

A-to-Be

By **Brisa** Group 

Mobility Solutions,
Made Together.



Design Flexibility in AET Systems

2023 ASECAP DAYS, September



RUC
ROAD USER CHARGE



A-to-Be
Atlas™ ITS
ROADSIDE AND CENTRAL



A-to-Be
MoveBeyond™

Tolling Back Office
COMMERCIAL AND
OPERATIONAL



A-to-Be
LinkBeyond™

Tolling Road-side

40+
years of
experience

Multi-Lane Free Flow
TAG, BLUETOOTH, VIDEO,
EXPRESS LANES
OR SATELLITE TOLLING



A-to-Be
LinkBeyond™

But today let's

focus on MLFF

a growing trend in tolling

MLFF, a growing trend in tolling

Beneficial

- Environment Friendly
- Convenience to Customers Safer
- Low Cost of Ownership
- Value-added service offers

Flexible

with a fit in Diverse Toll
Collection Models

- Tag and/or License Plate
- Prepaid/Postpaid
- MLFF, Express Lanes, High
Occupancy

Consistent

New Projects launched
consistently

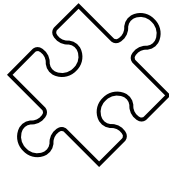
- Greenfields
- Brownfields/Refurbishments
- Migration to cashless
- Pilots for new approaches

However...
...no size fits all



Schemes

Different toll collection schemes



Integration

Diverse integration needs



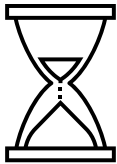
Regulation

Specific regulation frameworks apply



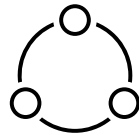
Reconciliation

Reconciliation requirements vary



Hosting

Requirements range from years to decades



Footprint

Infrastructure specifics apply (renew/reuse)



Future

Scaling expectations



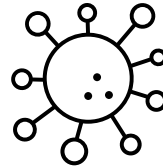
However, no size fits all

Coping with diverse business rules



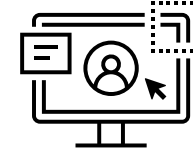
Microservices

Having a modular design for processing transactions based on microservices



Simplify

Simplify canonical transactions produced at the toll zone as much as possible



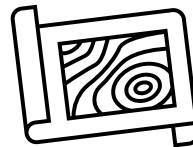
Friendly

Offer a user-friendly interface across the board to promote familiarity to all users



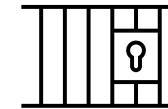
Host Me!

Migrating business rules from the Zone Controller (gantry) to the Host to the extent possible



Stage Template

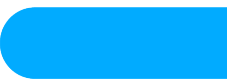
Develop a Business Rules template for each stage, for accurate mapping on the Product



