



# Ingenium

Canada's Museums of Science and Innovation  
Musées des sciences et de l'innovation du Canada

## Summary of the **CORPORATE PLAN** 2017–2018 to 2021–2022

Operating Budget Summary  
2017–2018

Capital Budget Summary  
2017–2018

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## EXECUTIVE SUMMARY

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Ingenium – Canada’s Museums of Science and Innovation (Ingenium or the Corporation) is mandated by the *Museums Act* to preserve Canada’s scientific and technological heritage, and to promote, celebrate, and share knowledge of that heritage with Canadians. An arm’s length cultural Crown corporation, Ingenium proudly operates three museums: the Canada Science and Technology Museum (CSTM) the Canada Aviation and Space Museum (CASM) and the Canada Agriculture and Food Museum (CAFM) (“the museums”).

The year 2017 will mark the 50<sup>th</sup> anniversary of the Museum, which will be celebrated in a significant way with the re-opening of the Canada Science and Technology Museum in mid-November 2017. The closure of the CSTM in September 2014 due to mold and structural issues, while an unfortunate event, became a tremendous opportunity thanks to a significant government investment. The re-construction of the building so that it may properly protect and preserve artifacts, coupled with the renewal of the exhibition space allowing it to display more artifacts, will allow the Museum to engage visitors and citizens in new stories of, and experiences with, science and technology. Staff will continue to work hard to curate and finalize the exhibits, prepare the artifacts for display, complete the construction and organise re-opening festivities in 2017.

The closure of the CSTM also became a catalyst for rethinking how museums could deliver their program mandate without physical walls. Over 2017-2018, the Corporation will build on the successes of its travelling exhibitions, digital offerings, national initiatives, programs, and events to deepen its reach, connection and engagement with Canadians as it becomes a communications platform for science and technology. Ingenium will pursue its “open by default” mantra by finding innovative ways to create physical and virtual encounters with Canada’s science and technology collection through the stories of the scientists, inventors and innovators, and the research fields and industries that nurture them, for local, national and international audiences. Ingenium will continue to use digital technologies and platforms, such as 3D scanning, mobile apps and games, virtual exhibits, open heritage, to redefine museum access in the digital era. Ingenium will grow its brand nationally and internationally to promote Canada’s science and technology innovation culture. By fostering collaborations and contributions from citizens, governments, industry, heritage organisations, research and educational institutions across Canada and abroad, Ingenium will continue to support the creation of enriched and diverse cultural heritage content. The museums will continue to offer unique experiences and enriching learning opportunities whereby Canada’s scientific and technological past can inspire scientific and technological breakthroughs of the future.

### Strategic Objectives

As 2017-2018 represents year three of the 2015-2016 to 2019-2020 strategic plan, Ingenium will move to the implementation or completion stage of a number of strategies and activities identified at the start of the plan, in order to progress toward the strategic outcomes established for the period. They serve to promote a national culture of science, technology, and innovation through participatory heritage to draw and inspire youth. Strategies will focus on digitizing the museum experience, developing research and collaborations that promote and enrich Canadian scientific culture and enterprise, and encouraging youth and women to explore careers in science, technology, engineering and mathematics. As 2017-2018 is also the first year of the planning cycle, it will set the tone for the period’s new focus on global outreach. Over 2017-2018, Ingenium will focus on four priorities namely, Canada 150, Digital citizenship, Innovation and growth, and Branding, among the activities it will pursue in support of its strategic objectives, as follows:

### ***Best in Class – Collection***

- continue to rationalize and catalogue the collection and prepare the collection for the move to new facilities;
- conduct virtual collection tours;
- promote artifact loans domestically and abroad;
- implement the subject-area research plan aligned with corporate and government priorities;
- consult on plans for a new research institute;
- implement a science communications program;
- develop an Indigenous engagement strategy; and
- use the collection to attract national and international researchers and collaborators.

### ***Best in Class – Education and Exhibitions***

- install new exhibits and re-open the CSTM;
- renew permanent and temporary exhibition spaces at the museums;
- host special exhibitions at the museums on a cyclical basis;
- develop new collaborations with academia, industry and government;
- implement a plan to support women in STEM;
- promote awards in innovation; and
- grow the Innovate150 platform and develop celebrations for Canada's 150th anniversary.

### ***National Outreach***

- launch and market new travelling exhibitions and redevelop existing ones through collaborations and sponsorships;
- launch new augmented reality apps at CSTM;
- launch a new documentaries product line and release documentaries on CSTM renewal and museums' programming themes;
- explore partnership in a new magazine;
- expand and enrich outreach networks;
- launch a new global outreach strategy; and
- implement a new corporate brand and awareness strategy.

### ***Sustainable and Profitable***

- implement a new membership strategy and pricing;
- pursue sales strategies for business development;
- implement a digital asset management system (Media Management);
- continue to actively contribute to open heritage data platforms;
- develop 3D collaborations and sponsorships;
- foster a healthy work place incorporating mental health awareness; and
- implement succession plans, business plans, HR plans.

### ***Renewed and Innovative Infrastructure***

- complete the CSTM infrastructure modernization;
- complete the construction of the Collections Conservation Centre;
- move staff into proper accommodations in new facilities
- study the feasibility of a capital campaign for the Food Innovation Centre at CAFM;
- strengthen the business case for a new conservation hangar at CASM; and
- complete the health and safety projects identified for funding through Budget 2016.

