TRAFFIC & TRANSIT DASHBOARD

Digitizing Taxonomy Framework

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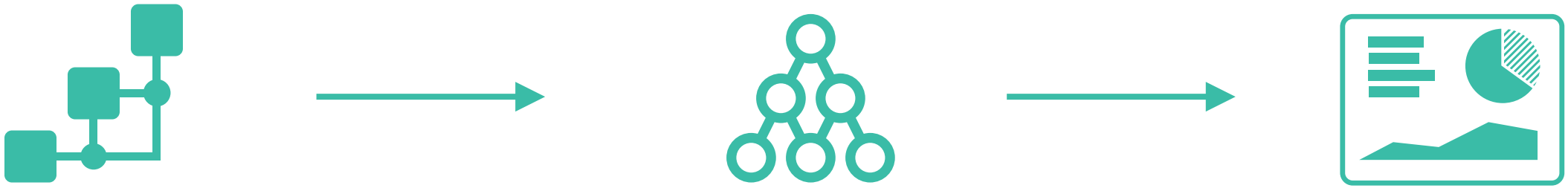
RESEARCH PATHWAY



ONTOLOGY **TAXONOMY** **DASHBOARD**

Drawing from both Ontology & Taxonomy studies in iCity, the Dashboard incorporates elements that produces the most viable visualization recommendation for applications hosted within the platform.

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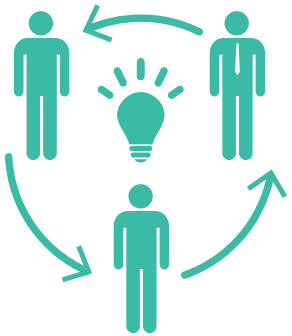
WHY DASHBOARDS?

Engagement

Allows for Civic Engagement in the context of the City and its many affordances.

Statistics

The City stats creates rationale as well as proves plans for functional urban planning & management



Planning

Urban Planning based on insights that are crowd-sourced from residents of the City.

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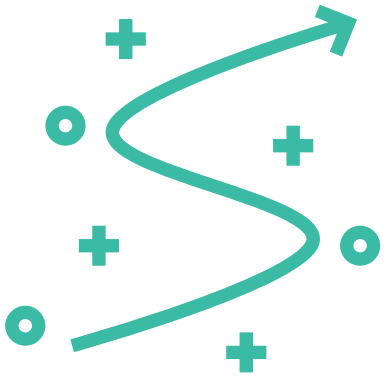
DASHBOARD TYPES

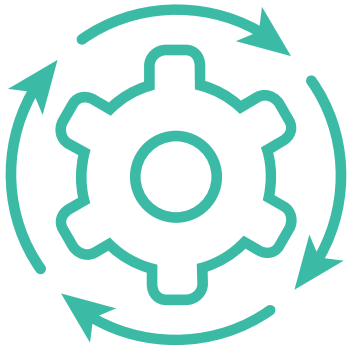


Strategic

Achieve Strategic Goals

Tactical

Measure Progress



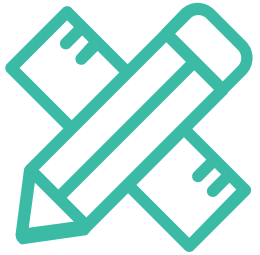
Operational

Monitor & Analyze Activities

DESIGN PRINCIPLES

Multi-Layered & User-Centric

Engage different User Groups using the **Taxonomy framework** with interactions that suit their engagement goals.



Translate to Visual

Customized **Visual Identity** that effectively translates Traffic & Transit concepts.

TAXONOMY FRAMEWORK

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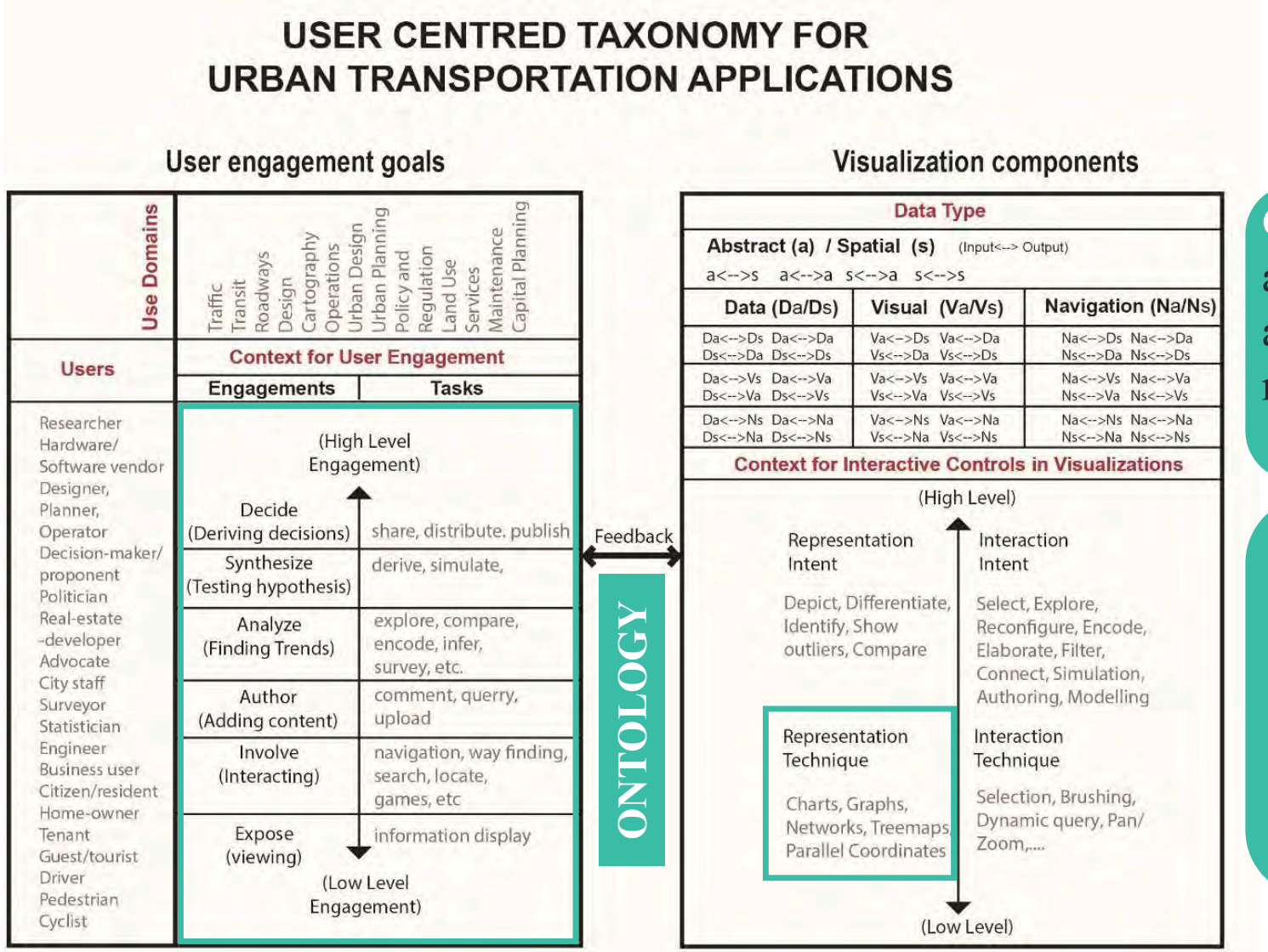
TAXONOMY FRAMEWORK



