

ARTM

Autorité régionale
de transport métropolitain



The early stage in the Implementation of a metropolitan- wide asset management system

Agenda

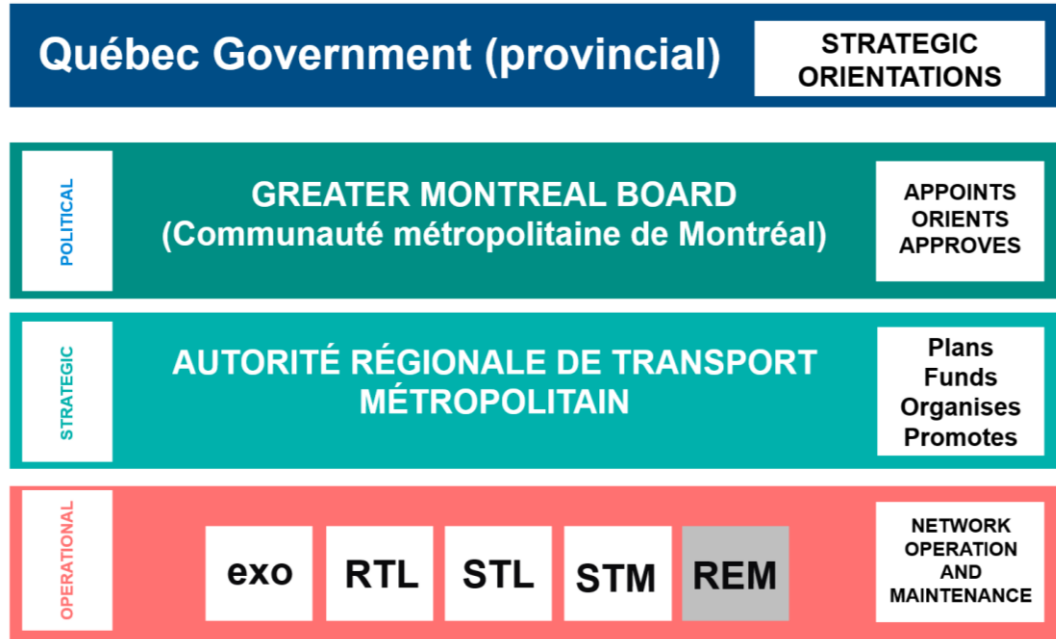
1. ARTM the context
2. The challenges
3. Our journey
 - a. Policy
 - b. Maturity assessment
 - c. Road map



© ARTM website



Governance



Missions Key facts - Reminders



Plan

Establish a transport offer in response to the needs of users of public transport services



Organize

Coordinate public transit services by taking steps to improve and integrate them



Finance

Sustain metropolitan funding for public transit while ensuring rigorous and responsible management of resources



Develop

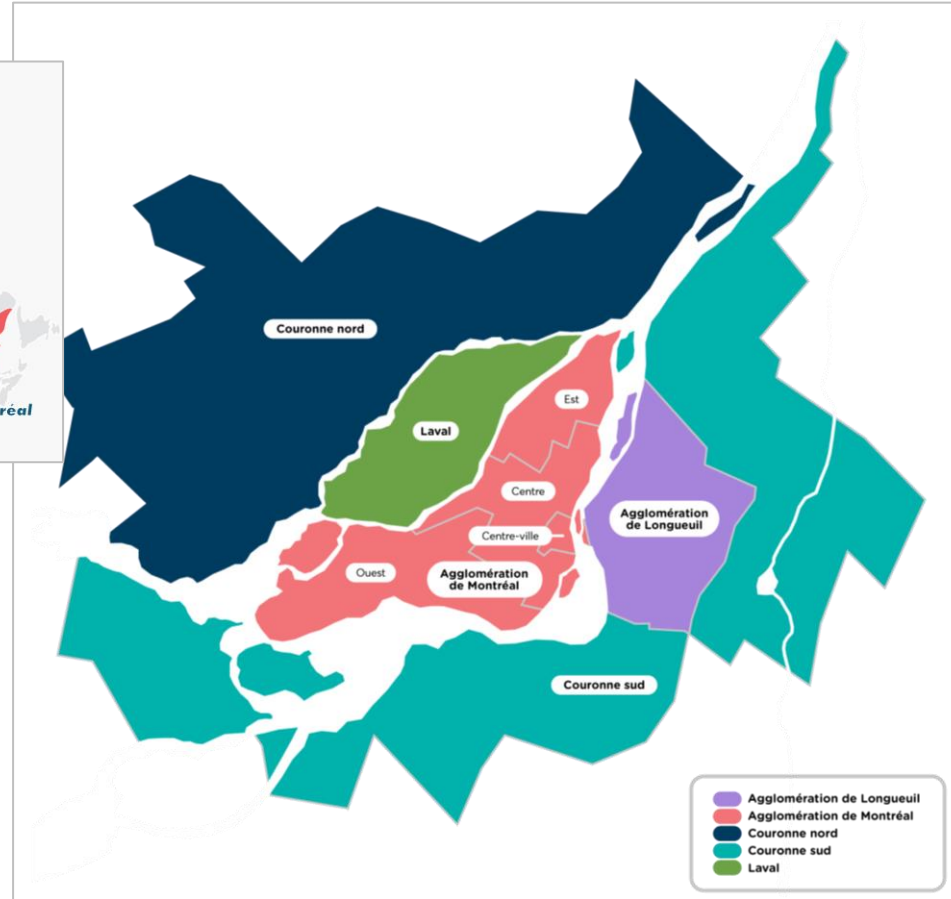
Manage public transit assets and infrastructure



Promote

Promote public transit, active transportation and carpooling, and contribute to the emergence of a culture of sustainable mobility

