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Accelerating **Tolling**

Commercial Back Office (CBO) Implementation Without Sacrificing Reliability or Security

Prepared by Emovis | November 2025

Executive **Summary**

Transportation authorities have gradually shifted away from manual toll collection booths to automated systems that help reduce traffic congestion and lower administrative overhead. As these implementations become modernized and consumer demands evolve, the need for faster, more agile implementation of Commercial Back Office (CBO) systems has become critical.

When establishing a new CBO, implementation timelines typically take anywhere from 18 to 24 months, depending upon scope and complexity, but this timeframe is no longer viable with the rapid pace of digital transformation and infrastructure modernization.[1]

Consequently, industry leaders are reassessing frameworks to ensure CBOs are installed and operating as quickly as possible to address operational demands. The core challenge, however, lies in creating a harmonious balance of speed, compliance, reliability, data standardization, and cybersecurity.

[1] Federal Highway Administration (FHWA), 2021.

01
Why Implementation Speed **Matters Now**

The global market for back-office tolling systems is booming significantly. Researchers project it will reach $13.93 billion by 2033.[2] These systems act as behind-the-scenes champions in tolling, diligently working on the backend to process numerous transactions quickly while ensuring data privacy, seamless customer interactions, and accurate billing and revenue for every vehicle passage.

Technology is advancing and road users want faster transactions. With the need for speed, delays in deployment can be a costly challenge, often causing disruptions in customer service, and even increased maintenance costs for outdated systems. As a result, the tolling industry's focus has shifted from whether CBO implementation timelines need to be shortened to how to achieve faster delivery without compromising system performance, trust, and data integrity.[2]

The projected global market for back-office tolling systems by 2033[2]

[2] Data Intelo, 2023.

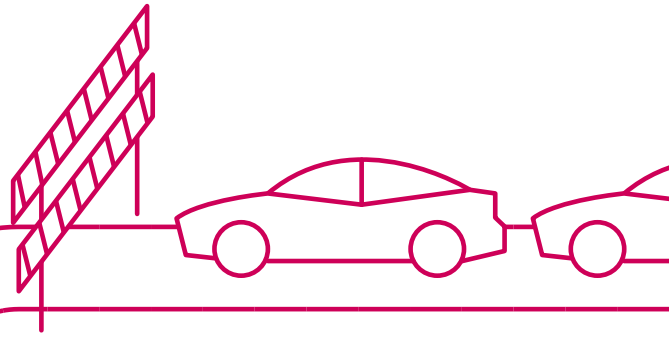
02

Roadblocks to Advancing Commercial Back Offices in Tolling

A CBO acts as the mastermind behind every tolling operation. Often designed to support free-flow tolling, road usage charging (RUC) programs, congestion charging, and low-emission zones; it fuses every moving part from customer account management to billing and payments, enforcement, reporting, and data analytics all into one system.[3]

Due to their central role, modernizing and getting these complex systems up to speed presents considerable challenges. Each project must navigate issues of historical data migration and stakeholder governance, while still being able to meet evolving compliance standards. This complexity accounts for the prolonged time it takes to deploy these systems and emphasizes why speeding them up requires a strategic overhaul, not just a quick fix.

In the process, agencies frequently encounter numerous hurdles.



COMMON ROADBLOCKS

01 **Organizational change management and user adoption:** Decision-making processes are frequently stalled by the complexities of multi-agency collaboration, vendor coordination, and contract oversight. Misalignment during training and user adoption can lead to errors and prolonged transition phases.[1]

02 **Regulatory compliance and data protection standards:** Adherence to data privacy and cybersecurity standards in tolling adds additional validation steps, which can also cause delays.

03 **Legacy data migration and conversion:** Safely transferring millions of historical records, while ensuring their accuracy and continuity, presents a significant challenge.

04 **Complex integrations across multiple vendors:** Many agencies still rely on roadside or ERP systems that are decades old, necessitating custom connectors and data standardization.[1]

05 **Customization prompts time-to-market delays:** Developing a CBO solution demands a substantial amount of time and effort for design, testing, and implementation. Each customization adds to complexity, extending project schedules and delaying the delivery of a fully operational back office system.

[1] Federal Highway Administration (FHWA), 2021.
[3] Washington State Department of Transportation (WSDOT), 2023.

03

The Future of Tolling CBO Rollouts: **Faster Path to Operation**

The next wave of commercial back-office systems will be shaped by technological advancements and mobility evolution. Several forward-looking trends, including automation, in-car payment technology, and increased reliance on cloud-based tolling and API-driven ecosystems will create new avenues for commercial back offices to be implemented quickly. These advancements will ensure a future in electronic tolling where CBO systems run smoother, and are both safer and more versatile to keep pace with the rapidly evolving transportation landscape.[2]

TRENDS SHAPING THE FUTURE OF COMMERCIAL BACK OFFICE TECHNOLOGY

Outsourcing to reduce operational complexity: Agencies and transportation authorities often outsource day-to-day commercial back office functions to third party service providers, such as Emovis. This approach helps operators improve both speed and efficiency in financial functions including revenue collection, payment processing, and reporting. For example, Emovis Transact manages the full billing cycle—from transactions to road user identification—to help agencies and operators minimize revenue losses and offer multiple secure payment options for customers.

Road usage charging (RUC) programs and in-car payment technology: Some toll authorities are exploring transponder-free RUC solutions like plate recognition, while others are transforming vehicles into mobile wallets. For instance, Volvo Cars, Mastercard, and the North Carolina Turnpike Authority are collaborating on a new pilot program that automates toll payments. This seamless approach ensures every vehicle is accounted for and streamlines the back-end process, making it wireless and more efficient.[5]

Cloud-driven strategies for interoperability: The use of cloud-based tolling systems can help toll operators manage a variety of payment configurations such as pre-pay, post-pay, variable, or flat tolling fees more seamlessly. This type of automation offers faster CBO deployment and enhances toll operators' ability to cater to multiple types of road users, ranging from commercial fleets, rental car companies, individual drivers, and industrial trucks.[4]

Open APIs for frictionless integration: Open API frameworks are vital for minimizing friction between tolling systems and their partners. These frameworks enable vendor-neutral integrations which can help reduce the need for custom coding. As toll systems continue to coincide with mobile wallets and multi-agency networks, leveraging API-driven architecture can help create a more flexible and future-proof system.[1]

[1] Federal Highway Administration (FHWA), 2021.
[2] Data Intelo, 2023.
[4] IBTTA, 2023.
[5] Mastercard, 2025.

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04

CONCLUSION

A Look Ahead: The Path to Future-Ready CBO Systems

In order for the tolling industry to support the demands of modern mobility, commercial back-office implementations must be accelerated in a way that is strategic and scalable for improved functionality and collaboration.

By embracing these principles when designing and overhauling systems, tolling authorities can modernize without delay, safeguard public trust, and ensure back offices are just as cutting-edge as the roads they manage. After all, the long-term success and viability of future tolling systems depends heavily on back-end solutions that are robust, easy to deploy, and sustainable.

For more information on Commercial Back-Office Tolling solutions or Emovis Transact, visit Emovis online at emovis.com/product/emovis-transact/.

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