## Key Risks

The key risks facing the Corporation in 2017-2018 are as follows:

**Risk 1:** *The impact of any cost overruns for the CSTM infrastructure modernization project or the Collections Conservation Centre project.*

To reduce this risk, Ingenium has put in place a highly qualified team of professionals to deliver the CSTM modernization project, and is currently doing the same for the Collections Conservation Centre project, to ensure rigorous adherence to the schedule and budget. The Corporation's is also value engineering the scope, fit-up and finishes of the projects to ensure spending remains within the funding envelope. The Board's Major Facilities Committee will continue to provide project oversight.

**Risk 2:** *Limited capacity to invest in new programming and exhibitions on multiple platforms.*

While the significant capital investments to modernize the CSTM and build the Collections Conservation Centre will solve important infrastructure issues that had been plaguing the Museum for many years, Ingenium has not received an increase in base funding for over 20 years. This situation becomes increasingly dire as each year as costs increase due to inflation and market forces. The financial pressures caused by increasing costs to operate and recapitalize its museums and associated sites continue to compromise Ingenium's ability to invest in new programming and exhibitions, and in more interactivity, both on site and on digital platforms. The Corporation continues to aggressively seek sponsors and collaborators to fund digital, exhibit and programming initiatives. However, this growing dependence on the private sector to fully fund new initiatives has had limited success and is not a sustainable model.

**Risk 3:** *Endangering the national collection in storage due to inappropriate storage conditions.*

During the construction of the Collections Conservation Centre, the national collection will continue to be at risk due to the inappropriate environment and security controls in the current facilities. In the interim, the Corporation will progress with the collection rationalization project to manage its collection and find operational efficiencies. It is also making repairs to the leased buildings to protect the artifacts to the extent it can afford to do so within its funding envelope.

## Funding and Operating and Capital budgets

In 2017–2018, Ingenium will receive operating and capital appropriations totalling \$144.528 million from the Government of Canada, which includes base appropriations of \$26.865 million and a total of \$117.663 million in temporary funding associated with major infrastructure projects. The Corporation projects revenues of \$7.74 million from museum admissions, memberships and programming, commercial operations, interest, and sponsorships and contributions. The Corporation will be using deferred appropriations from previous year to invest in its operating and capital budgets.

The total operating budget for 2017-2018 is \$37.023 million on a cash basis, the majority of which will be spent on personnel and support services to deliver its programming mandate; operating and maintenance of its facilities; moving artifacts and staff into the Canada Science and Technology Museum and planning the move to the new Collections Conservation Centre. Remaining funds will be spent on collection management, programming and exhibition, as well as communications activities and commercial products.

The total 2017-2018 capital budget of \$140.18 million will be used to complete the Canada Science and Technology Museum infrastructure modernization project and significantly advance the progress of the

new Collections Conservation Centre, as well as health and safety projects and other repairs of facilities, and investments in corporate IT and equipment.

The Corporation expects to post a loss of \$2 million for 2017-2018, which will be covered by its unrestricted net assets, in order to invest in its capital infrastructure. As of 2018-2019, and for the remaining planning period, the Corporation expects to provide balanced budgets.

## 1.0 MANDATE

Ingenium – Canada’s Museums of Science and Innovation,<sup>1</sup> (Ingenium or the Corporation) was established as an autonomous Crown corporation on July 1, 1990, with the passage of the *Museums Act*. The *Museums Act* sets out the public policy role for all the national museums, as well as the individual mandate for Ingenium (see below). As a cultural Crown corporation, Ingenium operates at arm’s length from government with regard to operating and programming decisions. Ingenium proudly operates three national museums in the execution of its mandate, the Canada Science and Technology Museum (CSTM), the Canada Aviation and Space Museum (CASM) and the Canada Agriculture and Food Museum (CAFM), (collectively referred to as “the museums”).<sup>2</sup>

Under the *Museums Act*, Ingenium is a distinct legal entity, wholly owned by the Government of Canada. Ingenium is subject to the financial provisions governing Crown corporations set out in Part X of the *Financial Administration Act*, and is required to comply with a range of other statutes, including those governing official languages, employment equity, multiculturalism, and access to information and privacy.

### PUBLIC POLICY ROLE

“plays an essential role, individually and together with other Museums and like institutions, in preserving and promoting the heritage of Canada and all its peoples throughout Canada and abroad, and in contributing to the collective memory and sense of identity of all Canadians;” and  
“is a source of inspiration, research, learning and entertainment that belongs to all Canadians and provides, in both official languages, a service that is essential to Canadian culture and available to all.”

### MANDATE

“To foster scientific and technological literacy throughout Canada by establishing, maintaining, and developing a collection of scientific and technological objects, with special but not exclusive reference to Canada, and by demonstrating the products and processes of science and technology and their economic, social and cultural relationships with society.”

### MISSION

To collect, explore, and engage through science, technology, and engineering.

### VISION

To inspire Canadians to celebrate and engage with their scientific, technological and innovative past, present and future.

### VALUES

Accountability — Collaboration — Creativity — Integrity — Pride — Respect

<sup>1</sup> The legal name for the corporation is the National museum of science and technology. The corporate name Ingenium – Canada’s Museums of Science and Innovation is used except when the legal name is required.

