WHY A PLATFORM APPROACH IS THE ONLY PATH FOR SUCCESSFUL PROCUREMENT OPERATIONS OF A SMART CITY

MICRO WHITEPAPER

How to adapt procurement models for a future of modern mobility management

The Better Way. Every Day. **swarco**

1 ABSTRACT

This paper presents the needs, challenges, and possibilities associated with procurement processes in the future of traffic infrastructure and mobility management. It outlines the significant impact that disruptive innovations have on a City's procurement, contractual, and budget operations, and how these models can be updated and restructured to join the technical progress of modern traffic management platforms.

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2 Introduction

Cities have up until now mainly operated their traffic infrastructure inhouse and only made substantial upgrades once the system is no longer supported or has become technically outdated. These procurement cycles would happen around every decade. However, innovative concepts such as Cooperative, connected and automated mobility (CCAM), Mobility as a Service (MaaS), Shared Mobility, and Micromobility no longer allow a slow and purely reactive approach towards urban traffic infrastructure and mobility management. It is therefore necessary for agencies and procurement leaders to restructure both regulations and operational models.

3 The future of traffic systems

Seamless integration and data sharing with different vendors and systems are now expected from a modern mobility platform. However, cities often do not have the experience, resources, or depth in their staff to properly develop and maintain a wide range of different software interfaces with third parties and field devices. Neither would it be efficient to replicate such efforts at the Agency level.

If Cities are to effectively manage the large amounts of information they collect from traditional infrastructure like sensors, IoT devices, and connected vehicles, they need to look at their future requirements of mobility with a longer perspective in mind. This will result in a need to shift away from procuring stand-alone products for each application towards a platform approach, where several systems and applications can be integrated into one single system.

4 Procurement challenges

Cities face unique challenges during procurement, and the challenges will not get fewer with the continuous technology development in all areas of society. The average acquisiton process has taken far too long, and that hurdle will only get bigger considering the speed by which the mobility landscape is evolving. When the procurement process stretches out over many months or even years, it inflates costs for external resources and devours a City's internal resources leading to increased opportunity costs.

4.1 From one-off to subscription

The subscription model behind most platforms means receiving a system that constantly evolves with the industry, removing the need to ever purchase new systems. Procurement leaders can no longer only focus on what has worked before but rather pay attention to technology developments, maintaining flexibility in vendor selection rther than lock-ins, and constant delivery of value rather than 'one-off' purchases. Long-term commitments to solutions that remain static might have been sufficient in the past. But considering how quickly the mobility landscape changes, data types and volumes increase, online threats evolve, and IT needs advance, governments and cities need to start adjusting towards a service-centered procurement approach.

4.2 Budget constraints

Budget decisions have a profound impact on people's lives. From new road markings, public transit, air quality control, to the safety within our transportation network, budgets sit at the heart of community development. Commercial models in the platform approach need to enable cities and Operators to maximize the outcomes and efficiency of their available budgets.

Large aspects of procurements in the public sector are based on one-off purchases and specifically perpetual licenses for software products. This usually involves a one-time payment upfront to permanently purchase the software, which often results in a large up-front cost. While perpetual licenses have been working well for larger cities with adequate purchasing power, smaller and medium-sized municipalities are struggling due to budget constraints. Since 42% to 54% of the urban population in Europe and North America live in small and medium-sized cities, more flexible pricing models to meet these budget constraints are necessary.

5 Procurement opportunities

As well as creating challenges, modern traffic management systems also create several opportunities. New mobility platforms represent a contractual vehicle for cities to streamline procurement processes, ensure efficient use of the budget, and significantly shorten procurement cycle times and costs.

5.1 Open standards

The platform approach is based on open standards, using open Application Programming Interfaces (APIs), and offers a wide range of common interfaces and protocols enabling the collection, sharing, and processing of data across multiple systems and devices. Hence, cities are always able to select the best product possible, do not suffer from vendor lock-ins, and operate them all via a single platform. This allows cities to contract one single mobility platform operator who in turn establishes back-to-back contracts with third parties. This drastically reduces the duration and efforts during procurement cycles.
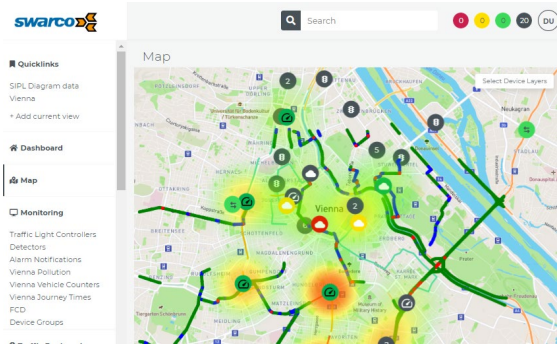
Picture 1 - Map visualization of 3rd party data (Floating car data, bike-sharing data, sensors (pollution, traffic, journey time, speed))

5.2 Modularity

The modern mobility platform not only makes it possible to assemble different types and sizes of systems, it also offers significant financial benefits. With support from the platform operator's mobility experts, cities can select the specific software modules that meet their current needs and budget requirements. This is a big differentiator to conventional systems where cities were not offered any options other than purchasing a complete system.