Greater Montreal Area



83

Municipalities



4000

Urbanized km²



4 M

Inhabitants



1,8 M

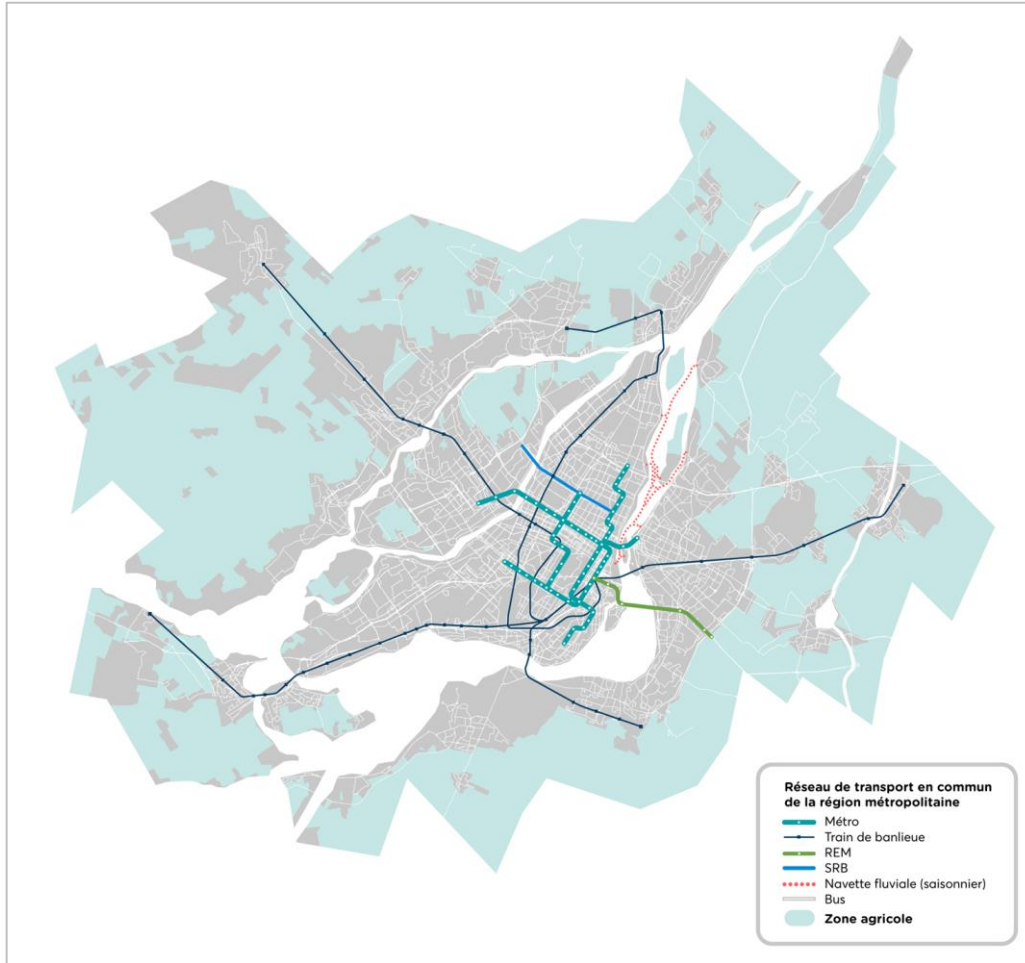
Jobs



8 M

Daily trips

Regional Transit Network



Métro



4 lines
68 stations
271,4 million trips (2018)

Bus



Over 600 lines
Over 240 million trips (2018)

Train



5 lines
51 stations
20 million trips (2018)

Paratransit



Fleet of minibuses and taxis
5,8 million trips (2018)

REM



4 branches
26 stations
Phase 1 - in service 2023
Phase 2 - 2024
Phase 3 - 2027

River shuttles



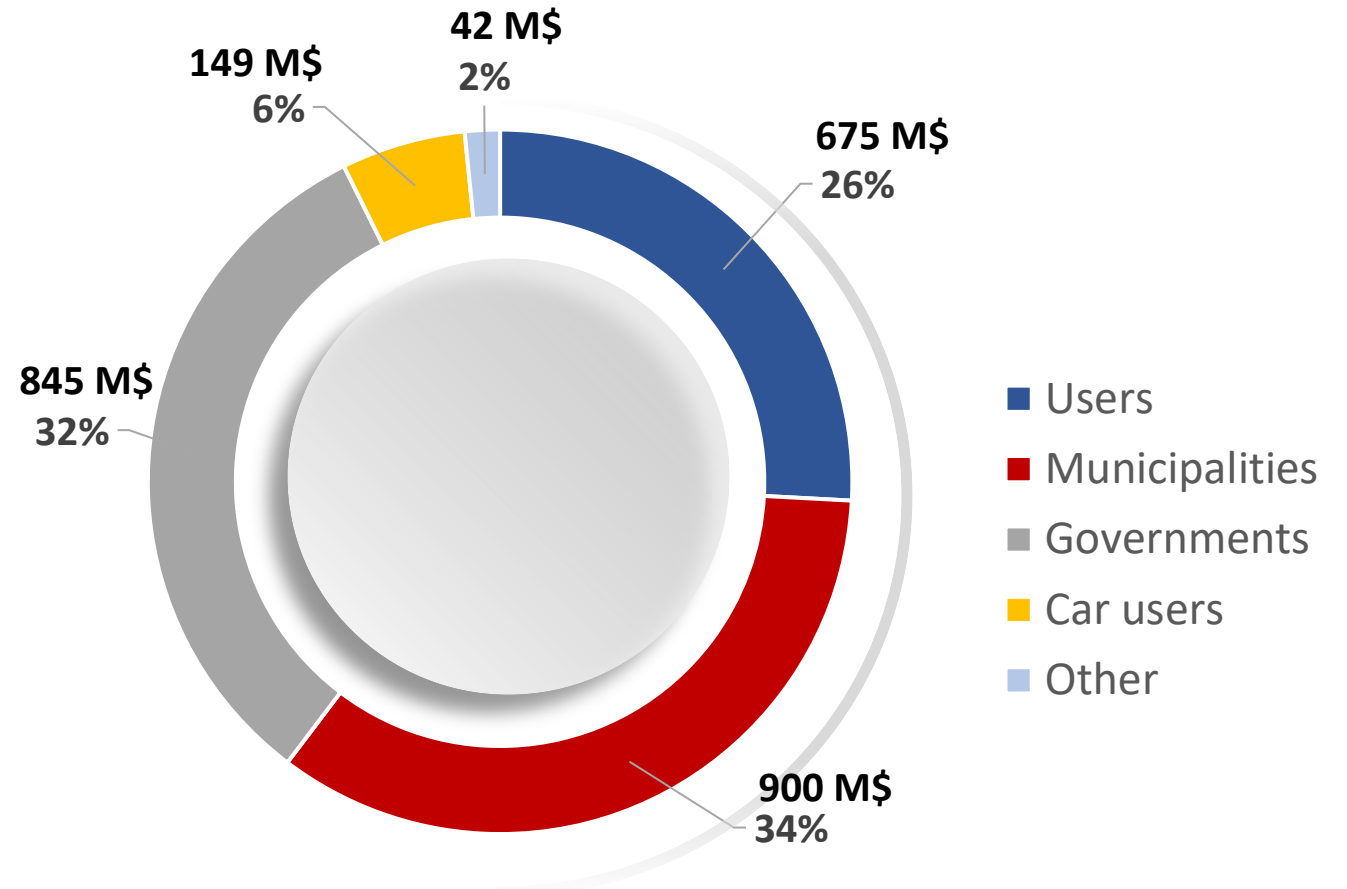
6 lines
8 docks
Seasonal pilot project since 2018
250 000 trips (2022)

Funding sources



2022 total revenue : 2,6 Billion \$

- Users: PT fares
- Municipalities: property tax (1 cent for 100\$ RFU), contributions to services' residual financing gap
- Government : operating subsidies and capital grants
- Car users: car registration tax (30\$ / car), gas tax (3 cents / L)
- Other: Publicity, commercial, etc.