COMPARA: an intuitive interactive and searchable index that visualizes the attributes of software from a wide-range of applications and technologies.

VIZLAND: aspires to map a multitude of libraries that define data visualization types, their functions, their representational form, shapes, analytic capabilities, and descriptions, and making them query-able through a web interface.

COMPARA VIZLAND

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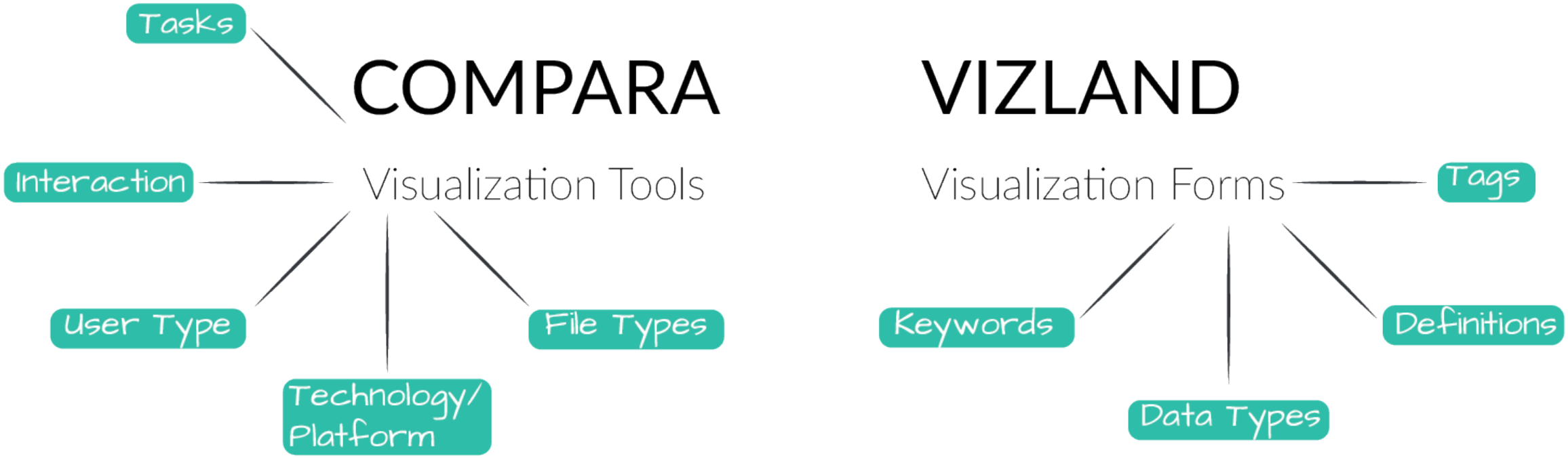
TAXONOMY FRAMEWORK contd.



While COMPARA derives intelligence on toolsets and software that are mapped to their respective User Group and Domain specifications, VIZLAND (*the VisualIZation LANDscape*) provides the optimum representation techniques that are most suited for a particular use case.