Agnostic

Ensure the solution is agnostic to technology and vendor

Coping with diverse business rules

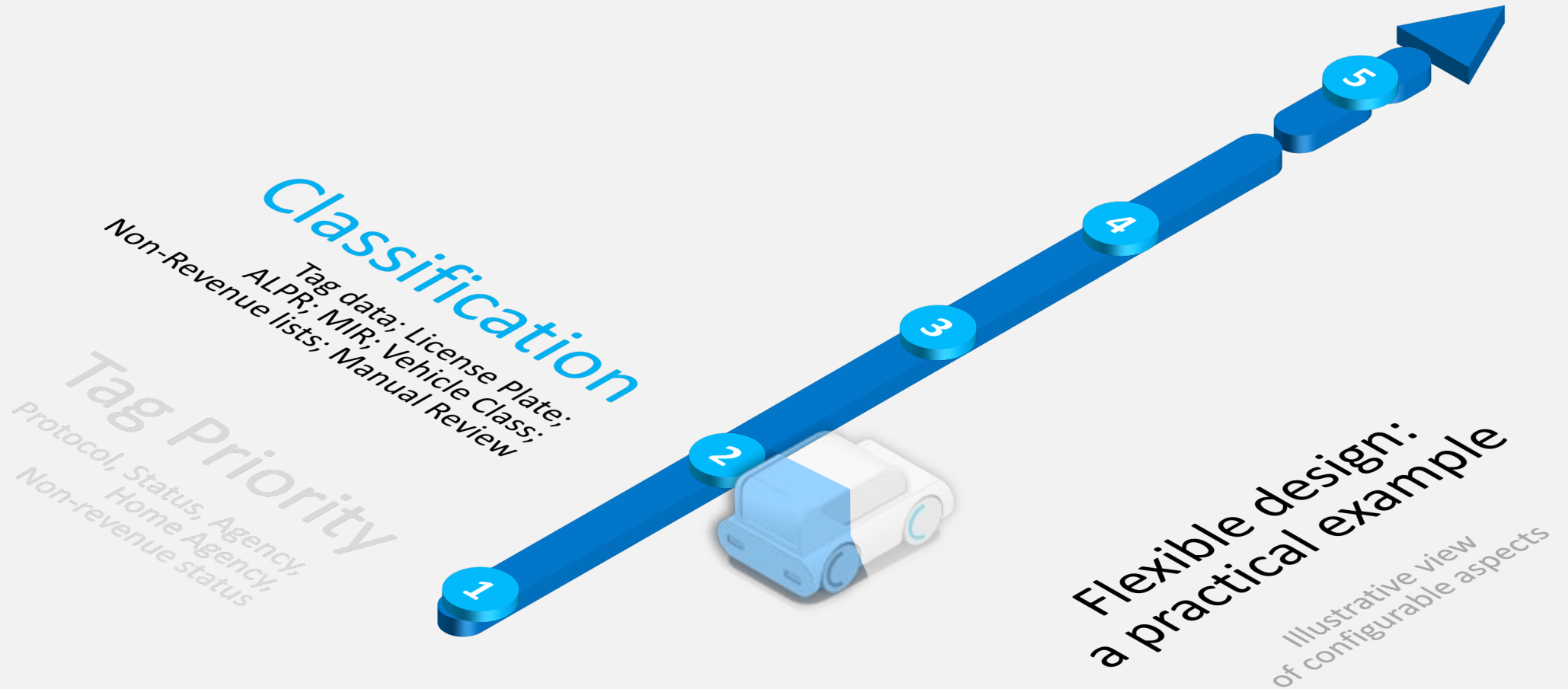


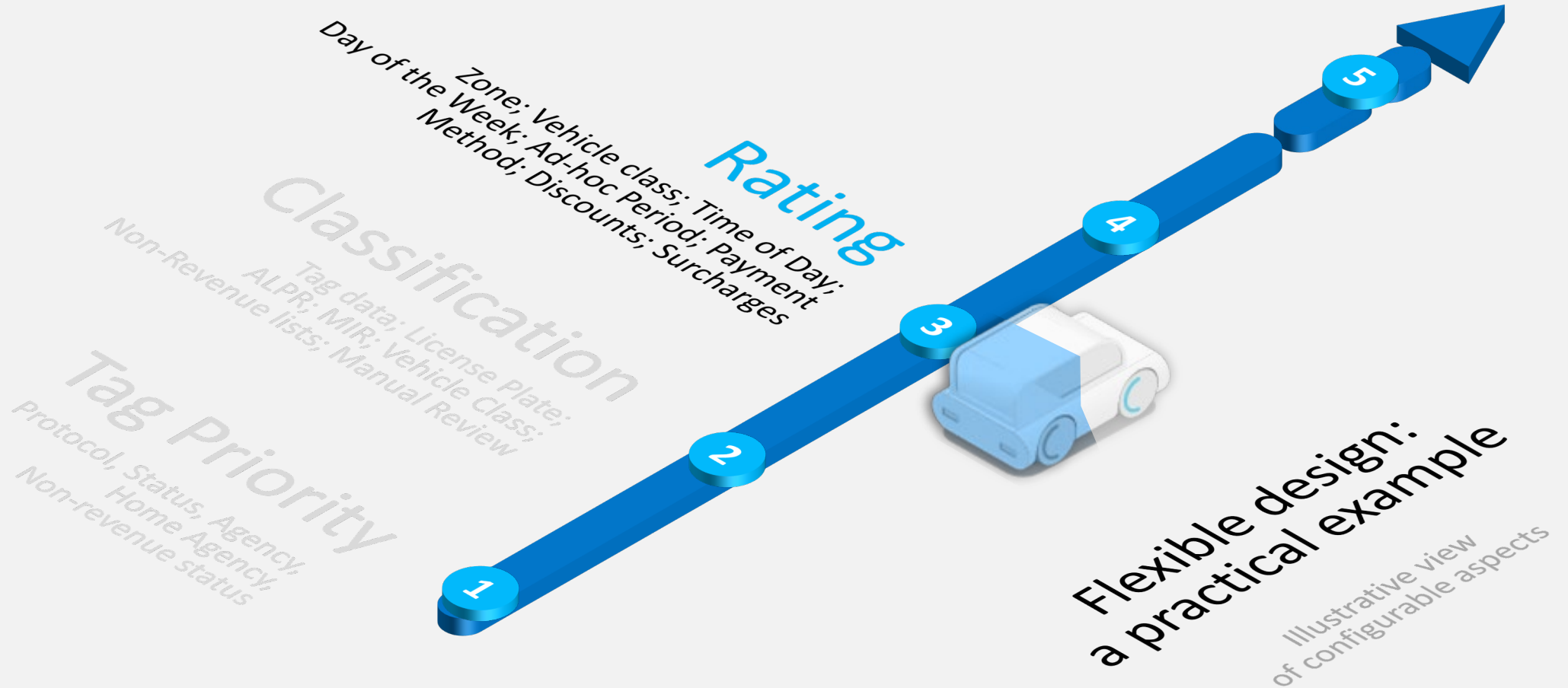
