Cases of Blockchain in Travel Industry

Use Cases of Blockchain in Travel Industry

The travel and tourism industry is one of the world's largest industries with a global economic contribution (direct, indirect, induced) of over 7.6 Trillion US dollars in 2016, growing at the CAGR of 3.9%.The direct economic impact of the industry including transportation, hospitality, entertainment and attractions was 2.3 Trillion US Dollars in the same year.Global tourism industry has witnessed steady growth, recording 1.19 billion arrivals in 2015 as compared to 528 million arrivals in 2005. The number is predicted to go as high as 1.8 billion by 2030. Direct and total contribution of travel and tourism to the global economy from 2006 to 2016 (in trillion US Dollars: source - statista)

There are three kinds of tourisms:

Domestic Tourism - When the residents of a country travel within the country.Inbound Tourism - When the non-residents of a country travel in the given country.

Outbound Tourism - When the residents of a country travel to another country.Domestic and Inbound tourism constitute internal tourism.

National tourism comprises of Domestic and Outbound tourism. International tourism consists of Inbound and Outbound tourism.

Irrespective of the kind of tourism, in general, there are 5 key components of travel and tourism industry:Travel agent and Online Travel Agencies (OTAs): The travel agent and OTAs advise people on travel destinations, planning the itinerary, currency exchange, car rentals etc.

Tour operators: Tour operators provide holiday packages comprising of mode of travel, accommodation and travel services like airport pick and drop, sightseeing etc.

Accommodation: Accommodation consists of hotels, resorts, camps etc. Usually, they are marketed by the tour operators as it ensures higher occupancy rates. However, they can be marketed individually.

Transportation: Based on the travel budget, destination, purpose of travel, time, distance and convenience, people can choose air, road, rail or sea travel.

Tourist attractions: Locations of tourist attractions which boost tourism and increases the footfall in the area.Considering the inefficiency associated with the traditional methods involved in current travel experience, we have identified following use cases, employing blockchain technology:Identity: Identity verification forms an important part of travel. It helps travel companies, relevant authorities etc. ensure security and combat issues before travel that might crop up during the journey.

Currently, during travel, the customer has to provide paper-documents, passports and boarding passes at regular intervals. This is quite frustrating for legitimate travellers, consuming their productive time unnecessarily.Based on a survey by Northstar on behalf of Expedia, India leads globally in considering smartphone as the most important travel companion.Leveraging smartphone biometrics, identity requestors can request identity from customers.

The identity, verified by government agency or institution authenticated, encoded and stored on a blockchain can be used by the customers.The identity verification of the user can be done using the UIDAI approved operation model with biometric fingerprint data, as shown:A generalized model of digital identity verification can be:Single Sign on token method of authentication can be employed to map user biometrics once and multiple uses of assigned token later. Using ‘digital’ identity, there will be significant improvement in throughput, efficiency, and most importantly, customer experience. A faster reliable-identity check can be executed which can help airlines support the ever growing air travel industry.

Seat allocation and management: Everyone who has travelled by air understands the associated issue of overbooking, cancellations and refunds. Airlines use several statistical model to increase their revenues, and survive in the cut throat competition, while working at small profit margins. In case overbooking calculations fail to match the realistic condition, a fraction of people are asked to voluntarily give up their seats and their travel is rescheduled at no cost. In case of delay, a suitable compensation is provided to them.

However, if enough passengers do not give up their seats voluntarily, airlines can remove people from flights involuntarily, compromising the customer experience. Number of cases of denied boarding, cancellations and delays in the month of November’17 - source:DGCAUsing blockchain and smart contracts, the airlines can make the process of denial to board in case of overbooking transparent. The negotiations at the personal level and the level of risk associated with a confirmed flight booking can be made clear to the customers.

Automation of Trading Operations (Payments): The huge volume of transactions leads to

discrepancies and increased costs. With the current use of systems like BSP and ARC, the transfer of money from agents to carriers consume a lot of time. Using blockchain, the transfer can be made instantly.Repetitive business processes involving mutual settlements like interactions with the suppliers of goods and services for food, fuel, cleaning, maintenance etc. can be automated using smart contracts and reduce manual intervention and voluntary breaches of contracts.Alongwith these, the cash and commissions settlement among OTAs, aggregators and hotel can be done using smart contracts with better efficiency.Maintenance, Repair and Overhaul (MRO) teams can coordinate with Original Equipment Manufacturers (OEMs) to record flight operations, conditions and the scheduled maintenance checks.