Strategic Development Plan

As part of its mandate, ARTM creates a Strategic Development Plan **for all public transit services in the Montréal Metropolitan Area**, in collaboration with its partners



Rapid Transit Network

Current and committed network

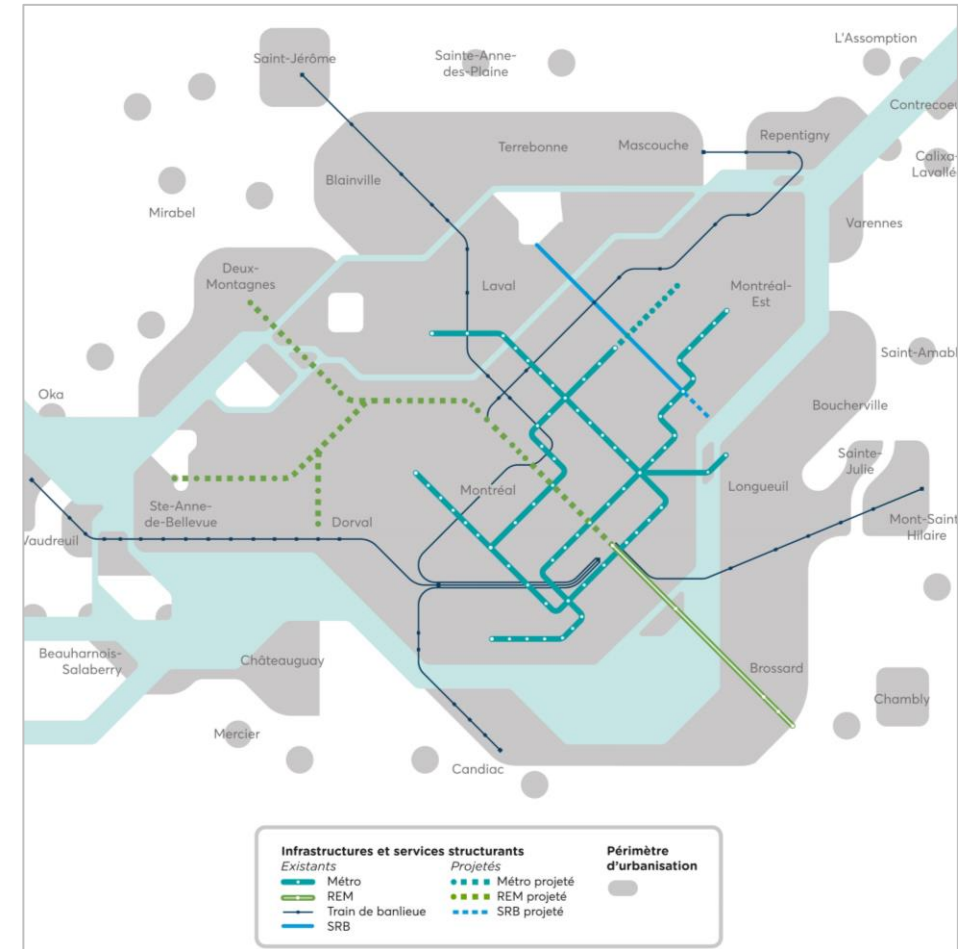


1 REM

- Project led by CDPQ-Infra (Quebec pension fund)
- 67 km of electric light rail service
- 26 stations
- Connected to metro, airport, commuter train
- Phase 1 in service June 2023
- Expected cost: 6.98 G\$ CAN

2 Metro Blue line extension

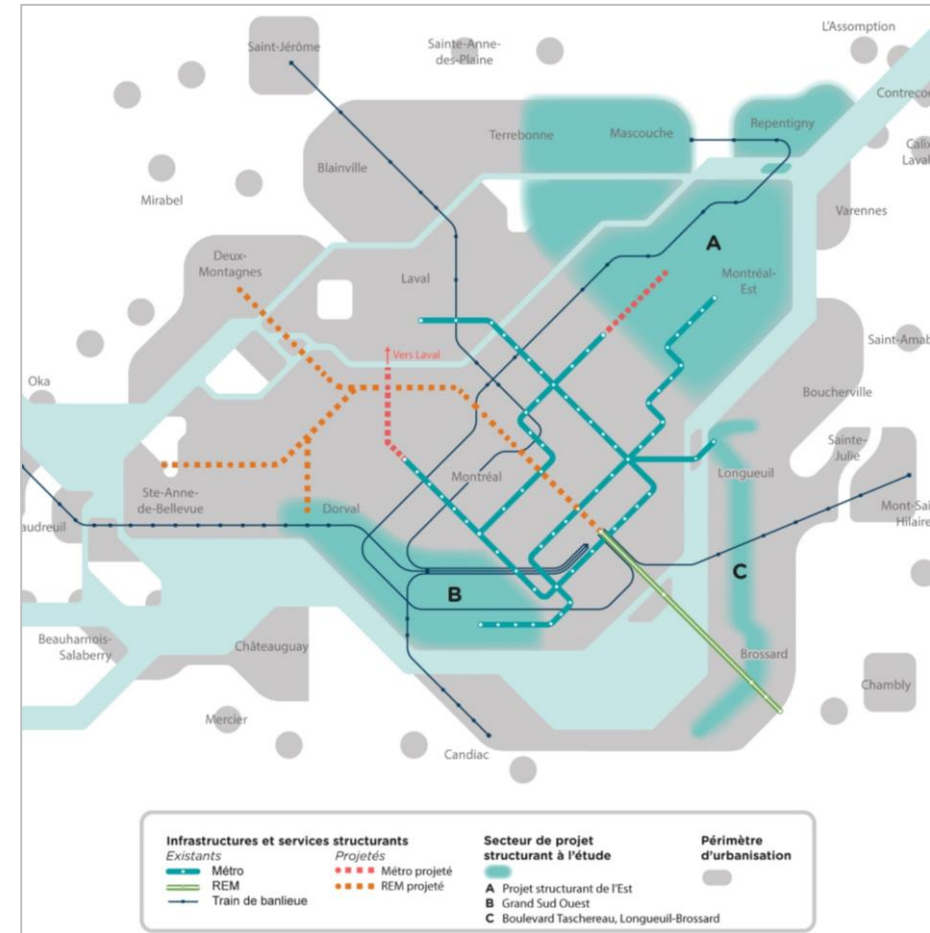
- 5 new stations (+ 5.86 km)
- 25 000 users expected in morning peak hour
- Connected with high-speed bus service
- Expected cost: 6.4 G\$ CAN
- Commissioning planned for 2029



