



Report of the Auditor General of the Ville de Montréal to the City Council and to the Urban Agglomeration Council

For the Year Ended December 31, 2014

4.5

INFORMATION TECHNOLOGY GOVERNANCE



Table of Contents

1. Introduction	125
2. Purpose and Scope of the Audit.....	125
3. Detailed Findings and Recommendations	126
3.1. Scope of Information Technology Governance	126
3.2. Progress Report	127
3.3. Recent Initiatives and Actions Being Developed.....	129
4. General Conclusion.....	131

List of Acronyms

DSI	Direction des systèmes d'information	ITGI	IT Governance Institute
IT	information technology	STI	Service des technologies de l'information

4.5. Information Technology Governance

1. Introduction

The authorities of the Ville de Montréal (the City) indicated their desire to head in a new direction, towards “Montréal, Smart and Digital City,” by increasing the use of technology to better serve and inform Montreal’s citizens.

This will involve significant investments in technology infrastructure and a change in culture for those responsible for both information technology (IT) and various services to citizens, at a time when the authorities have also expressed their intent to tighten budgetary control.

In this environment, it is imperative that the City be in a position to benefit from an optimal IT management structure in order to reduce its risks and contain its development and operating costs while ensuring the quality, sustainability and security of services to citizens.

In recent years, we conducted several IT audits looking into, among other things, the development and implementation of major software packages, the security and confidentiality of data, the follow-up of outsourced contracts and the management of projects and of software licences. These reports gave rise to several recommendations often tied to the IT governance framework, for example linkage problems between client units and the service provider in managing projects, shortcomings in determining and monitoring technology and business risks and budgets for large-scale projects, major delays in implementation, dispersed accountability and insufficient reporting to enable the authorities to fulfill their responsibilities effectively.

We thought it timely, therefore, to examine the IT governance framework as a whole to assess how closely it followed best practices and, where appropriate, to recommend any necessary improvements.

2. Purpose and Scope of the Audit

The purpose of our audit was to assess IT governance at the City, more specifically to determine whether the organizational structure and management processes in place ensured that IT efficiently and effectively supported the City’s mission, strategies and objectives.

Our audit dealt primarily with the period from 2004 to 2014. We looked at various diagnostics requested by the municipal administration on different aspects of IT governance during this period. We analyzed the methodologies used and compared them with the results of our most recent audits to assess the accuracy of the diagnostic results. Finally, we updated their findings through interviews with the Service des technologies de l'information (STI) and an analysis of relevant documents.

Our audit was conducted between February and November 2014.

3. Detailed Findings and Recommendations

3.1. Scope of Information Technology Governance

3.1.A. Background and Findings

During the past decade, several professional and standards setting bodies have looked at the factors that promote optimal IT use within organizations. The IT Governance Institute (ITGI) defines "IT governance" as *"the processes that ensure the effective and efficient use of IT in enabling an organization to achieve its goals"*.

Various models have been developed by these organizations, setting out the essential conditions for sound IT governance. We summarized them into eight criteria that we used as benchmarks for our audit and conclusions:

- IT planning must be carried out regularly and integrated into the City's strategic planning;
- IT services must be aligned with the City's business processes;
- The risks associated with IT must be assessed and monitored on a regular and systematic basis. This practice should be integrated into the City's overall business risks;
- The City's organizational structure must promote clear accountability for IT planning, development, use, operations and control;
- An IT business structure must be adopted that promotes the sustainability and optimal use of infrastructure and applications;
- The IT project portfolio must be subject to integrated management in order to prioritize projects that have the greatest added value and to monitor work progress, compliance with approved budgets and achievement of objectives;
- The City must be able to rely on forward-looking management of IT competencies based on the strategic guidelines that have been adopted;

- The follow-up and reporting process should enable the authorities to assess IT's contribution to achieving the City's business objectives, controlling approved budgets and reacting to identified residual risks.

3.2. Progress Report

3.2.A. Background and Findings

Based on our interviews and the documents examined, we found that three major external studies had been commissioned by the municipal administration over the past 10 years. The purpose of these studies overall was to assess the ability of IT to achieve the City's business objectives efficiently and effectively and to determine the issues, strategies and operational measures to be put in place or improved.

The first study, conducted in 2004, noted in particular that IT management was too burdened by operational problems to assume the required strategic and tactical planning. This study also mentioned that the levels of service provided to clients were unmanaged and several functions and processes essential to sound governance were deficient, if not absent.

The second study, conducted in 2006, reiterated these shortcomings, underscoring the fact that the IT function was difficult to manage because of the City's organizational and cultural complexity, the portfolio of aging applications, the multitude of platforms, data processing in silos and the technology infrastructure's vulnerability.