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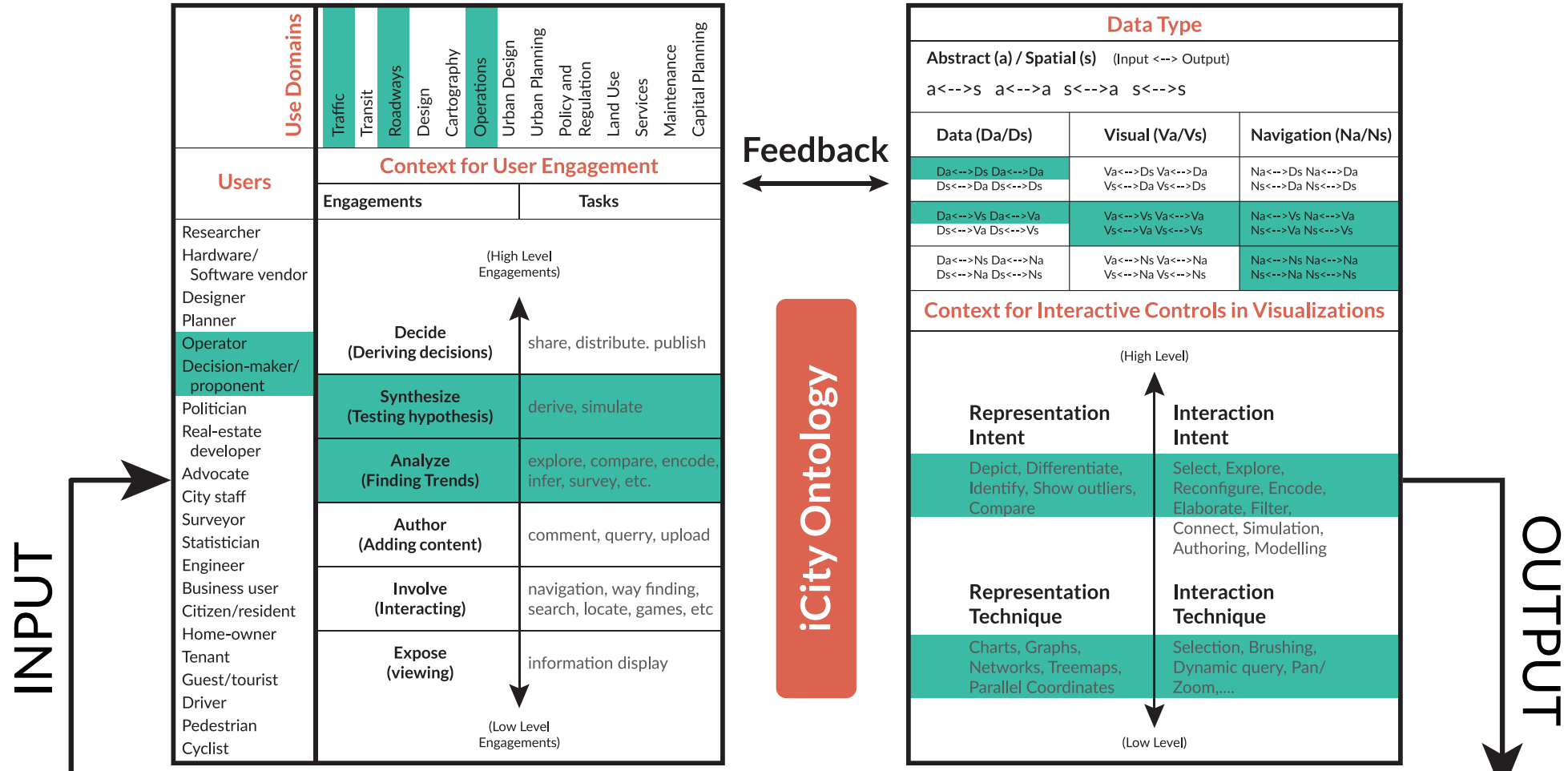