Rapid Transit Network

Proposed extensions

- Projet Structurant de l'Est - Revitalize and develop rapid transit for the east of Montreal, Laval and Outer Rings
- Connecting the grand Sud Ouest area to downtown Montreal
- Connection between metro and REM (Brossard) on blv. Taschereau and urban revitalization
- Connection between metro and REM (Bois-Francs) and extension towards Laval



The challenges

- CULTURE
 - The ARTM has evolve in it's governance structure from being one of the gang to the "AUTHORITY"
 - Need to implement a metropolitan asset management system to harmonize the asset management standards and practice. Disparity within the OPTC
- VISION
 - Unclear vision of metropolitan asset management objectives and targets.
- BUDGET
 - Limited financing capacity for investments and operations \$2,2B deficit for 2024-2028
 - Need for a multi-year picture of financial requirements for asset sustainability.
- SERVICE LEVEL
 - Inability to fully understand the impact of service level on costs



Montreal

STM scraps 10-minute maximum wait time service on remaining bus routes

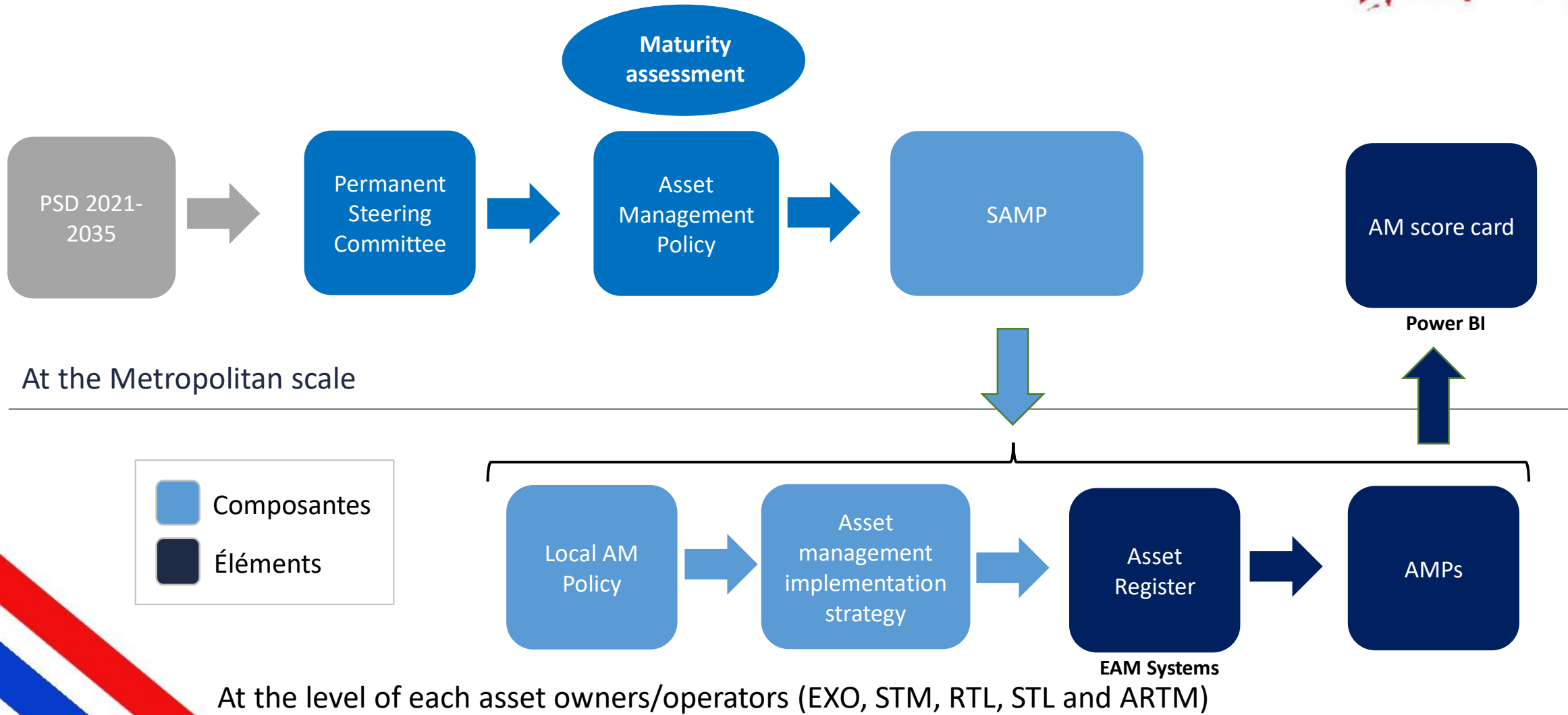
The STM reported a near \$78M deficit for 2023, which it said might lead to reduction in services