Following these diagnostics, the Direction des systèmes d'information (DSI)¹ presented an IT master plan to the authorities, which was never ratified. In 2008, the departure of the manager responsible for information systems and all contract staff, following allegations of overbilling and collusion, created a state of crisis that lasted several months. Most of the recommendations that were formulated in the wake of these diagnostics had therefore still not been implemented at the start of the 2010s.

¹ The name of the Direction des systèmes d'information was changed to Service des technologies de l'information (STI).

Finally, a last study conducted in 2012 at the request of City management indicated that certain initiatives had been taken by the STI in recent years, especially in the area of project management. Consultations with the STI and the business units it serves brought up the following recurring problems:

- Clients do not feel that the STI is knowledgeable about their area of business;
- The process for delivering projects is seen as cumbersome, long and costly;
- Several projects fail to meet deadlines, scope and budgets;
- IT management is more tactical than strategic;
- Business files are not standardized and lack thoroughness;
- There is little follow-up of IT project benefits and responsibilities for this are unclear;
- IT investment programs focus mainly on administrative processes to the detriment of processes related to the delivery of services to citizens;
- Investment in IT assets is essentially through projects. There is no strategy for IT foundations;
- Although preliminary documents exist, the STI had no strategic plan or integrated and documented enterprise architecture;
- There are few performance indicators.

On the basis of the remarks gathered and the analysis of IT organization and processes, this third study concluded that the City's IT maturity level was 1.5 on a scale of 1 to 5. This level of maturity is characterized by a more reactive than strategic direction, organizational silos, more or less formal processes, embryonic management of competencies and a non-integrated heterogeneous enterprise architecture.

STI management agreed with most of these conclusions, which were tabled at the start of 2013. Since the conclusions dovetailed with several findings and recommendations that we had made in our audit reports of recent years and appeared to have gained fairly general consensus, we limited our meetings to various STI managers and specialists to gauge their views and assess the efforts currently under way. In our opinion, this diagnostic and the interviews we conducted confirm that the organizational structure and management processes in place do not ensure a sufficiently effective and efficient IT contribution to the City's mission, strategies and objectives.

At a time when authorities are looking to tighten the City's fiscal framework while enhancing IT's strategic contribution, we consider that shortcomings in the governance framework carry major risks that:

- the available resources will not be allocated to the projects that make the greatest contribution to the City's strategic directions;

- IT operating and maintenance expenses will strain resources that could be allocated to more productive and proactive activities;
- IT infrastructure and applications will quickly become outdated and require major investments;
- the City will not sufficiently benefit from technology innovations that could more efficiently and effectively improve services to citizens;
- effective service levels will not meet the needs of the business units, thus impeding their ability to achieve their own business objectives;
- IT competencies will not match future needs, which could create increased dependency on outside firms;
- the authorities will not be sufficiently informed of the IT risks to which the City is exposed and which may result in crisis situations.

The managers and specialists that we met recognized most of these risks and shared with us the directions on development and the steps under way to improve the situation. These are addressed in the following section.

3.3. Recent Initiatives and Actions Being Developed

3.3.A. Background and Findings

In recent months, the STI and City management have proposed and introduced certain mechanisms to improve IT governance and raise the level of IT maturity. Examples include:

- the implementation of more structured and tighter project management;
- the creation of the Smart and Digital City office;
- the development and presentation by STI of strategic directions for telecommunications and office automation;
- the proposed hiring of a senior enterprise architect who should, among other things, set up a modern enterprise architecture practice within an environment of organizational reform and help develop the STI's master plan;
- the development of a five-year 2014-2018 staffing plan.

We believe that these steps are headed towards better IT governance, but either they are not sufficiently detailed or it is too early for us to assess their effectiveness.

We also believe that consolidating all these initiatives will result in a formal and detailed implementation strategy.

Since IT governance is not the sole prerogative of the STI, this work should be guided by City management and involve all the City's business units. Strategic directions that meet both the authorities' objectives and the business units' needs in terms of achieving these objectives should be formally approved and communicated. These strategic directions should be reflected in an IT master plan, the development and adoption of an enterprise architecture and the formalization of relations between the STI and the business units specifying the levels of service required by the units. Finally, measures aimed at clarifying the respective responsibilities and accountability of the business units and the STI should be adopted for both budgetary control and the achievement of performance targets.