Flexible design: a practical example

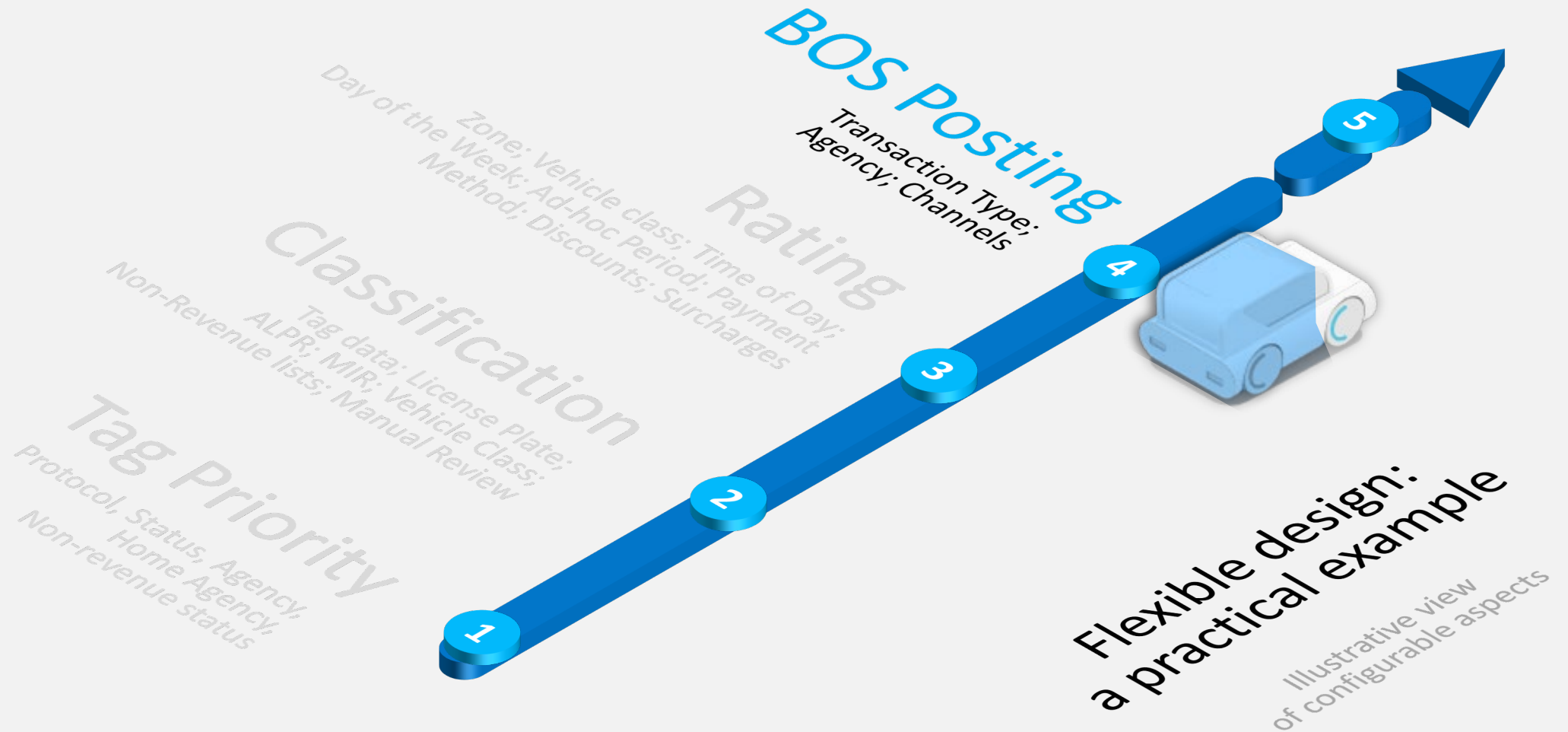
Tag Priority
*Protocol, Status, Agency,
Home Agency,
Non-revenue status*