<sup>2</sup> These are the museum names that appear in the *Registry of Applied Titles* ([www.tbs-sct.gc.ca/fip-pcim/reg-eng.asp](http://www.tbs-sct.gc.ca/fip-pcim/reg-eng.asp)). The legal name of the CSTM is the National Museum of Science and Technology; the legal name of the CASM is the National Aviation Museum; the legal name for the CAFM is the Canada Agriculture Museum. The use of “the Corporation” refers to the governing body of the museums. The use of “the museums” is not meant to imply that the museums are separate legal entities.

## 1.1 Supporting Government Priorities

Ingenium is a member of the Canadian Heritage Portfolio and contributes to the government outcome of a vibrant Canadian culture and heritage. According to the expectations set out by the government, the Corporation maintains rigorous stewardship over financial resources, assets and human resources, while ensuring a commitment to being open and transparent in all of its activities.

The Corporation's mandate and activities are aligned with the government's priorities with regard to Canada 150, engagement and innovation for economic growth, sustainable development and environmental protection, diversity and inclusiveness and open and transparent government. Through educational programs, informative websites, social media tools, digital content and a variety of other media, the Corporation's three museums give Canadians of all ages the opportunity to engage with science and innovations from Canada's past, with developments from today and visions of tomorrow. Ingenium aims to inspire youth and women to explore careers in science, technology, engineering and mathematics, which are sectors vital to Canada's future economic prosperity.



## 2.0 CORPORATE PROFILE

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### 2.1 Museums and the Collections

Ingenium's three museums and collection are housed in 19 buildings in three locations throughout Ottawa. The Canada Science and Technology Museum, on St. Laurent Boulevard, is under renovation and will reopen in November 2017. Located nearby are the corporate offices and three storage warehouses. The Canada Aviation and Space Museum and Hangar are at the Rockcliffe Airport and the Canada Agriculture and Food Museum is located at the Central Experimental Farm National Historic Site. All three sites have space for exhibitions, programming, facility rentals and offices.

#### Canada Science and Technology Museum

The Canada Science and Technology Museum is Canada's only comprehensive science and technology museum. It offers dynamic exhibitions and interactive programming as a nexus of knowledge on Canadian science and technology that is shared with Canadians through travelling exhibitions, an extensive website, and an active artifact loan program. It was the first museum in Canada to engage audiences through interactive exhibitions in the area of science and technology.

The CSTM's collection, the most extensive research collection of scientific and technological artifacts in Canada, is particularly rich in the areas of communication, manufacturing, natural and renewable resources, scientific instrumentation and transportation. The collection of artifacts, trade literature, documents and photographs plays a central role in the museum's exhibitions and is preserved as a resource for future generations of Canadians. Each discovery, invention and innovation represented in the collection display ways in which human innovation contributed to our modern world.

#### Canada Agriculture and Food Museum

The Canada Agriculture and Food Museum's vision is to inspire Canadians to re-engage with the evolution of agriculture. The CAFM aims to inspire visitors, both on site and virtually, to explore the value, contribution and necessity of agriculture to Canadians' quality of life—food, fibres, energy and industry depend on it.

The CAFM offers a unique experience: a demonstration working farm combined with museum exhibitions and interpretation. The museum is a showcase for Canadian agriculture, food production and the science and technology that feeds, clothes and powers the nation.

The CAFM offers programs, special events and exhibitions which explore Canada's proud agricultural heritage, as well as the contemporary benefits and relationships between agriculture and Canadians' everyday lives with a strong focus on food literacy. This theme, relevant to audiences of every age, background and gender, will enable the museum to grow its collaborations and relationships with organizations in the health, food safety, environment education, and culture sectors.

#### Canada Aviation and Space Museum

The Canada Aviation and Space Museum's vision is to invite Canadians to explore the wonders of flight and the contribution of aviation and space travel to the transformation and development of Canada. The CASM offers programming that brings aerospace and aviation history to life and stimulates a lasting interest in the fascinating worlds of flight and space exploration. On site or online, visitors learn about the

significant contributions Canadians have made to aviation and space flight to the present day. It tells the stories of the women and men who followed their dreams as it aims to be a source of inspiration and provides a venue for the next trail blazers to share their exploits and explorations. The CASM is currently focused on the development of its space mandate to become the nexus of space programming, visibility and collaboration for players in the space ecosystem.

The CASM continues to collect, preserve, depict and display aeronautical artifacts and interpret their significance—scientific and technical, social and cultural, historic and contemporary. The extensive aviation collection of the CASM is deemed by historians and museums alike as among the best in the world. The CASM collects artifacts illustrating the development of aviation in times of peace and war, from the earliest days of manned flight to the present, and into space. The museum highlights Canadian achievements in aerospace science and technology, complemented by aircrafts and related artifacts from many other nations, thus providing an international context.

## 2.2 Governance Structure

### 2.2.1 Board of Trustees

The *Museums Act* provides for a Board of Trustees, consisting of up to 11 trustees (including a chair and a vice-chair), appointed by the Minister of Canadian Heritage with the approval of the Governor in Council. (Biographical notes and terms of the current trustees are provided in Annex 2.)

The board serves as Ingenium's governing body and is accountable to Parliament for the affairs of the Corporation through the Minister of Canadian Heritage. The trustees, acting collectively as the board, are responsible for providing strategic guidance to management and to oversee the business management, activities and affairs of Ingenium, ensuring that all the duties conferred on the Corporation by the *Museums Act* and Part X of the *Financial Administration Act* are carried out.

