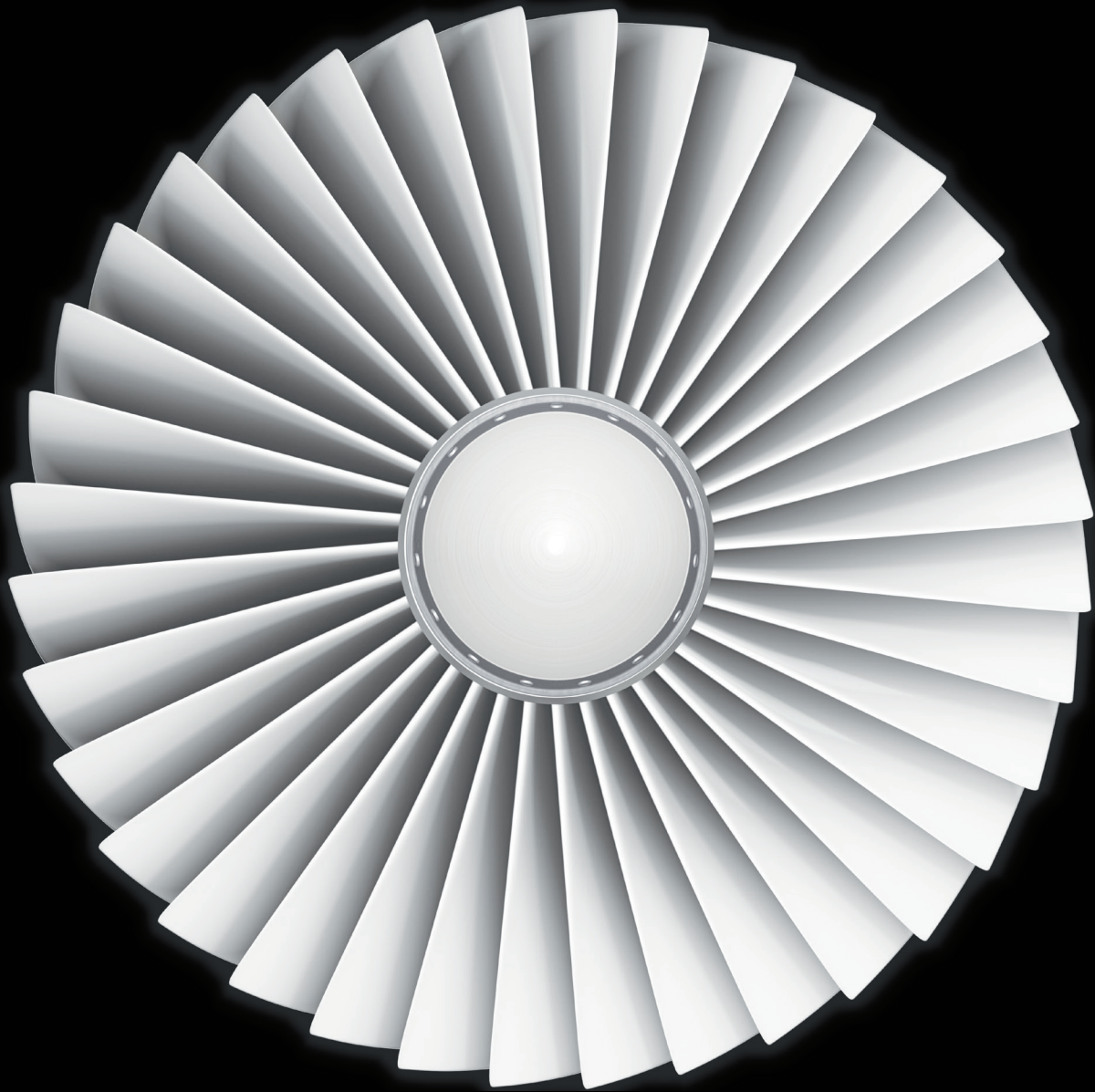


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Using Blockchain to streamline airline finance

With promising applications emerging,
the technology designed to deliver trust
is ready to take flight

Using Blockchain to streamline airline finance

If you find yourself reading about blockchain, but frustrated by the seeming lack of practical applications, you're not alone. In the airline industry, where operational finance needs are so specialized, it may seem especially hard to pair the new technology with potential ways to use it. But the opportunities are there, and some first-movers are already working to explore them.