5.3 Flexibility

Operators of modern mobility platforms can offer a more flexible pricing structure to fit the different requirements and budgetary conditions of customers of different sizes. The availability of a subscription-based pricing model not only comes with all the additional services that technology vendors offer, but it also opens doors to customer segments that haven't had the purchasing power that traditional products with a one-off perpetual license required. This empowers small or medium-sized municipalities and large cities equally to benefit from cutting-edge technology via a modular, license, or subscription-based pricing model.

6 SWARCO MyCity

MyCity, SWARCO's mobility platform sets new standards when it comes to a customer-centric approach that focuses on providing answers to the most critical challenges of mobility. With a highly agile approach, the platform adapts to changing needs, offers integrations across various domains and modalities of transportation, and presents it via a common intuitive user interface. Hundreds of developers and mobility experts across the globe are adding new capabilities, ensuring that customers can constantly enjoy richer features, offer excellent support across multiple time zones, and have an answer to new challenges of mobility as soon as they appear on the horizon. MyCity provides unprecedented insight and toolsets to analyze, manage, and proactively steer mobility within a City, thus improving the overall quality of urban life by making the travel experience safer, quicker, more convenient, and environmentally sound.

Picture 2 - Strategy manager

6.1 Inclusive pricing models

MyCity offers a flexible set of pricing structures to fit the procurement models and strategies of customers. Primarily, the traditional 'one-off,' perpetual license structure that larger public customers have gotten accustomed to continues to be supported. Likewise, MyCity empowers specifically small and medium-sized municipalities and agencies from emerging markets to benefit from cutting-edge technology via a modular, subscription-based pricing model. The availability of a subscription-based pricing model not only comes with all the additional services that technology vendors offer, but it also opens doors to customer segments that haven't had the purchasing power that traditional products with a one-off perpetual license required. SWARCO's mobility experts assist in finding the right procurement model, finding and applying for public grants as well as working on a transition plan on how to move from a traditional to a more flexible procurement model. Consequently, MyCity and the team behind it empower small or medium-sized municipalities and large cities equally to benefit from cutting-edge technology via a modular, license, or subscription-based pricing model.

SWARCO
MYCITY

HOW TO TACKLE BAD AIR QUALITY IN URBAN AREAS

THE PROBLEM
BAD AIR QUALITY

- **3.4 million deaths** linked to outdoor air pollution globally
- **97% of cities in low and middle-income** countries do **NOT** meet WHO air quality guidelines
- **49% of cities in high-income** countries do NOT meet WHO air quality guidelines
- **Costs 1 trillion euros per year**

POLLUTION AS NOISE, BAD AIR, LIGHT CAUSES:

- The risk of stroke
- Heart disease
- Lung cancer
- Chronic and acute respiratory diseases, incl. asthma

Pollution is causing more than three million premature deaths worldwide

HOW DID IT GET SO POLLUTED?

- **Urbanization:** More and more densely populated cities
- Increasing man-made pollution through waste and combustion of fossil fuels
- **Day-to-day traffic**

- In the past, pollution was an acceptable by-product of urbanization
- Today, this is no longer the case

MYCITY AS A SOLUTION

MY CITY

DATA COLLECTION

Sensor:
ENVIRONMENTAL DATA

+

Sensor:
TRAFFIC DATA

+

Third-party data e.g
APPS, IN-VEHICLE DATA

PROCESSING & STORAGE

DATA VISUALIZATION

ALERTS & NOTIFICATIONS e.g. too high CO2 levels

REPORTING TO ANALYZE IMPROVE-MENTS

ACTIONS

SIGNAL PLAN ADJUSTMENT
E.G. Make green-time shorter in the suburb for cars entering the city center

REROUTING TRAFFIC
E.G. Trigger new scenarios where traffic is steered away from highly congested areas

SPEED ADJUSTMENT
High speed & CO2 are higly connected. Lower the speed for less emission

REAL-TIME DATA SHARING
E.g. air pollution levels trigger tolling system to adapt prices dynamically

STAKEHOLDER BENEFITS

TRAVELER
+ Health
+ Smoother journeys
+ Multimodal alternatives
+ Less noise
+ No congestion

DECISION MAKER
+ Meet WHO goals
+ Sustainable city
+ Save money
+ Attractive city
+ Image
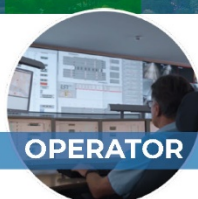
OPERATOR
+ Easier work
+ Less hours spent on monitoring
+ Easy to use system
+ Can add needed features at any time

E-SCOOTER PT PROVIDER
+ Increase in multi-modal travelers
+ Increased income
+ More space

The Better Way. Every Day. **swarco**

MY CITY