CBC News - Posted: Jan 07, 2023 11:00 AM EST | Last Updated: January 7

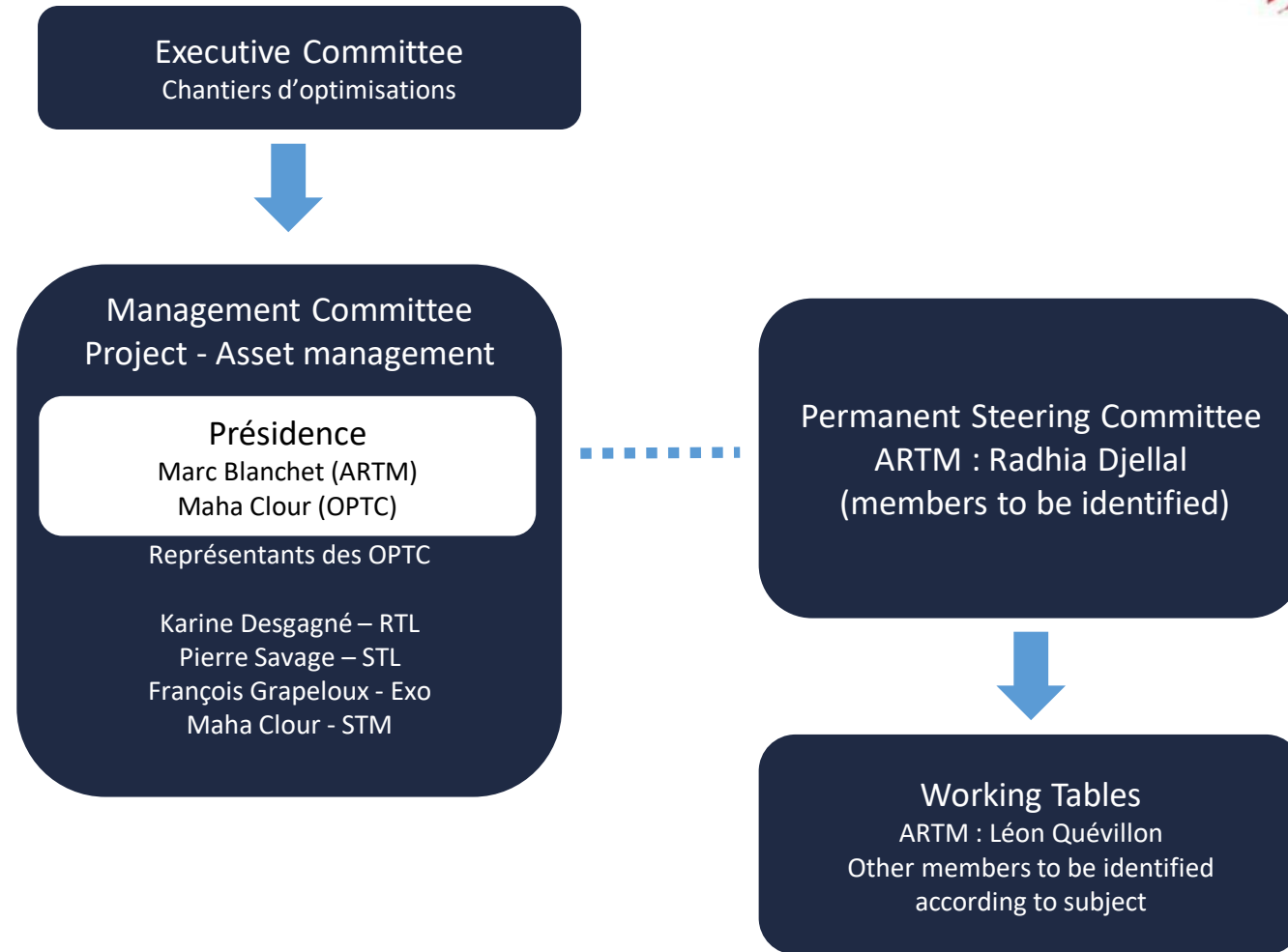


Montreal's transit authority says the 10-minute maximum wait for its most popular bus routes during rush hour, including the 18 Beaubien, is over. (Luc Lavigne/Radio-Canada)

The journey



Governance



Methodology

From where do we start?