The full board meets between four to six times per year. The board also engages the public on an annual basis, communicating its mandate, priorities, and financial and programming results and plans at the annual public meeting.

### 2.2.2 Board Committees

The board is supported by four committees: the executive committee; the governance committee; the finance, audit and risk management committee; and the major facilities committee. Each committee is governed by its own terms of reference. Committees meet on a quarterly basis and report to the Board. The Chair of the Board is a member of all committees. The President and CEO of the Corporation is a non-voting member of all committees.

#### Executive Committee

The executive committee establishes the annual performance objectives of the President and CEO. This committee also exercises full authority under exceptional circumstances should the full Board of Trustees be unable to meet in a timely fashion. The executive committee's membership consists of the Board's chair, the vice-chair and two additional trustees. The President and Chief Executive Officer (CEO) of the Corporation sits on the committee as a non-voting member.

## Finance, Audit and Risk Management Committee

The finance, audit and risk management (FARM) committee oversees Ingenium's financial management controls, its practices and its information systems. The committee reviews and advises the Board of Trustees on Ingenium's five-year operating and capital plans, as well as the annual and quarterly financial statements. In addition to providing oversight of the risk management policies and practices within Ingenium, the FARM committee also selects internal audits and reviews and advises the Board of Trustees on plans and reports from internal and external auditors. The committee is composed of no less than four trustees plus the Chair of the Board. The President and CEO of the Corporation is a non-voting member.

## Governance Committee

The governance committee (GC) monitors and reviews the governance of Ingenium regarding best practices for corporate governance and stewardship, and recommends appropriate changes to enhance corporate functioning and decision-making.

The GC reviews the board's committee structure and oversees the board's self-evaluation process. The board annually assesses its capacity and evaluates its performance in an effort to strengthen governance practices. The GC supports the board's succession planning by ensuring that the board's skills matrix is regularly updated and identifying any gap in skills, experience or representation, and communicating to government its needs assessment for future appointments. The GC is comprised of no less than four trustees plus the Chair of the Board. The President and CEO of the Corporation is a non-voting member.

## Major Facilities Committee

The major facilities committee (MFC) provides enhanced oversight of the major infrastructure projects that Ingenium is undertaking, as well as the long-term infrastructure plans for the CSTM, CASM and CAFM. The MFC is composed of no less than four trustees plus the Chair of the Board. The President and CEO is a non-voting member.

## 2.2.3 Executive Management

Ingenium's daily operations are managed by the President and CEO, who is supported by an executive leadership team. The executive team includes the Chief Operating Officer, the Director General of each museum, the Vice President, Business Development; the Vice-President, Human Resources; the Vice-President, Public Affairs; and Vice-President, Collection, Research and Corporate Governance.

## 2.2.4 Performance Evaluation

In accordance with the government's performance management program for chief executive officers of Crown corporations, the Chair of the Board of Trustees is responsible for the establishment of an annual performance agreement with the CEO. At year end, the board prepares a written assessment of the CEO's performance and makes a recommendation to the Minister of Canadian Heritage with respect to a performance rating.

Annual performance evaluations of members of the executive leadership team are conducted by the President and CEO against the objectives stated in their individual performance agreement aligned with the activities set out in the corporate plan. Ingenium uses a performance management software system, to manage all employees' evaluations. Evaluations are conducted both at mid-year, to track progress on objectives and to identify any performance adjustments, and at year-end. Job performance is assessed according to both results achieved and effectiveness.

## 3.0 STRATEGIC ISSUES

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### 3.1 Environmental Scan

#### Demographics and Diversity

To remain relevant to the citizens they serve, museums must be aware of changing demographics in Canadian society. On July 1, 2016, Canada's population was estimated at 36.3 million, representing a population growth of 1.2% over 2015, which can be attributed to immigrant population growth (Statistics Canada, 2016). Furthermore, the Indigenous population is growing twice as fast as the general population, while the Indigenous youth population is growing at three times the national average (Public Policy Forum, 2011). With Canada's youth population growing, it is also experiencing a growing number of young professionals interested in leisure activities.

These demographic trends are diversifying and enriching Canadian society and changing the typical museum visitor. Museums will need to examine ways that they can adjust their programming, services, and accessibility to account for this varied population. For instance, Ingenium will work in collaboration with Indigenous peoples groups for inclusion of exhibits and experiences within the museums to continue sharing the stories and innovations of Indigenous peoples in Canada.

Ingenium will take all of these factors into consideration in support of succession planning, employee hiring and retention as well as when renewing its facilities, developing programming, and planning other offerings in order to be more inclusive of all visitors.

#### Economic Climate

The Canadian economy continues to undergo complex adjustments to the recent challenges in the global oil market and the strengthening US economy that are expected to play out over the next few years. Spending on tourism tends to be strongly driven by the health of the economy; any setbacks would place downward pressure on tourism. Government stimulus spending and an improved outlook on American economic growth have contributed to strong economic momentum in the later part of 2016. The Canadian economy has seen an acceleration in consumer spending which is expected to continue. (TD Economics, Quarterly Economic Forecast, March, 2017).

The growth of the US economy could influence future market prices, while the depreciated Canadian dollar raises the prices of imports.

Ingenium will continue to monitor these changing economic and tourism trends in Canada in the context of pricing and revenue projections, as well as in cost forecasting for major infrastructure projects.

#### Tourism

Ingenium's revenues are highly dependent on attendance, which is directly influenced by Canadian and global economies as well as the travel and tourism market.