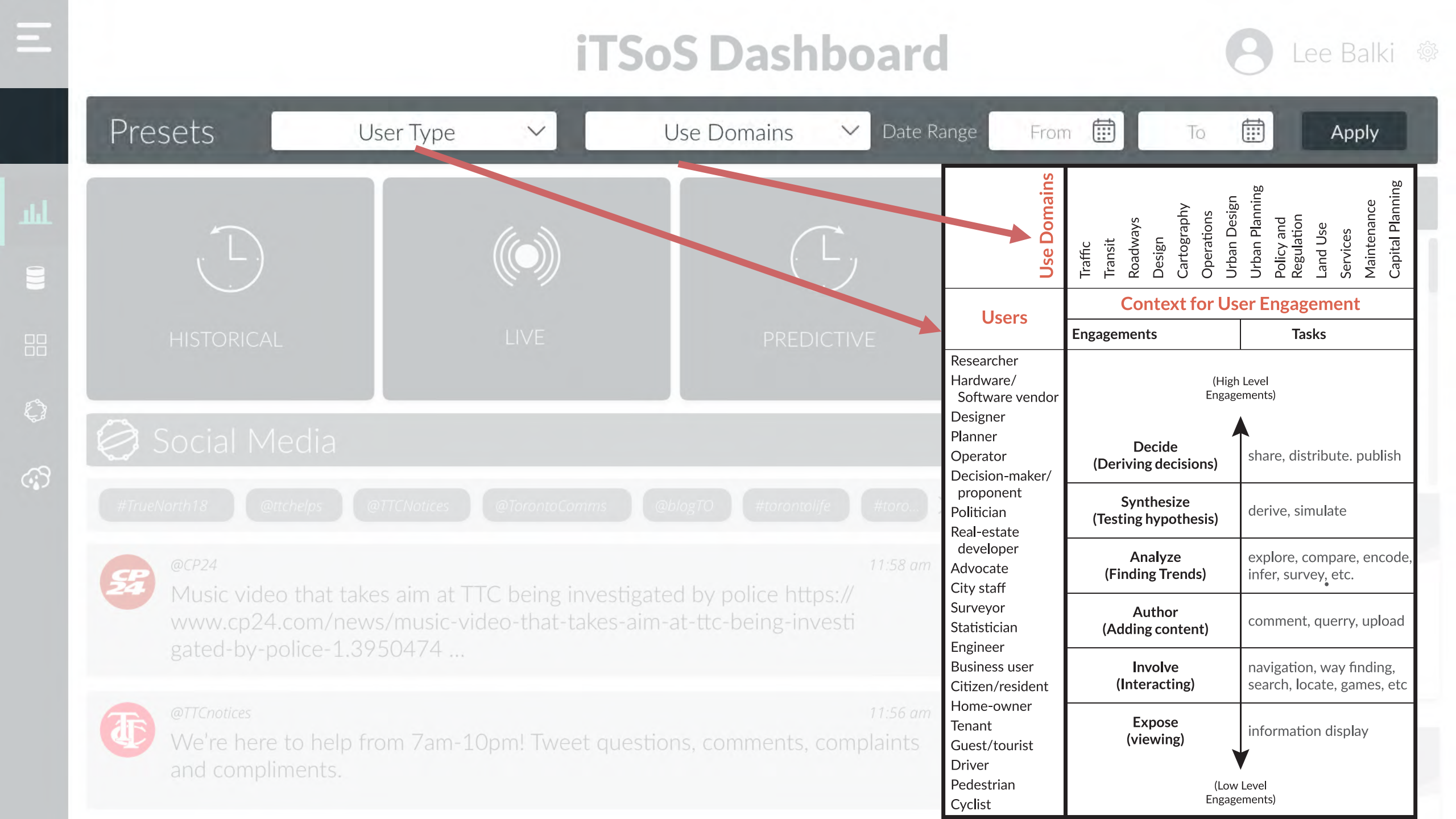
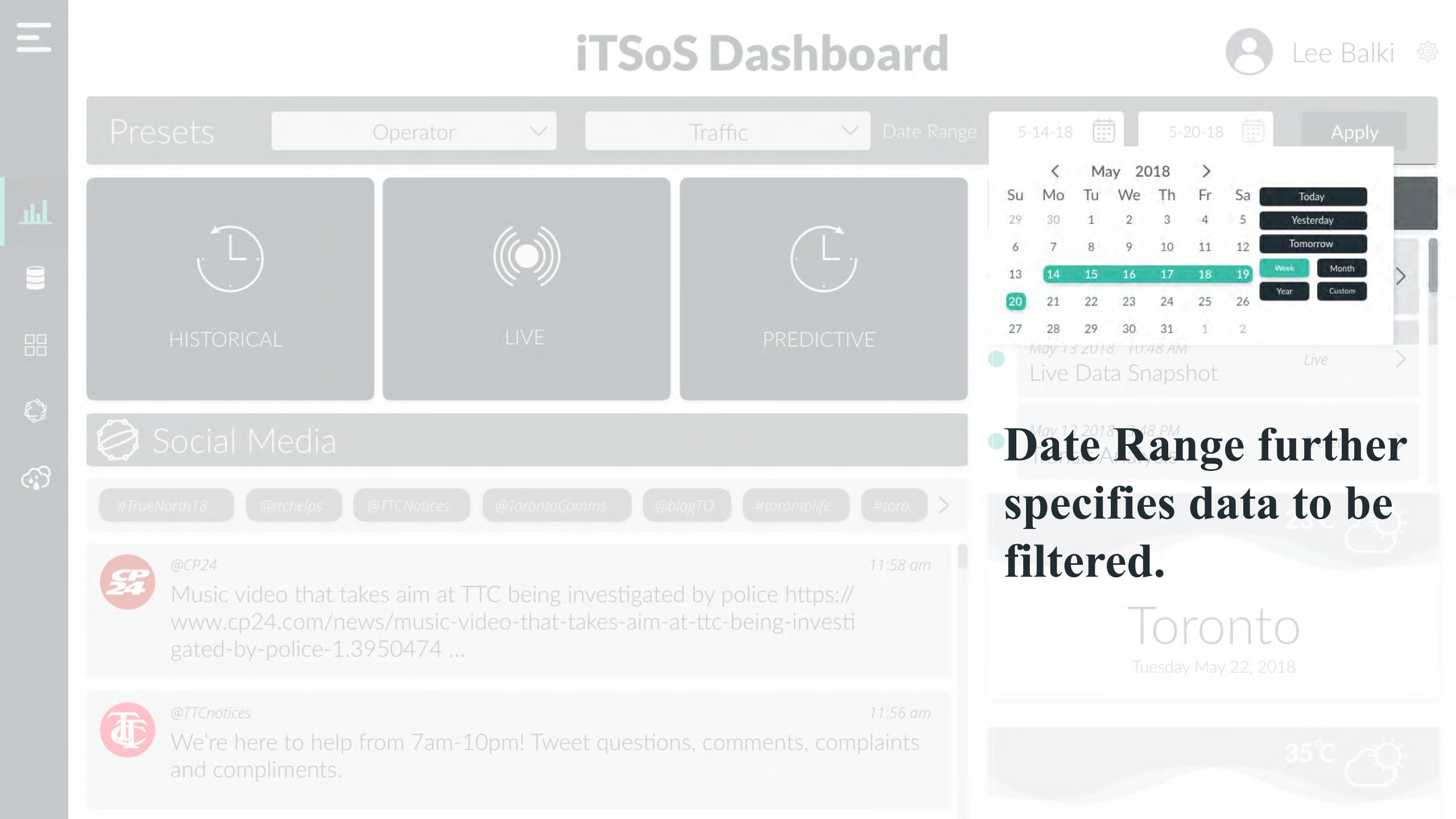
USE CASE – Traffic Operator

