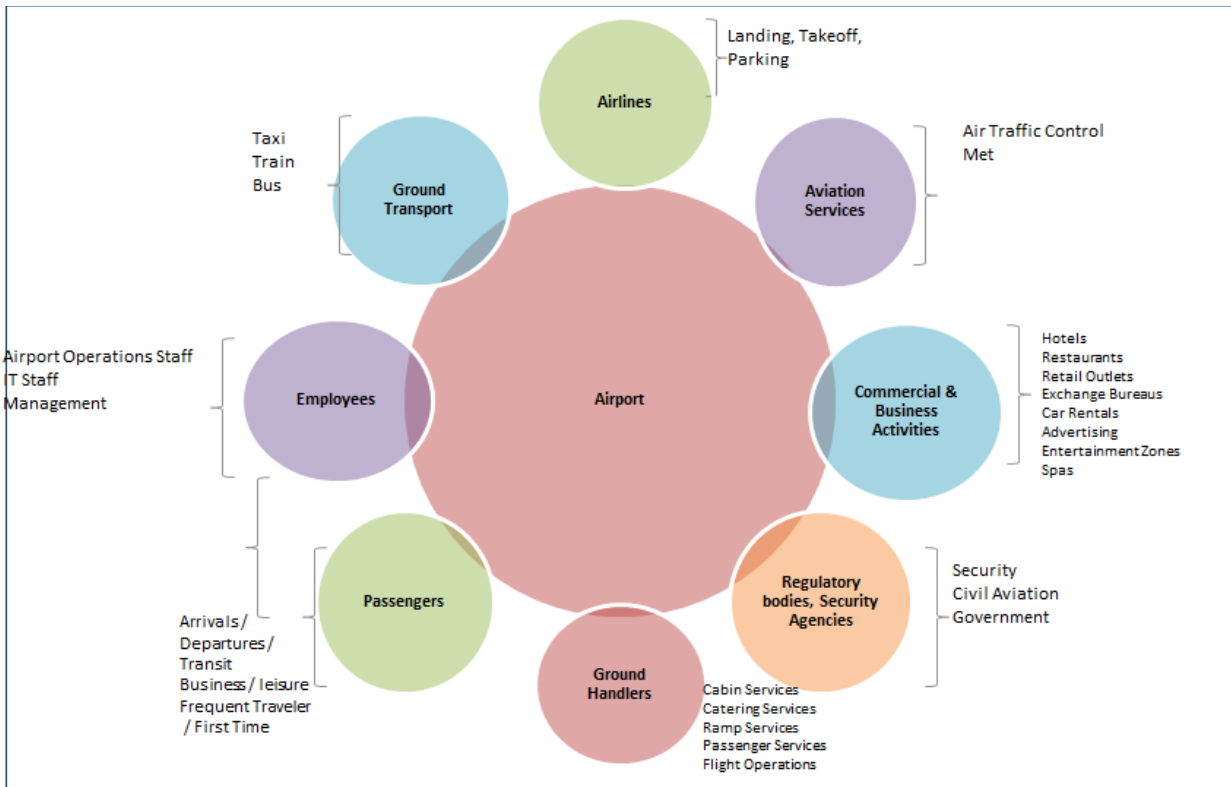


### Future of Ground Handling Industry – Big Idea

Few businesses are as competitive or complex as the aviation industry. Though air travel has become highly commoditized, there is an extremely complex on ground ecosystem (as depicted in the diagram below) that enables people to travel comfortably, safely, timely in a manner that allows them to co-exist with each other from couple of hours to several hours in a limited space (aka airport). Airports are at the heart of this ecosystem.



Modern airports have come a long way from the early airports in their size, complexity, facilities, capabilities to handle extensive passenger traffic and other attractions. Some of the world’s largest airports today handle upwards of 90-100 million passengers annually. This implies that a huge number of aircrafts are landing and departing from these airports on a daily basis – each carrying 100+ passengers who may be converging at the airport from various other originating cities.

Passenger traffic continues to surge and airports continue to stretch at their seams. These brick and mortar infrastructures would not be able to sustain without the extensive services performed by the Ground Handlers.

As seen in the diagram above, there are many services provided by the Ground Handlers. Actually, Ground Handlers are equally important for an airline as well as an airport and provide varying services such as -

For Airlines

- a. cabin services when the plane lands – this includes cleaning, replenishing the inventory, collecting dirty linen and replacing with fresh one, etc,
- b. Catering services – provision of food and beverages including special meals ordered, etc.
- c. Passenger services – these may include check-in counters, boarding at departure gate, baggage handling, etc.
- d. Ramp services – may include refueling, filling up water, cleaning of toilets, etc.

For Airports

- a. Landing, Parking, Takeoff assistance / guidance

Clearly, Ground Handlers play a very crucial role in maintaining the overall customer experience for the travelers. .

However, the biggest challenge is the fact that several companies / agencies providing the services in an almost silo manner.

The big idea for future Ground Handler Industry is using **Blockchain technology** to integrate working of various stakeholders at an airport - airlines, airports, air traffic controllers, government agencies, security agencies and multiple ground handling agencies.

The idea is to create an ecosystem of an airport community, where all the stakeholders – would be part of an airport blockchain. Every stakeholder would be a node and a key-holder to this blockchain. From flight operations perspective taking ‘the flight’ as the building block unit, all operational requirements and service instructions are written to this block. Any updates to the flight are written to the block. Multi-signature rules can be defined for this block, so that for any progress or change to the flight is endorsed and acknowledged by the concerned stakeholders.

A simple example could be any change in a flight gate is endorsed by airline, airport and boarding ground handlers and then seamlessly notified to other stakeholders and the travelers. This will ensure that all concerned are endorsing it and its not a unilateral and silo decision.

Therefore, as services are performed, updates will happen and the blockchain will grow thus providing a Single View of Operations to all stakeholders. Availability of real time

updates will make it possible to keep front-end staff, ground handlers, passengers and crew updated with right information at the right time thus, improving customer experience as well.

While blockchain enables this verified single view, the next logical step could be having mini decentralized apps on blockchain that propagate this information and take decisions. There can be Smart Contracts built on to blockchain that keep track and also execute contracts and make instructions to ground handlers, verification that instructed tasks have been completed and then making actual payments/ payment commitments based on the tasks done.

Further, Blockchain is expected to change the way analytics are done. With this integrated view of immutable data, data analytics can provide further insights in to – ground handling operations and the behavior in normal operations as well as during disruptions. These analytics can give potential insights on improving efficiency, better coordination and ultimately better services to end customer – the travelers.

Additionally, many Ground Handlers are not very large players and cannot afford complex IT systems, applications, databases and analytics teams. Blockchain will help such players to come on board be a part of the airport blockchain with minimal spend and improve their services.

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