Frame work
Institute of Asset
Management –
Anatomy



**Document
review**



Interviews



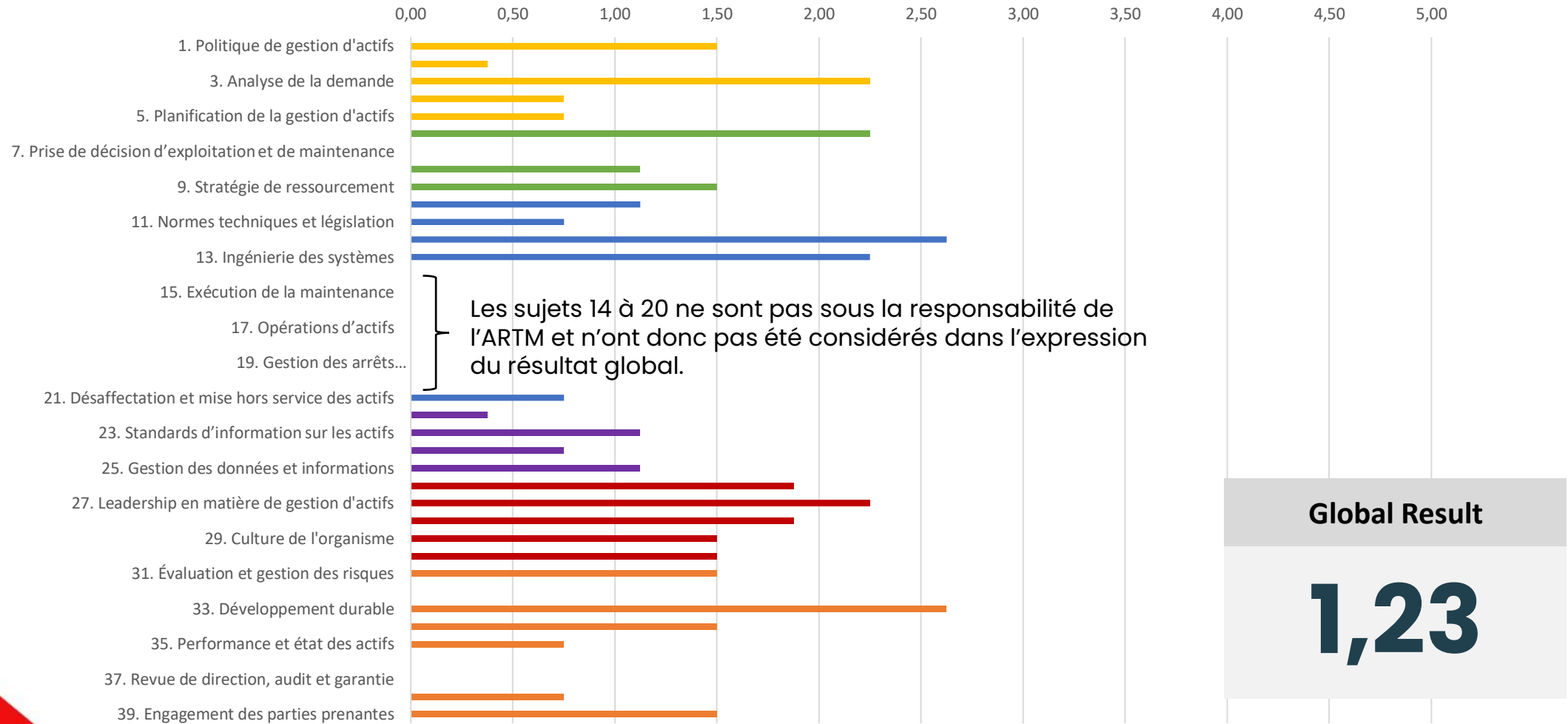
Findings



**Maturity
diagnosis**

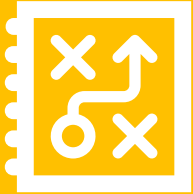


Maturity Assessment



Strategy & planning

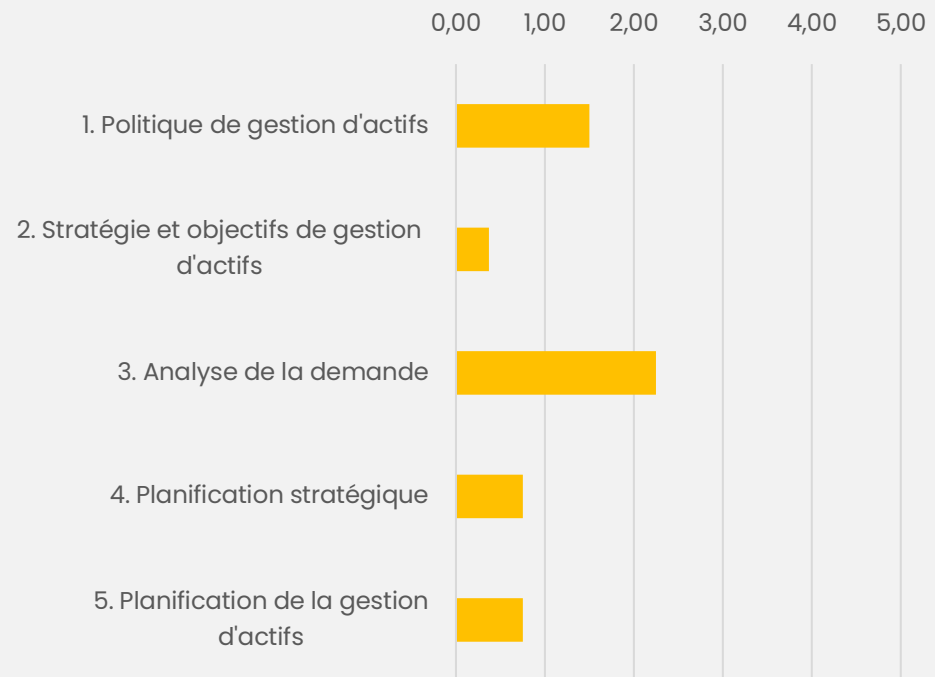
Alignment of asset management activities with organizational objectives and planning of activities throughout the lifecycle



Theme Result

1,13

Results by subject



Key Findings

1. Asset management policy

The ARTM has drafted a metropolitan asset management policy in collaboration with the CTPOs. This policy has yet to be ratified and communicated. It will set out the intentions and directions of metropolitan-wide asset management, and will be used by the ARTM to establish the scope and guiding principles of its asset management.

2. PSGA

The organization does not currently have a documented Strategic Asset Management Plan (SAMP). However, work has begun to establish a strategic asset management plan during the year. This strategic plan will define the results and standards the organization expects from asset management activities, and will plan the key initiatives to implement the asset management policy.

It will also define the framework for illustrating the interrelationships and interactions between the various parts that will make up the asset management system.

2. Asset Management Plan

Implementation steps

- Define customer and technical service levels.
- Establish asset register, determine asset condition, economic life and life cycle costs.
- Determine asset objectives in terms of risk and service levels, in line with the organization's policies and strategic orientations.
- For each asset category, determine the preferred asset management strategy to minimize life-cycle costs, while satisfying target service levels and respecting risk thresholds.
- Determine operating and capital expenditure requirements, and establish financing scenarios to support asset management strategies.
- Document and consolidate the information developed above within asset management plans (one per asset group or per department, depending on the organization's chosen orientation).
- Implement a process for updating asset management plans.