Canada has been named a top tourism destination for 2017,<sup>3</sup> which could contribute to the tourism surge it expects as it celebrates its 150<sup>th</sup> anniversary of Confederation in events across the country. Ottawa is

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<sup>3</sup> Named by the New York Times and the Lonely Planet travel publisher.

expecting a 20 percent increase in tourism in 2017, representing an additional 1.7 million visitors (City of Ottawa, Budget 2017 consultations). Ingenium expects that the increase in tourism will have a minor impact on attendance at its museums, which are located outside of the downtown core, two of which are not accessible by city transit, while the CSTM will be closed during the summer tourism peak period. Ingenium continues to explore options for improving transit access to its sites.

Since economic conditions improved in 2010, international tourism to Canada has begun to see modest increases. In 2015, close to 18 million international visitors came to Canada, which represented an increase of 7.5% over the previous year, and the first major increase since the economic recovery. Potential travelers are increasingly using the Internet and social media tools to learn about new attractions around the world and to find the least expensive way to reach these destinations. Consumer expectations of value for money are becoming higher, and travelers are seeking novel experiences that satisfy their curiosity (Canada's Federal Tourism Strategy).

Ingenium will continue to look for new opportunities to engage visitors virtually and to offer value-rich experiences to enhance and grow tourism visitation to its museums.

## Digital Environment

Few initiatives museums could undertake represent so great a service to research and education as digitization and digital engagement (Smithsonian Institution Digitization Plan). This statement is even more significant in the Canadian context given the country's broad geography while only a small portion of the population is located in cities hosting the national museums, like Ottawa. Moreover, only a small fraction of the hundreds or even hundreds of thousands artifacts of a national collection can be put on display in a museum at one time. Hence, digitizing the national collection increases public access to their culture significantly.

Canadians expect access to their cultural content online and to have opportunities to engage with that content and even co-create content. Whether through an online database, blogs, virtual exhibits, virtual tours, mobile apps, open data, social media, crowdsourcing, live streaming, videos, video conferencing, virtual reality and augmented reality application, there are an abundance of technologies that translate into means of reaching, connecting and engaging with domestic and international audiences. Museums are experiencing success with using these technologies and platforms to provide contextualisation and complementary materials about their collections, as well as to facilitate opportunities for co-curation and co-creation of heritage content by professional, non-professional and other third-party contributors.

The use of mobile applications (apps) in museums is an emerging trend which takes advantage of location awareness and GPS to provide supplemental information to the visitor about an exhibition, artifact, or the museum itself. Ingenium is developing two such apps for the renewed CSTM, one of which will allow on-site and off-site visitors to engage with the collection, and the other will enhance the Museum experience with 3D content. Ingenium will continue to develop content-rich apps for its ACE Academy and Space Frontiers gaming series, which have been downloaded nearly 400,000 times in more than 175 countries.

Online presence such as an interactive Innovation Canada 150 platform, Open Heritage digital portal and the presentation of 107,000 artifacts online using Google Cultural Institute expands the museums' experience and reach globally. Ingenium is well positioned and will continue to monitor opportunities and trends in digital education and distance learning as a means to engage a geographically expansive and diverse national audience.

## STEM

Canada has a strong demand for skilled workers in STEM (science, technology, engineering and mathematics) well into the future. Today, less than 50 percent of Canadian high school students are graduating with senior STEM courses, yet, approximately 70 percent of Canada's top jobs – from health care to skilled trades – now require some level of STEM education or training (Let's Talk Science, 2016).

STEM skills lead to improvements in the standard of living of citizens and are central to innovation and productivity growth. (Canadian Council of Academics, 2015) Encouraging STEM participation among underrepresented groups such as women and First Nations peoples is important to diversify and expand the supply of STEM educated individuals in Canada (Insights on Canadian Society, 2013).

As Canada's largest demographic is aging and preparing for retirement, both the Indigenous and immigrant youth populations will be needed to fill vacancies in the workforce and sustain the Canadian economy. The development and implementation of outreach programs to introduce youth to STEM opportunities is needed to enrich the Canadian workforce.

Without a steady rate of students graduating in the STEM professions, the science and technological industries will suffer along with the whole economy. Therefore, these occupations need to be promoted to students, parents, and teachers. Young women also need to be made aware of these career opportunities because they comprise well under 20% of enrolments in core technology programs. (Report of the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities, December 2012).

Ingenium is supportive of the engagement, advancement, and retention of women in STEM-related fields. Virtual connections, exhibitions, public awareness and conversations will continue to be a primary way of engaging Canadians in discussions on STEM.

### 3.2 Risks and Mitigation Strategies

In October 2016, Ingenium updated its risk assessment against the five strategic objectives taking into account the major initiatives and projects planned for 2017-2018. Each of Ingenium's strategies that support the objectives was assessed against the risk drivers pertaining to human and financial resources, external environment, management practices, client knowledge, security, IT, and infrastructure. Each risk driver was rated in terms of its potential impact and the likelihood of adverse consequences on the Corporation's activities and goals. Analysis of assessment results identified the most important drivers of risk, as well as the strategic initiatives with the highest risk profiles. The following three risks were identified as the most prominent in terms of impact and/or likelihood:

1. the impact of any cost overruns with respect to major infrastructure projects;
2. the loss of relevance due to limited capacity to invest in new programming and exhibitions on multiple platforms; and
3. endangering the national collection in storage due to inappropriate storage conditions.