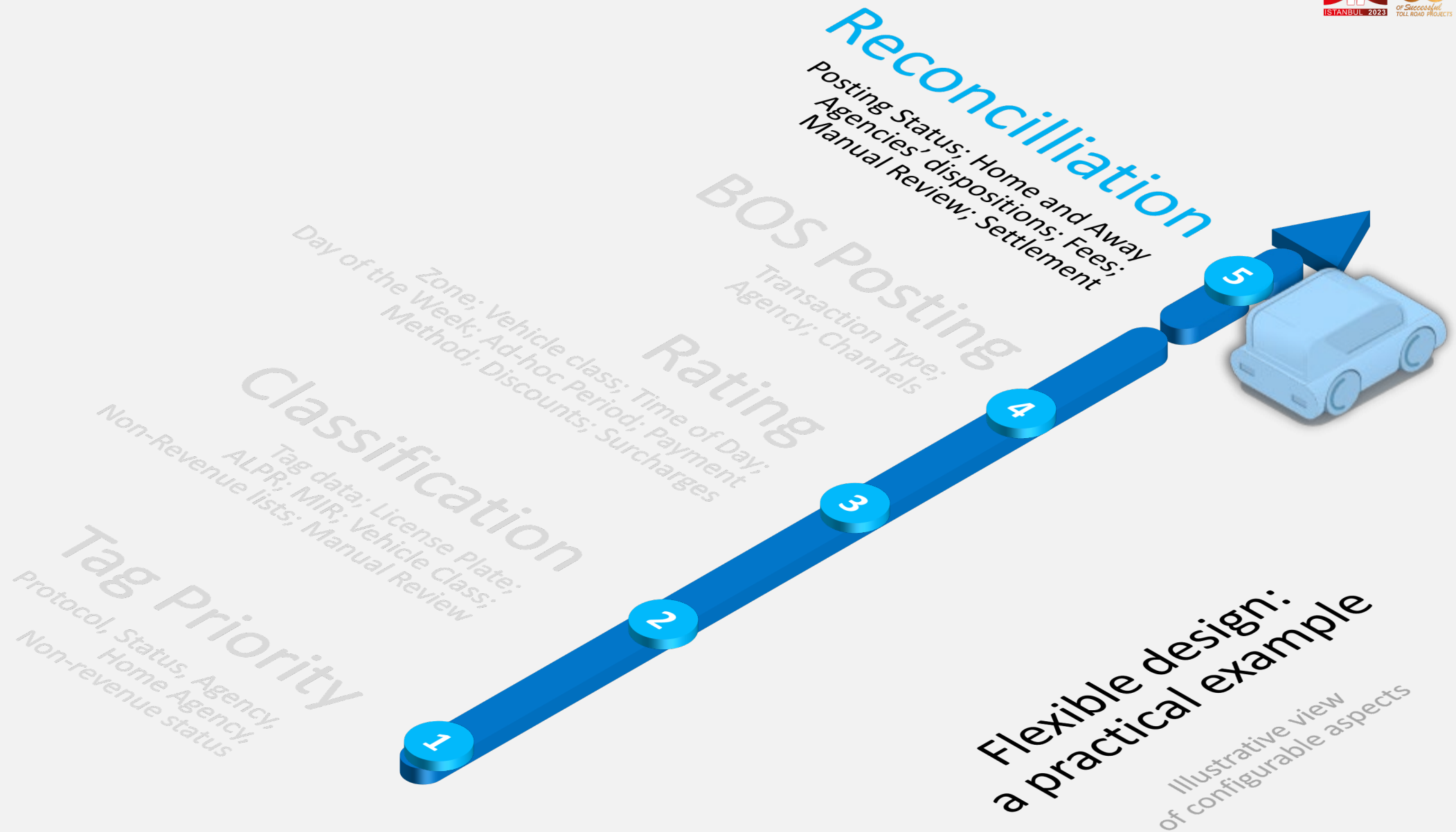


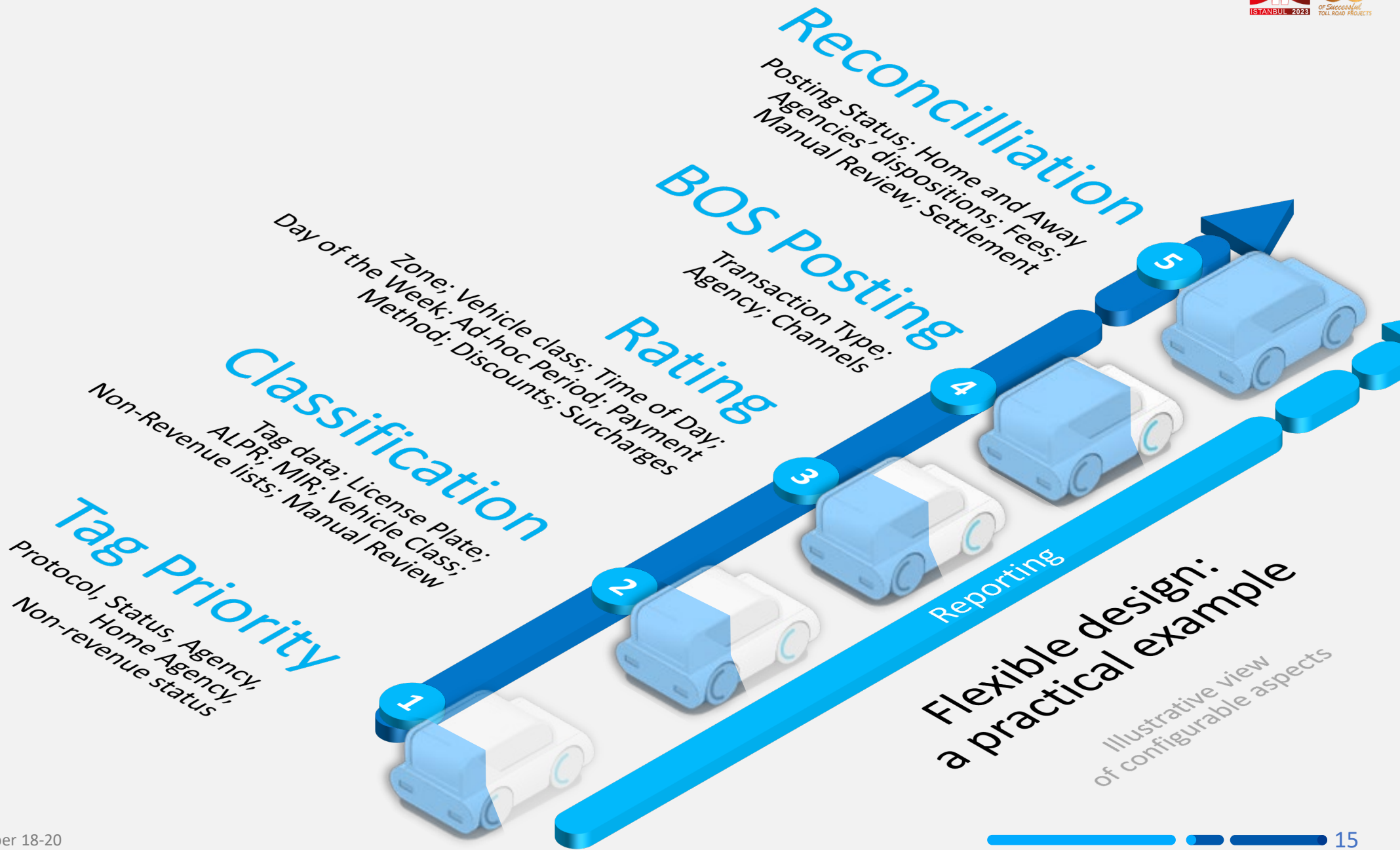
**Flexible design:
a practical example**
*Illustrative view
of configurable aspects*











“Could you show
it?”

You’ve read my mind

SYSTEM STATUS OVERVIEW

- Operation overview and leakage data
- Dynamic Dashboards
- Volume and revenue perspectives
- Menu options adjusted to enabled functions

Volume and Revenue perspectives

Dynamic dashboards

The screenshot displays the TMS toll management system dashboard. The interface includes a sidebar menu with options like Dashboard, Toll Zones, Transactions, Events, Audit, Reports, Files, Rates, System, and Settings. The main content area features several data visualizations:

- Top 5 Transponder Agency Distribution:** A pie chart showing Agency 10 at 95.8% and Agency 1 at 4.2%.
- Total Volume by Day and Hour:** A heatmap showing volume across days of the week and hours of the day.
- Volume by Day and Type:** A line chart showing volume for License Plate, Transponder, and Non Billable types over time.
- Volume by Day and Toll Zone:** A line chart showing volume for different toll zones.