What is blockchain?

Blockchain is a distributed ledger technology that allows digital assets such as currency, identity—or the status of physical assets like parts—to be transacted in a near real-time, tamper-evident manner. It creates a verifiable record of every transaction with low friction, prompt settlement and built-in privacy. This new capability is only one of many digital disruptors that are shaking up other industries and bringing change to airline finance operations.

Other current disruptive innovations include robotic process automation (RPA), cognitive computing and machine learning. Now, blockchain is also making fast inroads, and a lot of finance decision-makers are hurrying along the learning curve. As with other technologies, airline CFOs need more than attractive promises—they need real solutions so they can make the right decisions for their organizations.

What first movers are doing

In the airline industry, where concerns like safety and regulation make it unlikely to find first movers rushing into new technologies, blockchain faces a high bar for proof of concept. Still, a quick look around reveals that some organizations have already found places to pilot blockchain in their own operations. The applications may include:

- Parts tracking
- Customer loyalty programs
- Engine and parts leasing through smart contracts
- Interlining and revenue recognition
- Airport slot management

In flight: where blockchain is already making a difference

Parts tracking and maintenance documentation

Enhancing residual value of parts through provenance and maintenance history

Maintaining parts records is about more than bookkeeping. Good tracking preserves value—in fact, a perfectly good part with missing records may have to be scrapped. Unimpeachable records can also help save time and effort in paperwork inspections, such as verifying whether a part has complied with FAA airworthiness directives. A related challenge is keeping aircraft maintenance records that can satisfy regulators, buyers, or lessors during regular monitoring or review. Currently, many airlines struggle with this challenge. The costs in time and money to rectify incomplete or out-of-date records can be high. In sum, both an aircraft's component parts and its overall condition are complex documentation challenges.

As fleets grow and parts become more complex, how can an airline CFO ensure quality and efficiency in these critical functions? Today, an airline may dedicate many resources across different business units to the task. That approach means multiple people tasked with documenting asset lifecycles and the complicated—and mandatory—maintenance that goes with it. Missed information can cost airlines in the form of failed compliance or impaired assets. With full adoption of blockchain across the parts ecosystem, applications can be used to resolve inefficiencies in the documentation of the asset lifecycle, to help keep the documentation uncorrupted, and to verify that the seller has adhered to all maintenance regulations.

As trust in blockchain grows, it may be possible to conduct fewer inspections and reduce the workforce needed to audit maintenance. It could remove trust issues from some parts of the equation: For example, if you rely on a third-party platform provider to reflect supplier documentation accurately, your faith in that platform provider is critical. Blockchain can be used to secure and provide audit trails for the information in digital documents, effectively helping to reduce third-party trust issues. On the finance front, blockchain can also help in third-party situations by helping make sure the airline's books of account show alignment between the asset value and the physical state of the aircraft. By providing this link on a real-time basis, blockchain could eliminate a process that is currently heavily manual, time-consuming, and dependent on judgment calls.