**Risk 1:** *The impact of cost overruns for the CSTM infrastructure modernization project and the Collections Conservation Centre.*

Due to operating funding pressures and limited base capital appropriations, the Corporation would not be able to absorb any cost overruns for either major capital projects without negatively impacting the operations at CASM or CAFM or the Corporation's overall financial health. The budgets for both projects, that is, to deliver a practically whole new national museum and a new state-of-the-art collections storage facility, coupled with the ambitiously short timelines of about 30 months to deliver each one, add to the typical complexities associated with major infrastructure projects.

**Mitigation:** Ingenium has put in place a highly qualified team of construction, engineering, and architectural professionals to deliver the CSTM infrastructure project and the Collections Conservation Centre project. The CSTM modernization project was broken down into two components, one for the structural work and a second for the exhibition modernization work. Work is being done on the structural construction work while Ingenium's executive team focuses on the development of the new exhibition program and seeking contributions and sponsorships for the project. A specialized project manager oversees each project team to ensure rigorous adherence to the schedule and budget. Ingenium also included contingencies for the design phase and the construction phase, for both major capital projects. Project teams also evaluate value engineering/cost saving opportunities at every step of the projects, including scope definition, fit-up and finishing, in order to use the funding most effectively and to ensure spending remains within the allocated budget. The Corporation is also using a portion of its unrestricted net assets to enhance the exhibition quality and interactive visitor experience at the CSTM. The Board of Trustees' Major Facilities Committee receives regular progress updates, and provides addition oversight, to ensure adherence to the schedule and budget of each project.

**Risk 2:** *Limited capacity to invest in digital initiatives, programming and exhibitions on multiple platforms.*

While the significant capital investments to modernize the CSTM and build the Collections Conservation Centre will solve important infrastructure issues that had been plaguing the Museum for many years, Ingenium has not received an increase in base funding for over 20 years. Ingenium's appropriations are not indexed to protect it against the impact of inflation and market forces on goods and services, utilities, property taxes and other non-discretionary costs. Year after year, the erosion of its appropriations due to rising costs across its operating and capital budgets represents a greater financial challenge. The Corporation continues to use an increasing portion of its operating funding to pay for the cost of operating its public facilities as well as fund the salary envelope. This situation is exacerbated by the operations and maintenance expenses Ingenium has had to absorb since the addition of the CAFM facilities in 1997 and the hangar at the CASM in 2005 to its portfolio, for which Ingenium's base appropriations were never adjusted to operate or recapitalize. All of these financial pressures severely compromise Ingenium's ability to fund digital, exhibition and programming initiatives from its base appropriations. The Corporation's dependence on the private sector to fully fund new initiatives has shown limited success as cost-sharing options are preferred, and it is not a sustainable model.

**Mitigation:** Ingenium will continue to inform the government of the financial pressures that challenge its ability to ensure its financial sustainability and more importantly, its ability to deliver its mandated program activities to preserve and present the national science and technology collection. The Corporation is committed to finding efficiencies and savings, diverse revenue generating opportunities and contributions and sponsorships. The Corporation is also seeking to

collaboration with other institutions to share resources to help attain program objectives. Despite the Corporation's considerable efforts, a significant funding gap remains. With the new crown-owned collection storage facility, this will eliminate the Corporation's lease costs, as well as reduce the incrementally increasing cost of upgrades and repairs to the leased facilities. Lease savings will be put toward the operation, maintenance and recapitalization of the new Crown-owned facility.

**Risk 3:** *Endangering the national collection due to inappropriate storage conditions.*

Ingenium is responsible for an extensive collection of scientific and technological artifacts and materials. The collection is currently housed in three leased non-purpose-built warehouse buildings, which are at 130% capacity. Furthermore, these buildings have inadequate temperature and humidity controls, providing a challenge for preserving existing artifacts as well as acquiring new artifacts to enhance the collection. These conditions may force a moratorium on acquisitions which would create a gap in the national collection for future generations. The conditions have worsened since the Office of the Auditor General's (OAG) 2004 and 2009 Special Examination reports and the independent survey by Lundholm Associates Architects in 2002, all of which raised the issue of the poor storage conditions.

**Mitigation:** During the construction of the Collections Conservation Centre the national collection will continue to be at risk. Plans and strategies to mitigate the risk to the collection are in progress. In the interim, the Corporation will proceed with the collection rationalization project to manage its collection and find efficiencies. It is also making repairs to the leased buildings to protect the artifacts and address health and safety issues to staff, to the extent it can afford to do so within its funding envelope.

## 3.3 Highlights and Challenges from 2016–2017

### 3.3.1 Progress and Highlights

As Ingenium reflects on the mid-year results of 2016–2017, it notes that it has met or exceeded target expectations of program participation, and the results on virtual engagements continued to increase dramatically. Some activities have not met expectations, such as attendance at the CASM for the *Star Trek: Starfleet Academy Experience* exhibition, and fewer summer camp participants, as the ratio of campers and delivery methods were reviewed. The Canada Science and Technology Museum renewal is proceeding on time and on budget, whereas the design development of the Collections Conservation Centre is experiencing delays (explained later in the capital budget discussion).