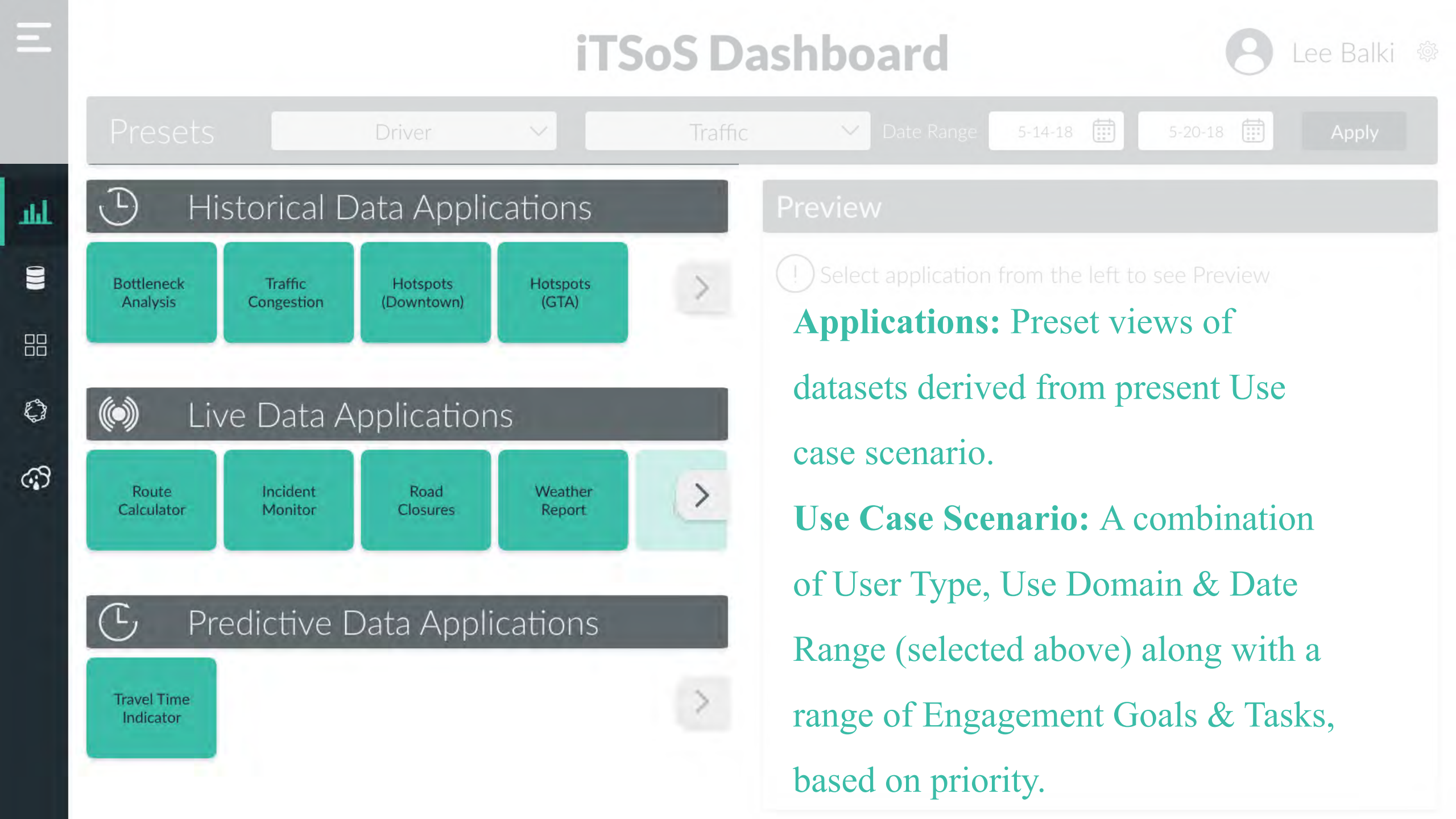


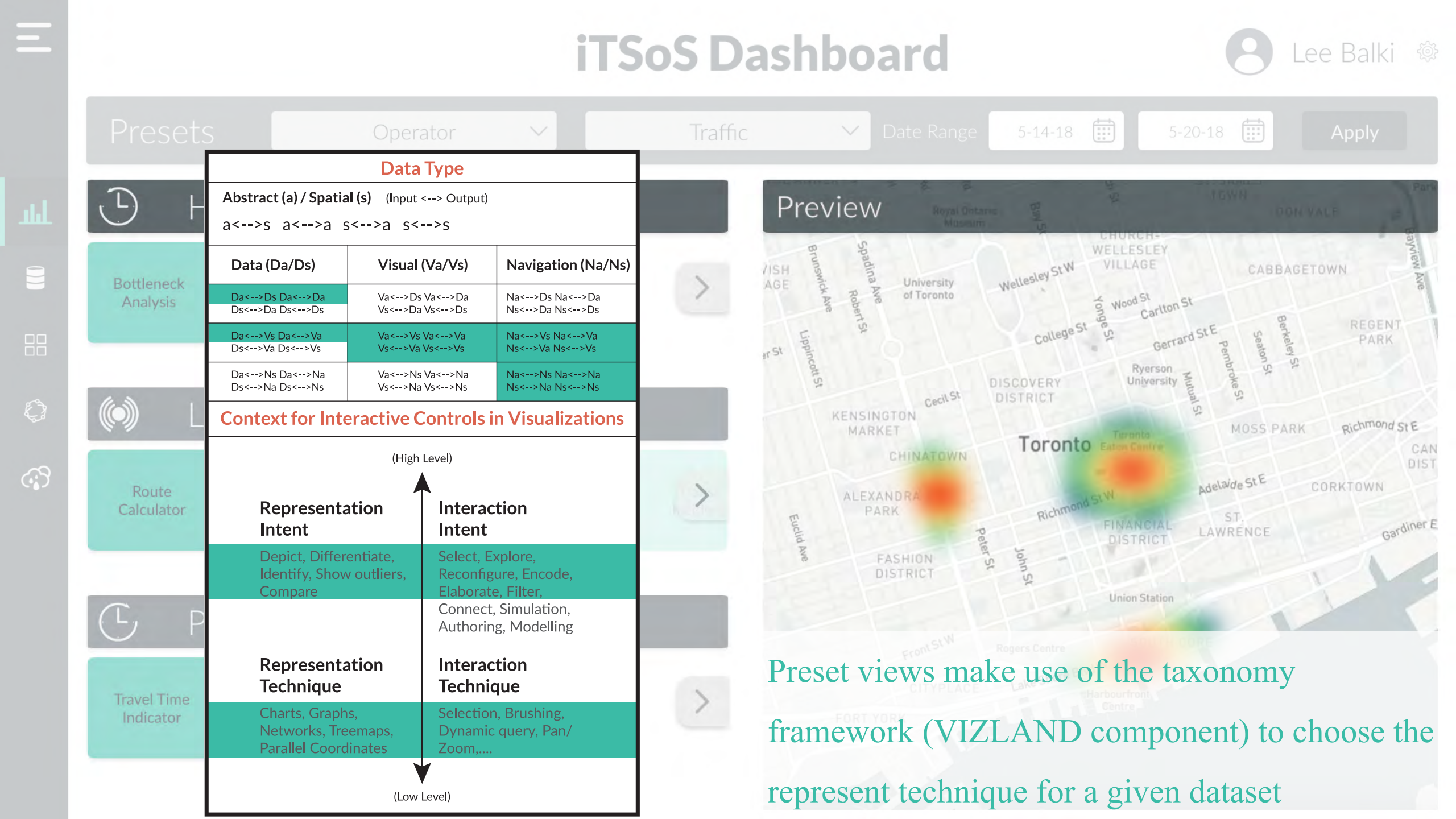


Use Domains	Traffic	Transit	Roadways	Design	Cartography	Operations	Urban Design	Urban Planning	Policy and Regulation	Land Use	Services	Maintenance	Capital Planning
Users	**Context for User Engagement**												
	Engagements	**Tasks**											
Researcher Hardware/ Software vendor Designer Planner Operator Decision-maker/ proponent Politician Real-estate developer Advocate City staff Surveyor Statistician Engineer Business user Citizen/resident Home-owner Tenant Guest/tourist Driver Pedestrian Cyclist	(High Level Engagements) ↑												
	Decide (Deriving decisions)	share, distribute. publish											
	Synthesize (Testing hypothesis)	derive, simulate											
	Analyze (Finding Trends)	explore, compare, encode, infer, survey, etc.											
	Author (Adding content)	comment, querry, upload											
	Involve (Interacting)	navigation, way finding, search, locate, games, etc											
	Expose (viewing)	information display											
	↓ (Low Level Engagements)												



Date Range further specifies data to be filtered.


iTSoS Dashboard
Lee Balki
Presets
Driver
Traffic
Date Range
5-14-18
5-20-18
Apply
Historical Data Applications
Bottleneck Analysis
Traffic Congestion
Hotspots (Downtown)
Hotspots (GTA)
Live Data Applications
Route Calculator
Incident Monitor
Road Closures
Weather Report
Predictive Data Applications
Travel Time Indicator
Preview
Select application from the left to see Preview
Applications: Preset views of datasets derived from present Use case scenario.