Customer loyalty programs

Simplifying and automating rewards program transactions and accounting

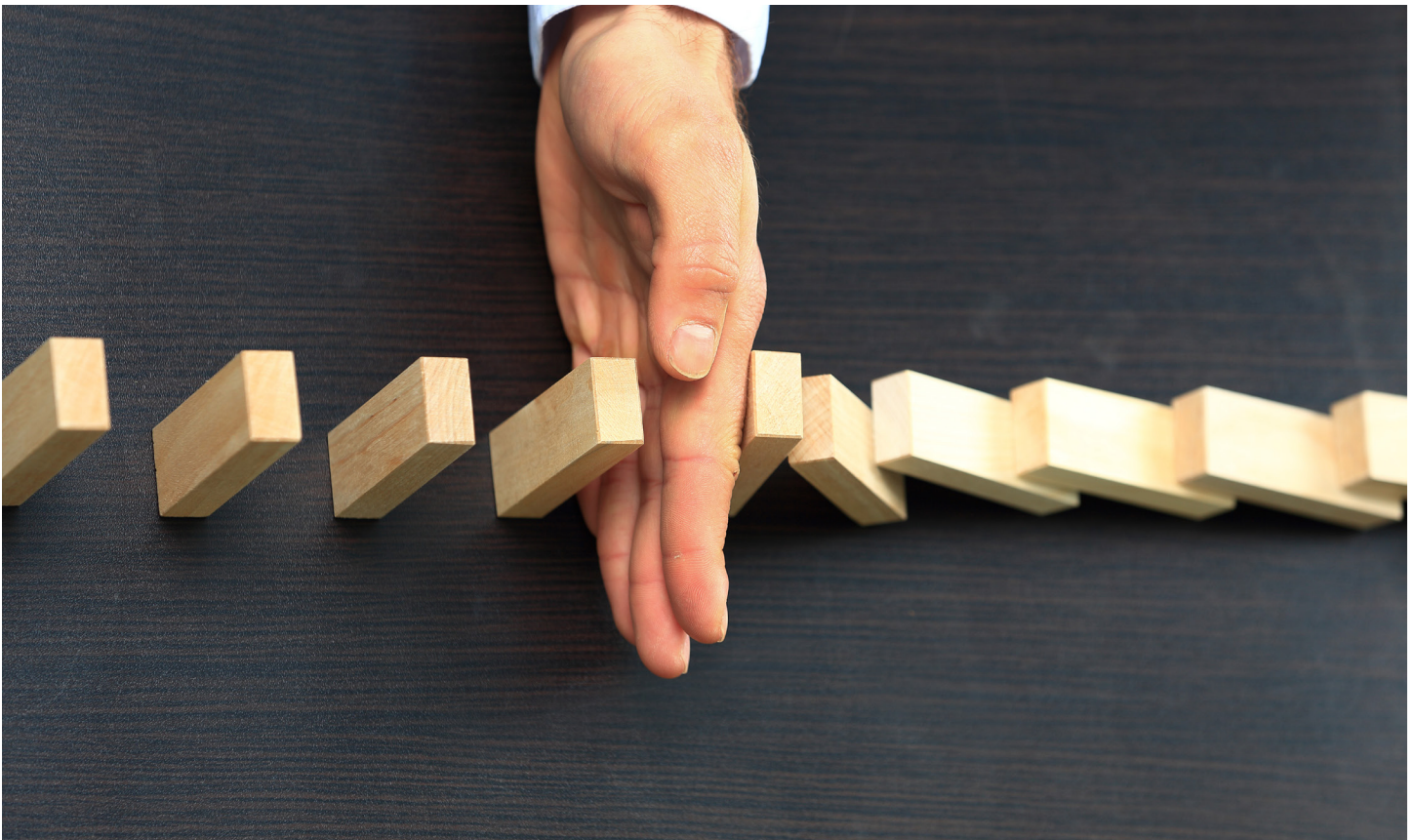
Passengers love loyalty programs. But for airline CFOs, they can be a place where expenses sit in limbo, accrued but unable to be recognized until someone redeems a point or mile. The fluctuating gap between forecasts and actuals makes the revenue recognition process frustratingly complicated. And as airlines partner across the value chain and give loyalty customers more redemption and earning options via credit card issuers, rental car companies, hotels, and retailers, they have to contend with external data that makes the revenue puzzle even tougher. Some companies are using blockchain to build digital loyalty wallets that track reward tokens redeemable across multiple partners and purchase types. Digital wallets can help to satisfy the customer and keep the process of accounting for revenue decentralized from an individual carrier and transparent.