Since the beginning of 2016–2017 several activities have produced successful results in supporting the achievement of strategic objectives and identified government priorities. Some of these activities include:

- **Innovation 150**

Ingenium partnered with Perimeter Institute for Theoretical Physics, Actua, the Institute for Quantum Computing at the University of Waterloo and the Canadian Association of Science Centres to launch Innovation 150, an interactive, year-long celebration of Canadian innovation. Innovation150 provides access to science, technology, engineering, and math related activities. Some of the projects Ingenium is collaborating on include the MakerMobile, the Innovation 150 Digital Hub and a public awareness campaign. Hundreds of stories have already been posted to the platform. The collaborative exhibit on Quantum Computing and a speaker series will travel to dozens of cities. Youth-specific programming has also been developed and will be shared with students at schools, community centres and events across the country.



- **Let's Talk Energy national initiative** positions the Corporation as a venue for interpretation and awareness of current research on science issues and impacts, and the technologies developed to mitigate these.

The Corporation launched an outdoor travelling exhibition on Climate Change, developed collaboratively with National Geographic in conjunction with Environment and Climate Change Canada, Natural Resources Canada and Sustainable Development Technology Canada. The photo-based exhibition highlights Canadian research in the field of climate change and the technologies developed to help mitigate it. The twenty-panel modular structure is lit by solar-powered lights. It opened in Ottawa in the summer of 2016 and is currently touring Mexico for the winter with plans for venues in the United States in 2017. The exhibit is a testament to the Corporation's commitment to working with federal partners to raise awareness at home and internationally on environmental issues and the importance of clean energy use.

- **Open Heritage**

In keeping with its mandate to foster a culture of science and technology in Canada, Ingenium took a global leadership role in providing open access to its research and information assets. This initiative, a model for government-wide open information, is providing digital access to the knowledge it holds in trust for all Canadians, including historical, policy, working, and decision-making files. A number of federal organisations have reached out to Ingenium to seek guidance, training and lessons learned, including the Treasury Board Secretariat. The Corporation is building on its open heritage experience to develop the open archives initiative.

- **Collaborations with Indigenous Peoples**

Ingenium is collaborating with indigenous organizations and individuals for support in telling their stories of indigenous knowledge and scientific and technological practice in the renewed CSTM. With the Makivik Corporation of Nunavik, Inuit women will share with CSTM visitors their skills and stories designing, making and marketing the *amauti* baby-carrying parka. Ingenium is also working with First Nation astronomers to provide a cross-cultural interpretation of indigenous star knowledge. With the Huron-Wendat community of Wendake, Quebec, Ingenium is exploring the longstanding and still-active history of manufacturing and using snowshoes. Finally, Ingenium's oral history project will be featuring a number of interviews with Canadian indigenous leaders and role models.

- **McGill Fellowships**

In partnership with McGill University, Ingenium announced the establishment of a Public History fellowship program, in the history of science, medicine and technology. This program will provide scholars the ability to use the Corporation's extensive archival, library, and collection resources. Two candidates were selected for the inaugural year. This fellowship is aligned with the new research plan under development, which seeks to foster research about or using the national collection to increase the understanding and interpretation of the significant artifacts of the collection.

- **Graffiti Mural Contest**

The Canada Science and Technology Museum launched a national artwork contest inviting students to celebrate the role of creativity and the arts in science by submitting artwork that answers the question *How Does Science Inspire You?* Delivered with the expertise of local urban art organization House of PainT, the contest reflected an evolution in the Museum's focus to add creativity and the arts to its core themes of science, technology, engineering and mathematics. The contest received 151 submissions from students in seven provinces and the webpage received over 17,000 views. The winning submissions were painted by graffiti artists on the boards that delineate the Museum construction site. The City of Ottawa was pleased with the Corporation's approach of putting artistic renderings on hoarding and encourages the local construction industry to model it.

- **Game Changers**

*Game Changers* is a highly interactive and immersive travelling exhibition that explores how technological advancements have shaped gameplay in video gaming systems and transformed the way we interact with technology. Developed by Ingenium, in partnership with the Social Science and Humanities Research Council of Canada and Electronic Arts, *Game Changers* focuses on Canadian innovations that have helped transform the gaming scene and revolutionize the industry. The exhibition first opened at Science North, Sudbury, in October 2016, before embarking on a Canadian tour until 2020. Launching the exhibit in Sudbury led to significant media attention in the city and surrounding communities.

- **Food themes at CAFM**

CAFM continues to tap into the foodie movement and build on the success of the Baconpolooza event to add more food-themed programming like Cheese Month and Maple Month. To help promote its foodie events, renowned chef, author and television personality Lynn Crawford has signed on as the Museum ambassador to do food demonstrations and promotional activities for such events.

- **Notable Acquisitions:**

- The Parks Explorer Vehicle, a wheeled assistive technology vehicle to help people with physical disabilities better access and enjoy outdoor recreation.
- From the National Research Council, the flag that set the national technical standard for the new Canadian maple leaf flag, as well as test flags and technical logbooks.
- A collection of geometric models from the late mathematician, H.S.M. Coxeter (1907-2003), one of the foremost geometers of the 20<sup>th</sup> century.
- A painting of a rare-breed Tamworth pig by Elaine Goble.
- Over 1,000 photographs and panoramas that document the construction (1926-1931) of the Alexander Falls hydroelectric dam in Thunder Bay.
- Olympic Gold Medalist Erica Wiebe's Hexoskin suit and flag, and SeeHorse, a biometric tracking device for equine application, both for the new Wearable Tech exhibit in the CSTM.
- The archival media collection from EPN.TV (the oldest video game review in Canada).
- A Sonic 80x kayak and a sit-ski from Saskatchewan Ski Association for the accessibility component of the new Great Outdoors exhibit in the CSTM.
- The world's first IMAX camera was acquired from one of the founders of the IMAX corporation.
- A composite hockey stick used by Daniel Alfredsson of the Ottawa Senators hockey team.