Monopoly of Demand Aggregation Platforms and Global Distribution System: Blockchain has the power to disrupt the intermediary services which are prominent in Travel industry.With the commoditization of the role of distributors, suppliers of good and services could interact with the consumers directly. This helped suppliers to gain control of the distribution of their products and services, at the expense of discovery. With a large number of options available in the market, demand aggregation platforms popped up. The platforms followed the three step model of squeezing the competition out by offering services at lowest prices, gaining monopoly and then increasing their margins. This worked so well that the top 10 companies with highest market cap are all demand aggregation platforms. Leveraging their monopoly, a few of them have been accused of overcharging their customers and using illegal tactics to increase their revenue.

The OTAs enforce rate parity agreements with the hotels to ensure that they get to offer the hotel rooms at the lowest price on their platforms. In case they find that the hotel is offering direct booking at cheaper rates, the intermediaries remove the hotel from the listings.Higher commission rate to boutique hotels, after forcing them to enter a rate parity agreement, force hotels to increase their prices to cover the high distribution costs, subsequently increasing the cost incurred to the customers.Emerging startups are pre-maturely killed by the existing OTAs as they do not provide access to the data to new companies with low volume.Loyalty Points:

There are three kinds of loyalty programmes:

Currency based: The more the customer engages with the brand, the more he/she earns the point which can be redeemed, making next purchase cheaper etc..

Coupon based: With enough insights of customers, coupons can be targeted, offering discounts.

Experiential: Unique and custom experiences that go beyond transactions and focuses on customer experience, like by providing customized gifts, advanced services etc.Problems with loyalty programmesLong wait time signing up, earning points and securing rewards.Customers

are not well informed of the calculation of redeemable points.Customers are not well informed of the process of earning redeemable points.Customers are not well informed of the process of redeeming points (When, Where and How?).

Travellers are usually dubious of the costs associated with their travel, as there are several clauses and costs which are not evident at the first sight.With smart contracts, conditions governing the gain and redemption of loyalty points can be made transparent to the customers and can be executed in real-time.Ability to transfer points to other customers (friends, family etc.), ability to use loyalty points in other services, real-time invoicing and payments, thus a cost efficient process enabling instant interoperability of loyalty schemes can be done using blockchain.Data collection: Since all the redemption trend for users will be available on a blockchain, different industries can offer better experiential loyalty programmes based on user's redemption history.

Micro-cost redemptions: Currently, there's a threshold above which redemptions can occur, due to cost incurred in every redemption. With cost effective method of execution in blockchain, the redemption of miniscule amount of loyalty points can be done, enhancing customer experience and "loyalty".Incentivizing behaviour: People can be incentivized to travel during non-peak seasons.

Air Travel Insurance: Using Ethereum smart contracts, peer to peer contracts can be facilitated instantly. For example, in case of flight delays, cancellations, automatic refund process can be executed.

Baggage Tracking: Approximately, 1 in 5 complaints registered against the airlines relates to baggage misplacement. There are 4 common scenarios related to it:

- Baggage loaded to wrong plane.
- Airline attendant registers wrong destination code.
- Customer forget to pick luggage.
- Routing label gets damaged.

The IATA resolution 753 asks all the airlines to have end to end baggage custody information by the June of 2018. Even after adoption of RFID technology for tracking baggages at airports, there are still fair chance of baggage getting misplaced. The best way to keep track of your baggage is by keeping it in the compartment above you. Ideally, airlines should be able to report the current status of baggages in real time throughout the process of travelling. With blockchain, a ledger shared between airline, airport and ground handling firms, relevant person can check the status of a baggage throughout its journey.

Customer reviews and recommendations: Using blockchain’s single source of truth, notorious activities like voluntarily increasing rating of a service by removing certain reviews from a centralized server can be tackled. Authenticity of satisfaction rates, online reputation etc. can become transparent.