Use Case Scenario: A combination of User Type, Use Domain & Date Range (selected above) along with a range of Engagement Goals & Tasks, based on priority.


iTSoS Dashboard
Lee Balki
Presets
Operator
Traffic
Date Range
5-14-18
5-20-18
Apply
Bottleneck Analysis
Route Calculator
Travel Time Indicator
Preview
Toronto
Data Type
Abstract (a) / Spatial (s) (Input <--> Output)
a<-->s a<-->a s<-->a s<-->s
Data (Da/Ds)
Visual (Va/Vs)
Navigation (Na/Ns)
Da<-->Ds Da<-->Da Ds<-->Da Ds<-->Ds
Va<-->Ds Va<-->Da Vs<-->Da Vs<-->Ds
Na<-->Ds Na<-->Da Ns<-->Da Ns<-->Ds
Da<-->Vs Da<-->Va Ds<-->Va Ds<-->Vs
Va<-->Vs Va<-->Va Vs<-->Va Vs<-->Vs
Na<-->Vs Na<-->Va Ns<-->Va Ns<-->Vs
Da<-->Ns Da<-->Na Ds<-->Na Ds<-->Ns
Va<-->Ns Va<-->Na Vs<-->Na Vs<-->Ns
Na<-->Ns Na<-->Na Ns<-->Na Ns<-->Ns
Context for Interactive Controls in Visualizations
(High Level)
Representation Intent
Depict, Differentiate, Identify, Show outliers, Compare
Interaction Intent
Select, Explore, Reconfigure, Encode, Elaborate, Filter, Connect, Simulation, Authoring, Modelling
Representation Technique
Charts, Graphs, Networks, Treemaps, Parallel Coordinates
Interaction Technique
Selection, Brushing, Dynamic query, Pan/ Zoom,....
(Low Level)
Preset views make use of the taxonomy framework (VIZLAND component) to choose the represent technique for a given dataset

iTSoS Dashboard

Lee Balki

Presets | Operator | Traffic | Date Range | 5-14-18 | 5-20-18 | Apply

Scope to interact with additional data, based on this particular use case scenario's engagement & interaction Intent.