Configurable menu options

TRANSACTION LIST

Transaction details and drill-down

Rich filters

Customizable interface (column selection and order)

Exportable to popular formats

The screenshot displays the 'Transactions' page in the TMS toll management system. The interface includes a sidebar with navigation options like Dashboard, Toll Zones, Transactions, Events, Audit, Reports, Files, Rates, System, and Settings. The main area features a 'Rich Filtering' section with multiple dropdown menus for Transaction #, Facility, Lane, Class, Payment Method, AVC Class, TZC Transaction #, Axles, Tag #, Agency Code, BOS Delivery Status, and Disposition #. A table below shows transaction details with columns for #, Date, Toll Zone, Lane, Status, Disposition Status, Class, Payment Method, Toll Fare, Tag #, Tag Status, and Images. A 'Column choice' callout points to the table headers. An 'Exportable' callout points to the top right of the interface. The bottom of the screen shows 'Showing results 1-10 of 24' and 'Results per page 10'.

#	Date	Toll Zone	Lane	Status	Disposition Status	Class	Payment Method	Toll Fare	Tag #	Tag Status	Images
0003137821	06/22/2023, 11:34:24 AM	9000 - A2B - QA Test Site	1	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137820	06/22/2023, 11:22:20 AM	9000 - A2B - QA Test Site	1	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137746	06/22/2023, 11:16:20 AM	9000 - A2B - QA Test Site	1	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137743	06/22/2023, 10:38:27 AM	9000 - A2B - QA Test Site	1	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137740	05/26/2023, 11:21:34 AM	9000 - A2B - QA Test Site	2	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137739	05/26/2023, 11:09:36 AM	9000 - A2B - QA Test Site	2	Reconciled	Accepted	3	License Plate	\$0.80	--	--	
0003137735	05/26/2023, 08:21:58 AM	9000 - A2B - QA Test Site	2	Reconciled	Accepted	2	License Plate	\$0.70	4356681	No balance tag	
0003137731	05/26/2023, 07:36:23 AM	9000 - A2B - QA Test Site	2	Reconciled	Accepted	2	License Plate	\$0.70	3191430	Invalid tag	

GANTRY DASHBOARD

System Overview

Metrics

Data History

KPIs and trends



Metrics

KPIs and Trends

History

Zone Controller interface example

Footage and Alerts

Data Quality

REAL TIME SYNOPSIS

- Real-time assessment of system behavior
- Real-time footage and alerts
- Subsystem status and transaction quality
- Live Transaction and Event generation

The screenshot displays the TZC tollzone controller interface for Skyline Plaza - SB. It features a sidebar with navigation options: Dashboard, Synoptic, Events, Transactions, Status, Activity Logs, and Settings. The main content area is divided into several sections:

- Synoptic:** Shows a live camera feed of Lane 3 (DVAS - Left Shoulder Camera) with lane markings L1, L2, and L3. Below the feed, it indicates Lane State is 'Open' and Lane Mode is 'Live'.
- Alerts:** A list of recent alerts, including 'Front camera at LANE 2 is ONLINE', 'Front camera at LANE 2 is MALFUNCTION', 'Front camera at LANE 2 is ONLINE', and 'Rear camera at LANE 1 is MALFUNCTION'.
- Device Status:** A table showing the status of various devices.
- Current Transaction:** A table showing the details of the current transaction for Lane 3, including Tag ID, Tag Class, AVDC Class, and Date Time.
- Previous Transaction:** A table showing the details of the previous transaction for Lane 3.
- Real-time Events:** A table listing recent events with columns for Event, Date Time, Lane, Type, and Sub-type.
- Transactions:** A table listing recent transactions with columns for Transaction, Date Time, Lane, AVDC Class, Tag Class, and Ims.

Live data

Zone Controller interface example

But... 
...does it work?

Challenge

Modernize the Tolling Solution

Mitigate leakage and ensure revenue

Scope

Full-stack MLFF RSE and Host

Data generation, Agency posting and Reconciliation

Timeframe

4 months
Requirement Definition

6 months
From Development Kick-off to Go-Live

10 months
From project kick-off to go-live

Key Results

8.5 %
revenue increase

All leakage identified and addressed

Actual case

A-to-Be

By Brisa Group

A-to-Be

By **Brisa Group**

Mobility Solutions,
Made Together.



Rui DIAS
Senior Product Manager
rui.dias@a-to-be.com