Ressources impliquées / Effort estimé

Ressources needed

- Asset Management champion
- SME/Asset class and implementation team

Estimated Effort

- 3000 to 4000 hours

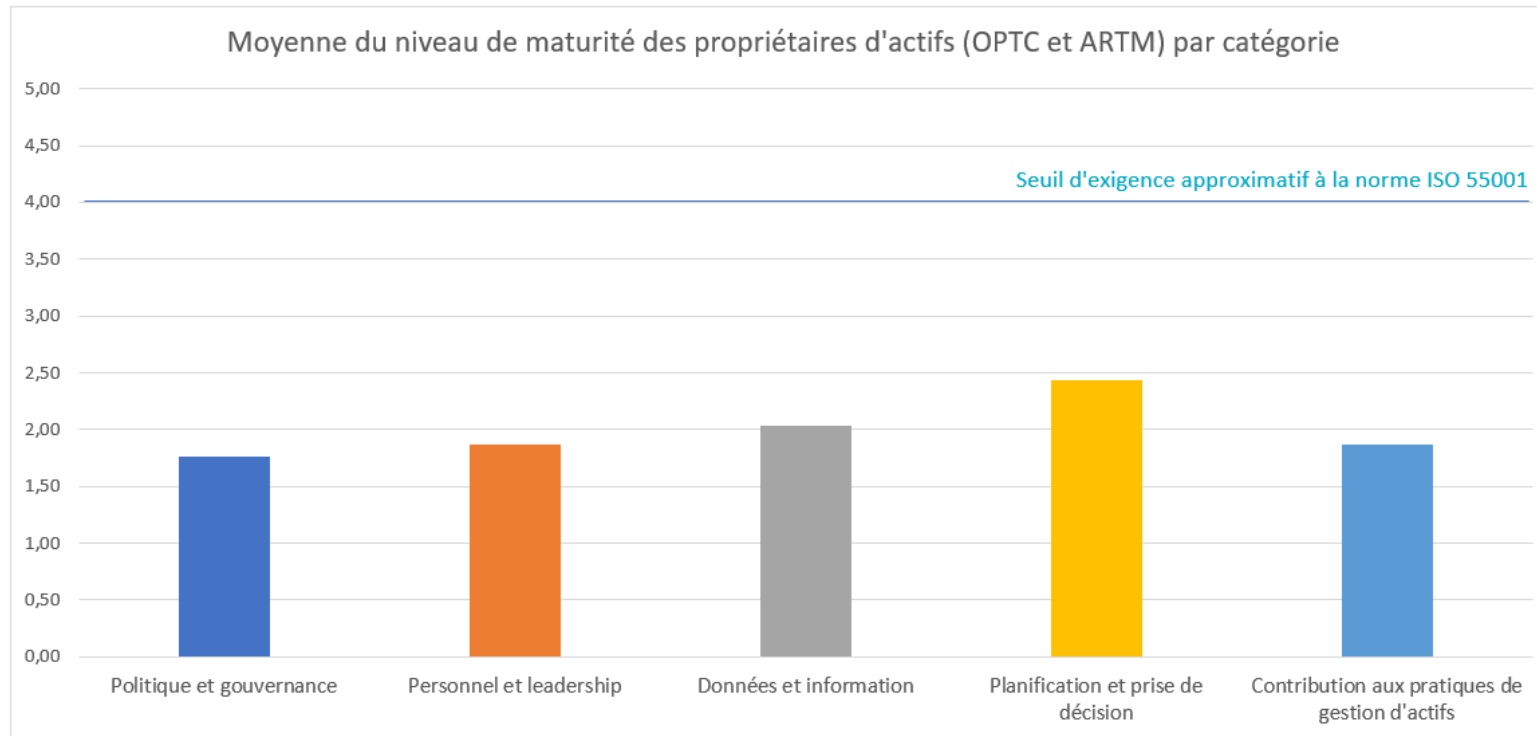
Example

- <https://www.wmata.com/about/records/upload/TAM-PLAN-Final-2022-Signed-Secured-Copy.pdf>
- <https://www.vta.org/sites/default/files/2022-09/Transit-Asset-Management-Plan-DEC2017.pdf>
- https://metra.com/sites/default/files/inline-files/Metra_TAM_Plan_2022-2026%20Horizon_with%20A1.pdf

At the metropolitan level



Autorité régionale de transport métropolitain
ANALYSE DU NIVEAU DE MATURITÉ EN GESTION D'ACTIFS



Generating value through balance



As seen in the Asset Management training course, **value creation** for an organization lies in the **balance** between service performance, risk management and resource utilization.

Service performance

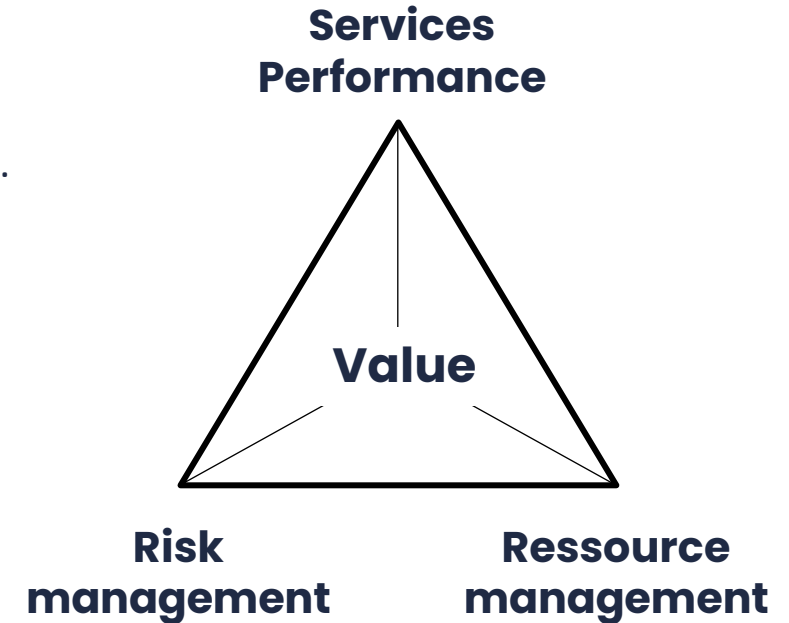
Value creation depends first and foremost on the provision of high-performance services. To achieve this, the entire organization must be aware of the services that constitute its purpose, and organize the activities that support this service delivery.

Risk control

By managing its risks, the organization ensures the well-being of its staff and customers, while guaranteeing the performance of its services and the quality of its reputation.

Use of resources

As the driving force behind the organization, the human resources that make up the organization must be managed and supported in such a way as to create an environment conducive to excellence. The material and financial resources that support activities must be used efficiently, enabling the organization to achieve its objectives.





Generating value through balance

What are the points of imbalance for the organization?

Performance (+)

Evolving in a highly politicized context, ARTM is mainly focused on development projects with the main objective of increasing the service offer, to the detriment of the management of existing assets.

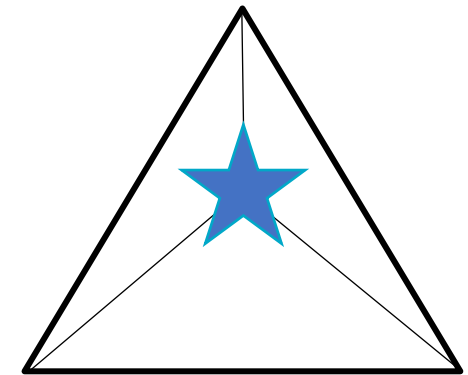
Risk (-)

Given that the asset management system is still under construction, knowledge of asset condition and life cycle has yet to be perfected, maintenance strategies have yet to be defined, and there is a lack of risk assessment and communication for existing assets. This lack of maturity in asset management exposes the organization to the risks of reactive management in emergency mode.

Resources (-)

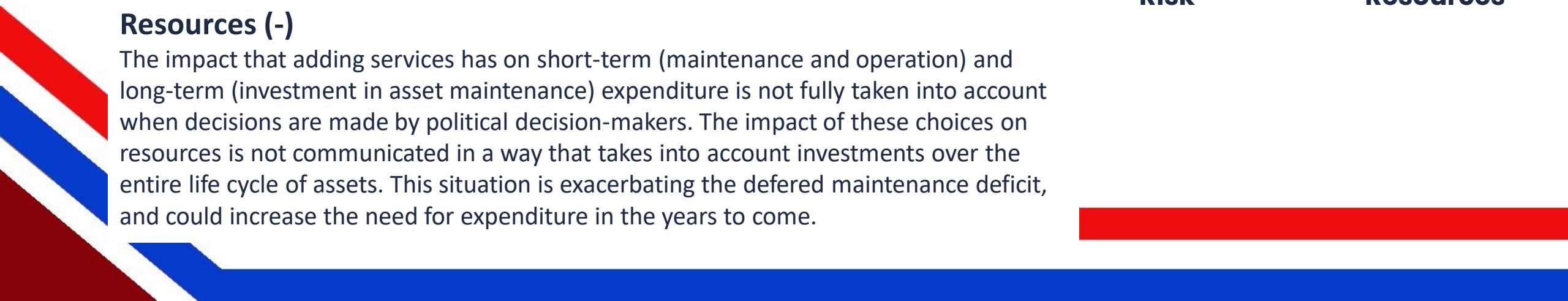
The impact that adding services has on short-term (maintenance and operation) and long-term (investment in asset maintenance) expenditure is not fully taken into account when decisions are made by political decision-makers. The impact of these choices on resources is not communicated in a way that takes into account investments over the entire life cycle of assets. This situation is exacerbating the deferred maintenance deficit, and could increase the need for expenditure in the years to come.