3.3.B. Recommendation

We recommend that, following consultation with the Service des technologies de l'information, City management ratify a scheduled plan specifying the timelines and responsibilities for adopting the following governance elements:

- **the strategic directions for information technologies;**
- **the master plan of the Service des technologies de l'information;**
- **the information technologies enterprise architecture;**
- **the frameworks and structure governing relations between the Service des technologies de l'information and the business units, including the establishment of levels of service and mechanisms of accountability and budgetary control;**
- **the nature and frequency of reporting to the authorities, including setting and following up on performance targets and monitoring risks related to information technologies.**

Business unit's response:

[TRANSLATION] Given the repeated diagnostics of the Service des TI, the first action was to appoint a new manager.

*The second priority is to adopt a new service structure and to fill the newly created positions. The new IT structure was announced on March 25, 2015, and will be deployed starting in June with a six-month transition period. Management positions have been created and posted. Other positions will be created and posted in the fall of 2015. **(Planned completion: December 2015)***

*The third priority is to adopt an enterprise architecture. The position of chief architect was created, and filled on March 30, 2015. **(Planned completion: March 2015)***

*Following the filling of key positions in the new IT structure in 2015, an action plan for IT governance will be tabled on January 31, 2016. **(Planned completion: January 2016)***

4. General Conclusion

City authorities indicated their desire to head in a new direction, towards “Montréal, Smart and Digital City,” by increasing the use of technology to better serve and inform Montreal’s citizens. In this context, it is imperative that the City be in a position to benefit from an optimal information technology (IT) management structure in order to reduce its risks and contain its development and operating costs while ensuring the quality, sustainability and security of services it provides to citizens.

We thought it timely, therefore, to examine the IT governance framework as a whole to assess how closely it followed best practices and, where appropriate, to recommend any necessary improvements.

Based on our interviews and the documents examined, we found that three major external studies had been commissioned by the municipal administration over the past 10 years. The purpose of these studies overall was to assess the ability of IT to achieve the City’s business objectives efficiently and effectively and to determine the issues, strategies and operational measures to be put in place or improved.

A last study conducted in 2012 at the request of City management underscored the fact that the City’s IT maturity level was 1.5 on a scale of 1 to 5. This level of maturity is characterized by a direction that is more reactive than strategic, organizational silos, more or less formal processes, embryonic management of competencies and a non-integrated heterogeneous enterprise architecture.

In our opinion, this analysis and the interviews we conducted confirm that the organizational structure and management processes in place do not ensure a sufficiently effective and efficient IT contribution to the City’s mission, strategies and objectives.

At a time when the authorities are looking to tighten the City’s budget framework while enhancing IT’s strategic contribution, we consider that shortcomings in the governance framework carry major risks that:

- the available resources will not be allocated to the projects that make the greatest contribution to the City’s strategic directions;
- IT operating and maintenance expenses will strain resources that could be allocated to more productive and proactive activities;
- IT infrastructure and applications will quickly become outdated and require major investments;

- the City will not sufficiently benefit from technology innovations that could more efficiently and effectively improve services to citizens;
- effective service levels will not meet the needs of the business units, thus impeding their ability to achieve their own business objectives;
- IT competencies will not match future needs, which could create increased dependency on outside firms;
- the authorities will not be sufficiently informed of the IT risks to which the City is exposed and which may result in crisis situations.

In recent months, the Service des technologies de l'information (STI) and City management have proposed and introduced certain mechanisms to improve IT governance and raise the level of IT maturity. These steps are headed towards better IT governance, but either they are not sufficiently detailed or it is too early for us to assess their effectiveness.

We believe that consolidating all these initiatives should result in a formal and detailed implementation strategy. Since IT governance is not the sole prerogative of the STI, this work should be guided by City management and involve all the City's business units. Strategic directions that meet both the authorities objectives' and the business units' needs in terms of achieving those objectives should be formally approved and communicated. These strategic directions should be reflected in an IT master plan, the development and adoption of an enterprise architecture and the formalization of relations between the STI and the business units specifying the levels of service required by the units. Finally, measures aimed at clarifying the respective responsibilities and accountability of the business units and the STI should be adopted for both budgetary control and the achievement of performance targets.

Accordingly, we have made a comprehensive recommendation for the adoption of a scheduled plan specifying the timelines and responsibilities for adopting the following governance elements:

- strategic IT directions;
- the master plan for the STI;
- IT enterprise architecture;
- management frameworks and structure governing relations between the STI and the business units, including setting the levels of service and the accountability and budgetary control mechanisms;
- the nature and frequency of reporting to the authorities, including setting and monitoring performance targets and assessing risks related to IT.

Following receipt of City management's action plan, we will schedule various audits to assess the effectiveness of the measures under way and the ability of IT to efficiently and effectively meet the City's strategic directions.