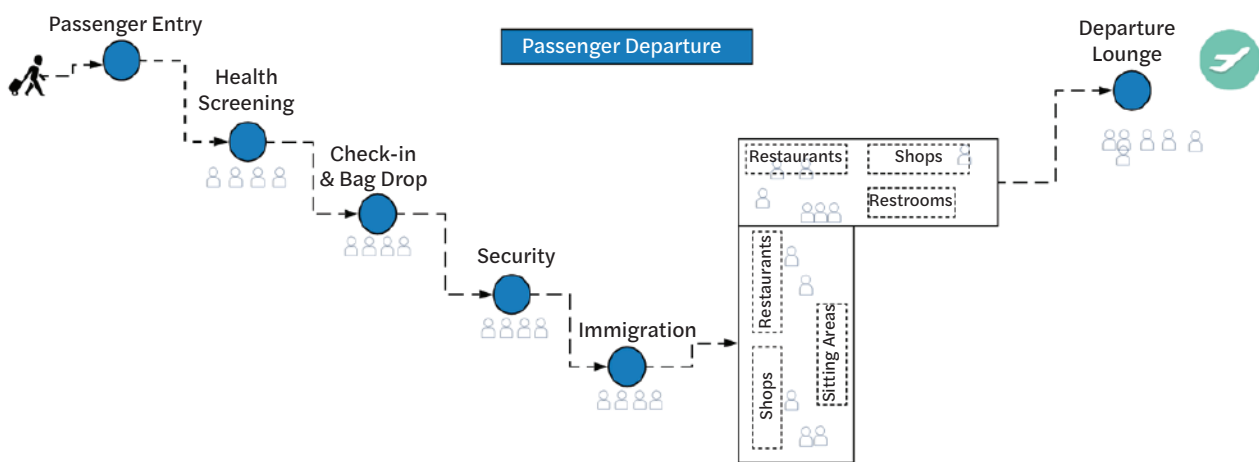
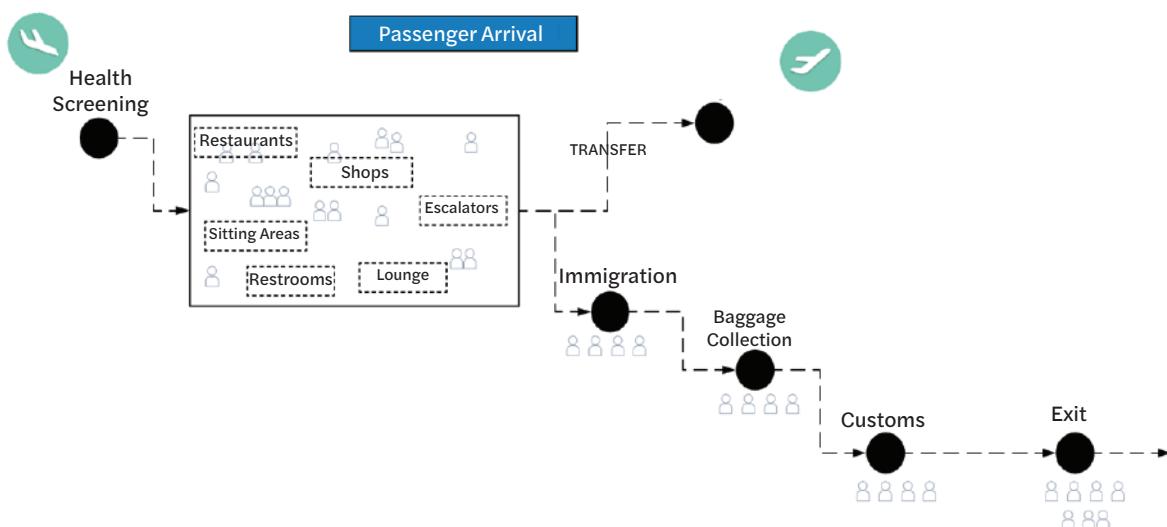


Figure 1, Different touchpoints at the airport (indicative, may vary based on the airport)



Here, we are describing a few activities that airports can effectively monitor using AI-enabled video analytics.

## Queue monitoring

COVID-19 has changed, to a certain extent, the way an airport handles its passengers. There are mandatory measures like health screening involving temperature monitoring, health-related questions, conducting COVID tests. All these are becoming a mandate at most of the airports, based on their respective governments' policies.

Avoiding queues at the different touchpoints, most of the times, is not feasible. At the same time, passengers do not feel comfortable if the waiting time is too long. The airport allocates resources (counters, agents, etc.) based on the flight schedule and the expected number of passengers. However, the flow of passengers arriving at the airport may fluctuate.

At such instances, AI-enabled video analytics can monitor, in real-time, the queue length, gauge the number of passengers in a queue, and calculate the average service time, wait time for each touchpoint. If the queue lengths with number of passengers in the queue reach a predefined threshold point, or the average time to serve a passenger crosses threshold value, then the airport operator can assign additional resources (check-in, self-service stations – kiosks, security, immigration counters, and airport staffs) to handle the increasing demand. The airport can, then, also update passengers about the waiting time at the check-in, security, and immigration counters. Besides, dynamic allocation of airport assets would optimize the resource utilization, keeping the cost on the lower side.

Today, travelers are looking for less crowded areas while navigating through the airport. Digital signage can be placed to inform the passengers about the occupancy at the different seating areas, lounges, and how far they are from their current location and also feature the walking time and more.