Performance



Risk

Resources



Generating value through balance

Recommendations for achieving balance



Performance

- The ARTM must continue to strive for excellence in the development of transportation services, while taking into account the impact on risk and resource management.

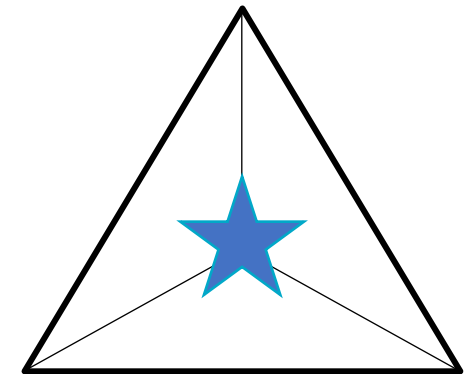
Risk

- Organize information management, supported by defined and documented processes, enabling the implementation of indicators to support decision-making based on reliable data.
- Communicate its operational and maintenance requirements to OPTCs in order to guarantee the condition and availability of its assets.
- Communicate to all stakeholders the risks inherent in a lack of investment in asset maintenance.

Resources

- Build collaboration between the various departments and promote the exchange of opportunities between them.
- Structure and formalize asset maintenance decision-making, and communicate short-, medium- and long-term effects on human, financial and material resources.

Performance



Risk

Resources

Summary planning of improvement projects proposed to the ARTM



		Années				
		1	2	3	4	5
Stratégie et Planification	1. Plan stratégique de gestion d'actifs*	Yellow	Grey	Grey	Yellow	Grey
	2. Plan de gestion d'actifs	Grey	Yellow	Yellow	Yellow	Yellow
Processus décisionnel	3. Formaliser le processus de prise de decision en investissement*	Green	Grey	Grey	Grey	Grey
	4. Mise en place de stratégies de maintenance*	Grey	Green	Green	Grey	Grey
Connaissance des actifs	5. Stratégie d'information sur les actifs*	Purple	Purple	Grey	Grey	Purple
	6. Valorisation des données*	Grey	Grey	Purple	Purple	Grey
Risque et contrôle	7. Initier la documentation du système de gestion d'actifs	Orange	Orange	Grey	Grey	Grey

* : it is envisaged that the following project will form part of a harmonized approach with other owners of metropolitan transport assets.

A number of improvement projects currently underway have not been included in the roadmap:

- Metropolitan asset management policy
- Definition and establishment of governance structure,
- Optimization project with the asset management steering committee
- Asset value adjustment process

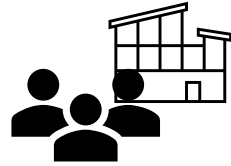


Beyond the implementation of asset management and the potential gains that will be generated, **is it possible to optimize further?**

Gouvernement ask for optimization scenarios



4 optimization categories :



- **Mutualisation (assets and HR)**



- **Outsourcing**



- **Innovation & automatization**



- **Service Level Reduction**





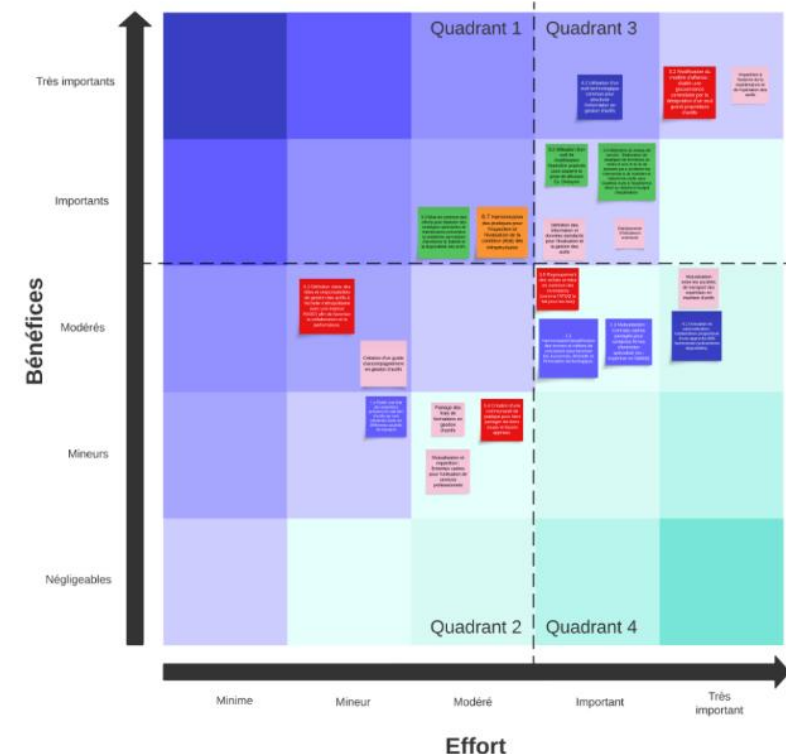
Optimisation Workshop

- 3 workshops
- 20 possible initiatives
- Benefits/Effort scale matrix
- Expected impact on value (performance, risk or ressources)

Liste des suggestions selon chacun des quadrants de la matrice effort/bénéfices :

Quadrant 1 - Suggestions d'optimisation les plus intéressantes (effort de minime à modéré, bénéfices importants à considérables)

Thème	Sous-thème	Description	Effort	Bénéfices	Impact envisagé (coûts, risques, performances)	Commentaires
3. Processus décisionnels	3. Définition des stratégies de maintenance	Mise en commun des efforts pour élaborer des stratégies optimisées de maintenance préventive et prédictive permettant d'améliorer la fiabilité et la disponibilité des actifs.	Modéré	Importants	Risques Augmentation de la durée de vie des actifs et garantie de disponibilité des actifs critiques.	
6. Risques et contrôle	7. Suivi de la performance et de l'état des actifs	Harmonisation des pratiques pour l'inspection et l'évaluation de la condition (état) des infrastructures.	Modéré	Importants	Performance Réduction des pertes de temps et augmentation de l'efficacité à implanter une gestion d'actifs harmonisée.	La formulation de la suggestion a été changée pour refléter l'objectif d'harmonisation. Le volet imparition a été mis de côté.



Key take aways



Harmonisation

- Is not an easy task when the roles and responsibilities are not clear: asset owner vs asset operator
- Rethinking the business model?

Generating value through balancing performance, risk and resources

- Understanding the real purpose of the business
- Existing assets vs new: managing the expectations on service levels
- HR capabilities

Shake the temple – Stuck in our old paradigms

- Take nothing for granted: challenge, ask a lot of questions on why do we do things this way

Communication

- Engage stakeholders in every stage of the process