Engine and parts leasing through smart contracts

Expanding leasing opportunities through a streamlined payment execution process and ledger

Parts leasing can be a cost-effective alternative to purchasing in an industry that is notably capital-intensive. But it can be clunky to manage lease agreements with multiple external partners, and the complexity of the process invites error. While it's already common for airlines to lease engines based on hours of use, spreading that model to other parts has been difficult because of complexity. With smart contracts that use blockchain to self-execute transfers of value, the leasing model could apply to more equipment on each aircraft, on a micropayment basis that is standardized and trustworthy. The automation of these supply chain transactions could also reduce or eliminate the need to process invoices and payments, which could result in more liquidity and flexibility with fewer resources dedicated to documenting and executing transactions.

“Airlines CFOs need more than attractive promises—they need real solutions.”





Interlining and revenue recognition

Creating efficient and trustworthy revenue sharing across airline partners

Interlining lets airlines offer their customers expanded route options and easier re-accommodations when cancellations occur. But settling accounts is complex and tedious, and compliance with the IATA Simplified Interline Settlement (SIS) standard can be challenging. As total revenue sources become more complex, including not only seat fares but also fees for selection, baggage, and in-flight enhancements, so does revenue recognition. And with each partner driven to collect as much as possible, trust can wear thin in the process of sharing revenue. If multiple airlines and IATA were to define code-sharing rules with smart contracts and execute and track payments on a blockchain, airlines could potentially introduce more innovative total revenue drivers with a goal of recognizing their share of the revenue more quickly.

“The path ahead contains critical decision points.”

Airport slot management

Improving capacity utilization through supply and demand-driven slot allocation

Airports have finite slot and runway capacities. An unused slot is a vanished asset. Airline CFOs must forecast and bid on slot needs with an imperfect view of the future. Blockchain has the potential to reach across the silos where the different data sets related to scheduling reside, speed the process of identifying unused gates while there's still a chance to use them, and automate the speedy resale of those assets to other airlines. That approach could mean a revenue premium for the seller and an operational assist for the buyer, fewer friction costs within process, and fewer delays and cancellations for passengers. To make this approach work, airlines, airports, and traffic control need enhanced real-time data capabilities, and airlines will need faster processes to execute changes to planes, crews, and ticketing.

The path ahead contains critical decision points

Advances like these examples, and others yet to emerge, make blockchain an enticing prospect. Like any new technology, however, it rewards care in application, and the path ahead contains critical decision points.

Where aviation and passenger information are concerned, for example, data security is imperative. Regulators, who may still be learning the technical basics just as airline executives are, have their own path to follow as they incorporate the new technology into the rules that run the industry. And any new technology initiative carries capital and training considerations. Still, whether it's parts tracking or interlining, adopting blockchain throughout the process ecosystem can provide substantial benefits.

Getting started

An effective approach starts with realism that dispels the hype. Is blockchain unhackable? No, just significantly more secure than the methods it replaces. Is it a way to store data, like the cloud? No, it's more like a way to give data a receipt—a record of transactions that serves as its own ledger instead of living on one individual company's ledger. Does using blockchain make your data public? No, certain participants in a blockchain system can have write access, while others have read-only; however,

all participants see the authenticity of all transactions, but not their content.

If you're looking for a path forward, it can help to start by asking a few questions that assess what needs exist inside your own organization and how ready you are for the steps ahead.

- Is your current finance operation—its data structure, access patterns, and trust level—suitable for blockchain?
- Considering your current data volume and adjacent technologies you might need, what would your ease of implementation be?
- What's the impact blockchain can deliver for your organization—and do you have a clear present-day baseline from which to measure the benefits?