## Monitoring adherence to health and safety standards

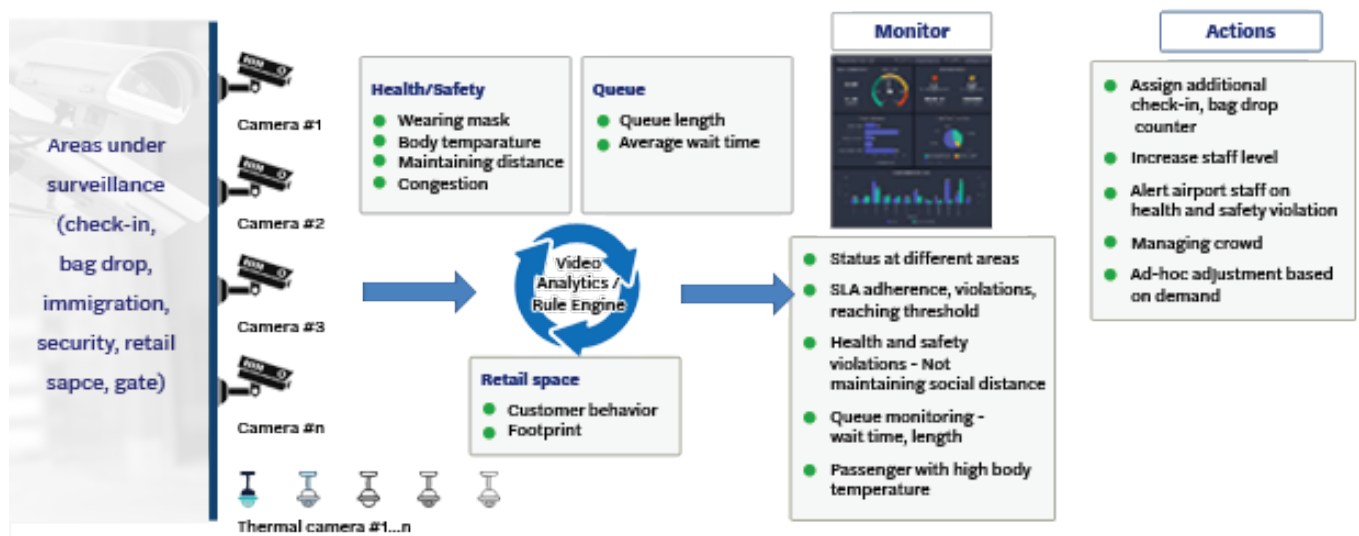
- **Social distance and mask mandate:** AI-enabled video analytics can monitor if passengers and airport personnel are maintaining social distancing efforts within the airport facility areas. The Facility managers can run a report of when social distancing or mask mandate violations occurs and recognize the high violation zones for appropriate actions.
- **Sanitization of surfaces at a regular interval:** Video footage of different airport premises can be analyzed using the algorithm to ensure cleaning is being done as per schedule. If not, the system can send an alert to the operator.

The airport can consider placing digital signage displaying sanitization status to keep passengers informed. For instance, display of time-stamp of the last activity and flashing of the next scheduled activity at a pre-scheduled time. In addition, the operator can analyze the video footage and inspect whether the staff needs additional training to perform the work more efficiently.

## Monitoring retail space

Airports depend on passenger to generate non-aeronautical revenue through shopping, food purchases and other similar activities. Passengers are likely to spend more money in the retail areas if the airports can create a pleasant environment that is conducive to a delightful customer experience for the passenger. According to an industry survey (conducted pre-pandemic), an extra 10 minutes spent in a queue at security reduces a passenger’s spending on retail by 30 percent.

AI-enabled video intelligence extracts actionable insights on how passengers react to and move through the airport’s commercial areas like the retail shops and restaurants. By leveraging video analytics, airports can initiate alerts to open more cash registers that would reduce the queue time at the shops. Further, by analyzing the passenger movement within the commercial space, the retail manager can gain more actionable insights into placement of products or promotional items to improve average sales across the retail area.



## Conclusion

The pandemic will pass, and we will all see a surge in travel. The airport needs to be ready with a redefined value proposition, and technology will play a key role. While the application of analytics helps the airport to increase passenger satisfaction and confidence, complete benefits would be realized when all the various aspects are working together towards the common goal of delivering a seamless and enhanced passenger experience.

In the long run, deriving insightful information from the historical data will enable airports to find out the root causes of recurring problems, take corrective actions, and utilize opportunities to become proactive than reactive.

Afterall, meeting passenger expectations is one of the most important responsibilities among many for the airports, airlines, government agencies, ground handlers, technology service providers, each of whom have their own role to play in the game.

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## Author



**Debabrata Ray**  
Director – Aviation, TCG Digital

## About TCG Digital

TCG Digital is the flagship data science and technology solutions company of 'The Chatterjee Group' (TCG), a multi-billion dollar conglomerate. We leverage hyper-contemporary technologies and deep domain expertise to engage enterprises with full-spectrum digital transformation initiatives in operational support systems, enterprise mobility, app development and testing, cloud and microservices, automation, security, Big Data Strategy, AI/ML, and advanced analytics.

In addition to our Digital Transformation practices, by using our tcgmcube, enterprises are extracting highly actionable insights from their invaluable data assets, and achieving Velocity to Value with our award-winning advanced analytics platform, which democratizes data science with scalability, performance, and flexibility. For more information please visit our website at [www.tcgdigital.com](http://www.tcgdigital.com)

Get in touch with us at [contact@tcgdigital.com](mailto:contact@tcgdigital.com) for a robust digital strategy and powerful demonstrations of this easily deployable platform.