Data Type

Abstract (a) / Spatial (s) (Input <--> Output)

a<-->s a<-->a s<-->a s<-->s

Data (Da/Ds)	Visual (Va/Vs)	Navigation (Na/Ns)
Da<-->Ds Da<-->Da Ds<-->Da Ds<-->Ds	Va<-->Ds Va<-->Da Vs<-->Da Vs<-->Ds	Na<-->Ds Na<-->Da Ns<-->Da Ns<-->Ds
Da<-->Vs Da<-->Va Ds<-->Va Ds<-->Vs	Va<-->Vs Va<-->Va Vs<-->Va Vs<-->Vs	Na<-->Vs Na<-->Va Ns<-->Va Ns<-->Vs
Da<-->Ns Da<-->Na Ds<-->Na Ds<-->Ns	Va<-->Ns Va<-->Na Vs<-->Na Vs<-->Ns	Na<-->Ns Na<-->Na Ns<-->Na Ns<-->Ns

Context for Interactive Controls in Visualizations

(High Level)

Representation Intent

Depict, Differentiate, Identify, Show outliers, Compare

Interaction Intent

Select, Explore, Reconfigure, Encode, Elaborate, Filter, Connect, Simulation, Authoring, Modelling

Representation Technique

Charts, Graphs, Networks, Treemaps, Parallel Coordinates

Interaction Technique

Selection, Brushing, Dynamic query, Pan/ Zoom,....

Heatmap Legend

Slow — Fast

(Low Level)

DATA LIBRARY

- Walkscore
- Zoning
- Buiding Footprint
- Ridership
  - Bus
  - Street Car
  - Subway
- Incidents
- Closures

DESIGN CONSIDERATIONS

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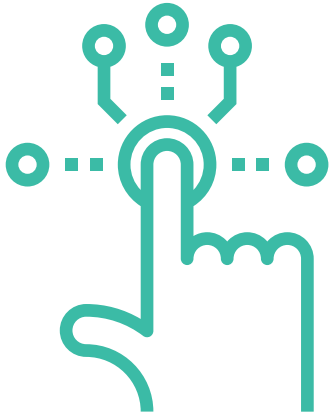
DESIGN CONSIDERATIONS