The changes ahead run deep

No matter how a self-assessment of an airline's readiness for blockchain checks out, the changes ahead run deep. This technology isn't a standalone technology—the more deeply it intersects with business operations and other systems, the more power it can offer. Some of the other platforms blockchain may touch are familiar legacy systems. In other cases, blockchain will work in tandem with other emerging technologies, such as image recognition. Similarly, the operational impact may go

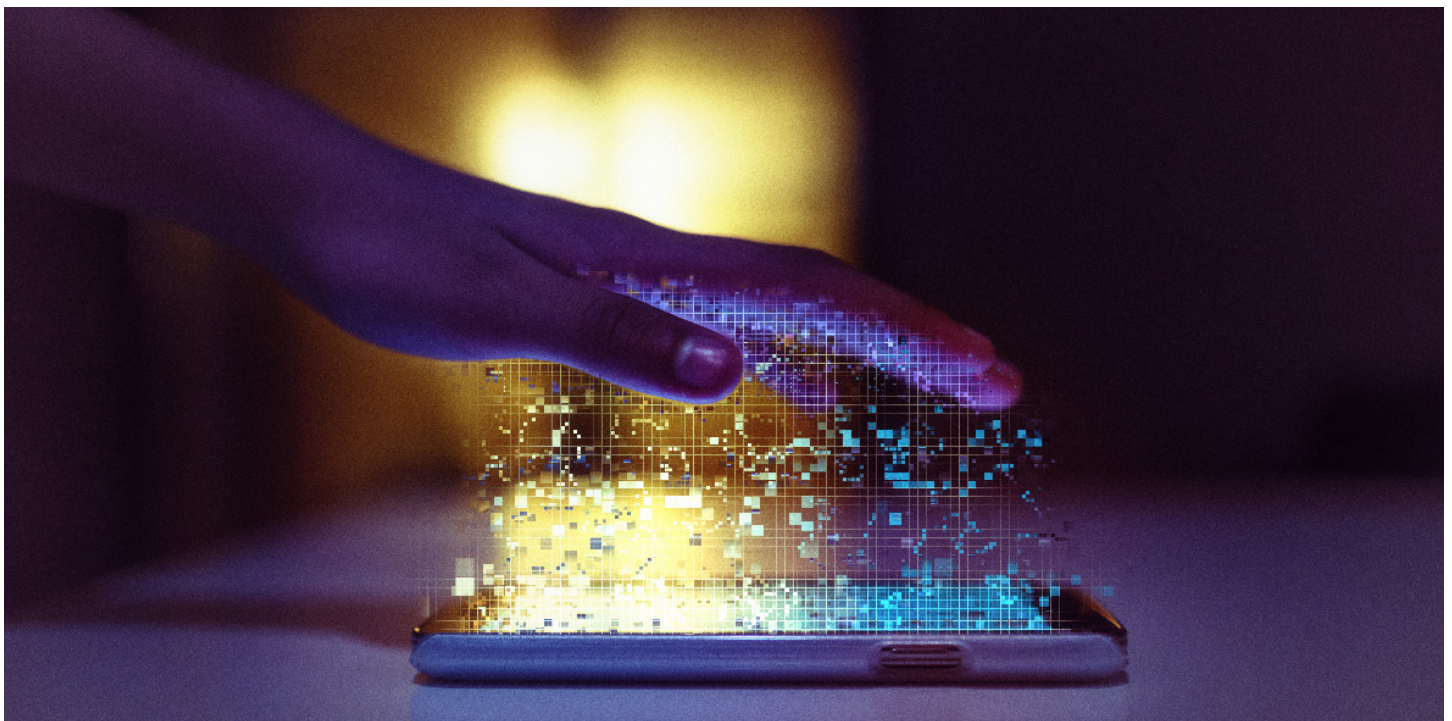
beyond current structures and extend into areas of more profound change, such as process innovation and business model innovation. An integration partner that excels at both the business and technology aspects of the challenge can help amplify the rewards.

Now is the time to start small—and to think big

Blockchain's future in the airline industry is being written right now. With all paths open, now is the time to start small—and to think big. The examples here represent only some of the possibilities, and each airline should identify the opportunities that offer the right fit for its needs. From proofs of concept to pilot programs, there is room today to iterate, experiment, and refine. Before long, many airline CFOs will wonder how they did things the old way.

If you'd like to learn how blockchain and other new tools could enhance your own finance operation—or see how they're already at work in other companies—the first step is to talk to us.

From there, you set the pace in blockchain adoption. Today, the only proofs of concept you have may be in someone else's shop. Tomorrow, with the right roadmap, you could be writing your own.



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