Visual Language & Identity

Technology & Platforms



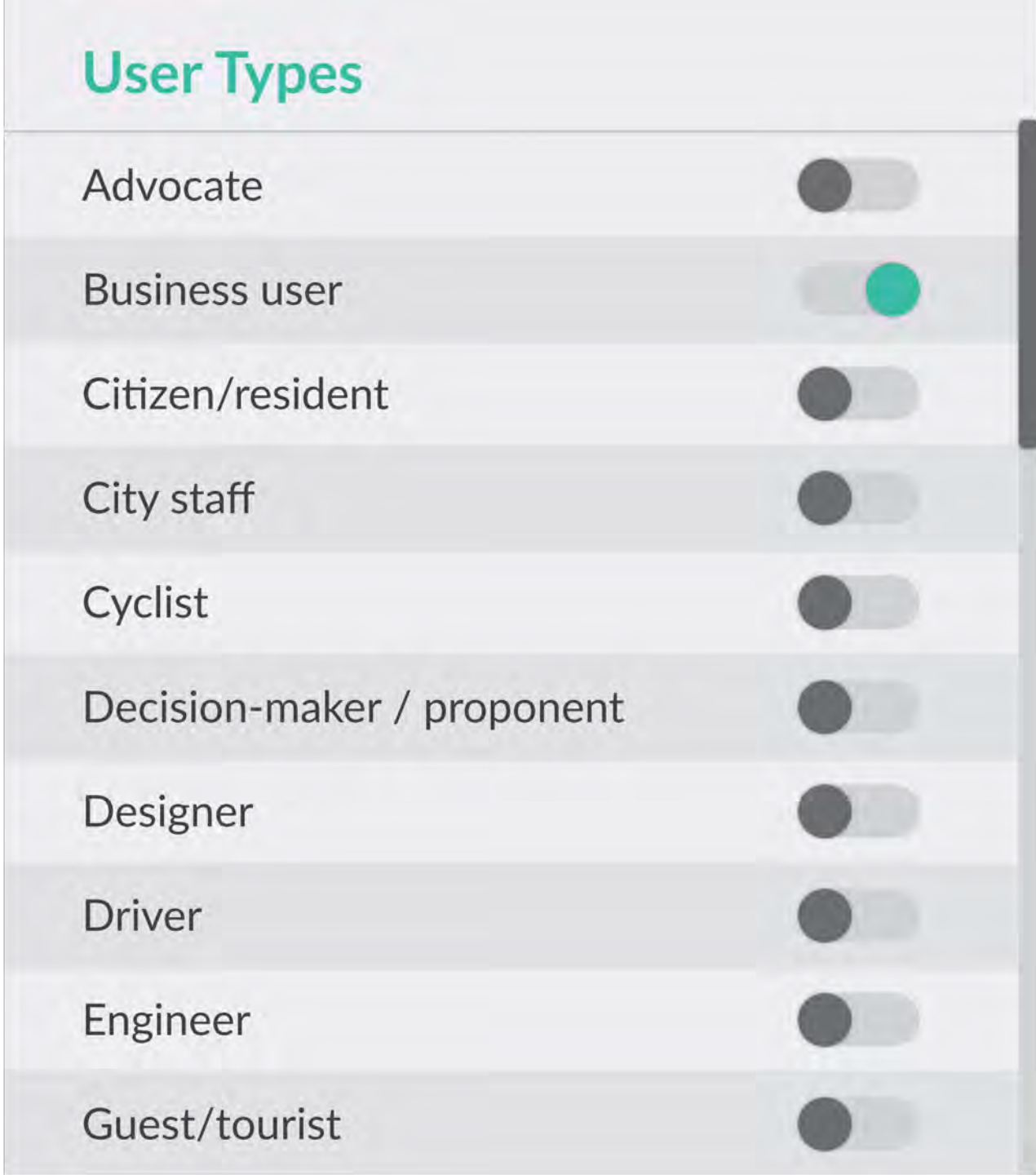
Interaction Mechanics

Usability & Accessibility

INPUT:
USER SPECIFICATION

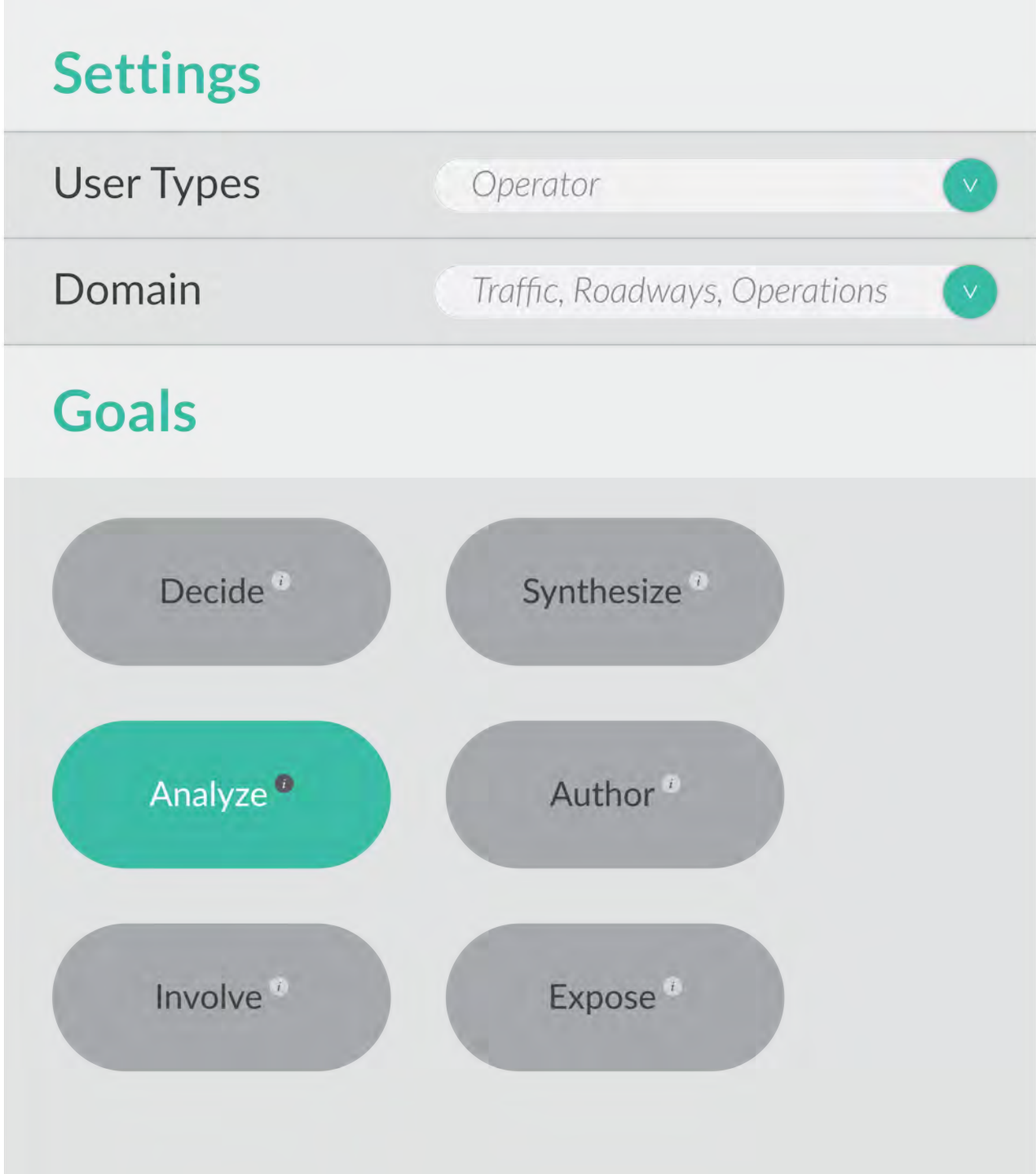
There are many ways to collect a User's intent to Represent & Interact.

Explicit collection of User Types at start of session.



INPUT:
ENGAGEMENT / INTERACTIONS GOALS

Allowing users to specify their level of engagement along with User settings (user type & use domains).



LIVE WALK-THROUGH

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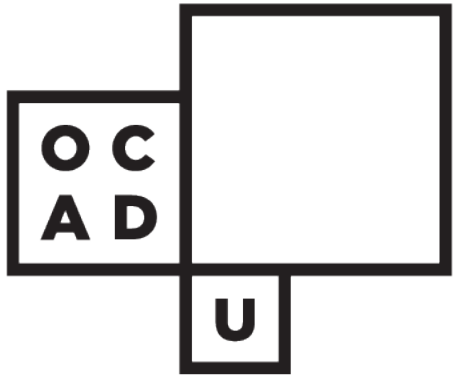

Questions ?

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UTTRI

THANK YOU!

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