**Deaccessions:**

- Two incomplete aircraft engines and parts were sold;
- A periscope was transferred to the Canadian War Museum;
- A radar console to the Canadian museum of Flight in BC;
- Some aviation avionic components went to the Air Force Museum in Trenton and the Royal Aviation Museum of Western Canada in Winnipeg.

### 3.3.2 Challenges and Lessons Learned

Ingenium faced a few challenges in the first half of 2016–2017. It has learned key lessons and made adjustments in its plans to meet these challenges as follows:

- **StarTrek: Star Fleet Academy Experience**

This was the first special exhibit of its size developed by the Corporation and co-curated with international partners. The Corporation had expected the special exhibition to attract a significant number of visitors leading to a significant increase in revenues, as was the case with the *Star Wars™ Identities* exhibition that had been presented in 2013, given the 50<sup>th</sup> Anniversary of Star Trek and the release of a Star Trek feature film. Moreover, the social media campaign generated 9.5 million impressions and the Star Trek Gala with special guest William Shatner sold out.

However, the Star Trek Exhibit was not as popular as expected and did not attain revenue targets, despite receiving high visitor satisfaction in the exit survey. The reasons for the lower attendance were attributed to a variety of factors (see 5.1 Financial Overview), including weather, tourism, advertising, brand popularity and boutique offerings. Having to make space in the hanger also added costs to the exhibit. In order to address low attendance, the Corporation increased advertising and reduced the admission price for members, staff, friends and family in the latter half of the summer, which significantly increased visitors.

The Corporation has come away with important lessons learned with respect to the business modeling of such exhibits. Even though the special exhibit did not attain revenue targets, the media coverage provided significant exposure and awareness of the Corporation's activities. In the future, the Corporation will do better market testing and piloting, and will consider travelling the exhibits prior to launching in Ottawa in order to gain momentum and learn from those other venues, in order to increase the likelihood of success at its own museums. This experience also highlights the need for increased operating funding as the development and promotion of exhibitions are costly endeavours.

- **Pulses Exhibit**

As 2016 was the International Year of the Pulse, the CAFM developed a small travelling display, in partnership with Pulse Canada. The informative display presented pulses as beneficial to Canadians' health, to environmental sustainability and to the agriculture industry. The travelling exhibit was available free of charge, with a focus on visiting high attendance events like conferences and fairs. This type of tour had not been done before by the team. While the tour was a success with over 15 different venues, this type of tour required much more coordination, negotiation, troubleshooting and maintenance than the typical travelling exhibit, and became

very taxing on internal resources. In the future, the plans for such a product should ensure the availability and adequacy of internal resources.

- **Giving Tuesdays**

Intended to benefit from local, national, and international attention focused on non-profit giving on *Giving Tuesday*, this year's campaign focused on the *Gifts that Matter* symbolic giving guide and general donations. It was promoted via social media for the three museums and the Foundation. Donations were small and all from staff. The campaign was too short-term and lacked the focused ask needed to resonate with the intended audience and achieve the intended fundraising goal. Although this strategy was not successful for *Giving Tuesday*, the long-term promotion of the *Gifts that Matter* catalogue has increased the number of first time donations from Museum Members. Building on these lessons learned, the Corporation's strategies for *Giving Tuesday 2017* will include securing a partner to match donations, reaching out to existing partners, using social media and developing a tangible ask with a realistic fundraising goal.

## 4.0 STRATEGIC OBJECTIVES

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### 4.1 Planning Framework

Over 2017-2018, Ingenium will pursue year three of its five-year strategic framework covering the period of 2015-2016 to 2019-2020. The strategic objectives were reviewed and reconfirmed by Ingenium Board of Trustees in November 2016. The strategic objectives guide the Corporation's activities and resource allocation in order to achieve program outcomes in pursuit of its mandate. The outcomes serve as goals for the broad functional programs derived from its mandate. They also demonstrate the value and results that the Corporation aims to achieve for Canadians.

Ingenium has identified strategies, priorities and activities that describe the ways in which the Corporation will pursue its long-term strategic objectives. While many of the strategies and activities planned for 2017-2018 are continuing from previous years, some new ones will also be pursued. These reflect the new opportunities and initiatives that have evolved from the Corporation's efforts. The performance measures presented will enable Ingenium to assess the degree to which its activities are achieving results against its outcomes.

Over 2017-2018, the Corporation will focus on four key priorities across its strategic framework, which are: Canada 150; Digital Citizenship; Innovation and Growth; and Branding. The Corporation will continue to push the boundaries of what a public institution, like a museum, can do to engage citizens in participatory heritage through new exhibits, open platforms, virtual and digital content and experiences.

#### 4.1.1 Best in Class — Collection

To consider the national science and technology collection as "Best in Class," the Corporation has defined the outcome as a collection that is renowned as well-researched, preserved, comprehensive, rationalized and accessible virtually and physically to Canadians. The Corporation's collection is the foundation of its activities. Each artifact tells us a story about how yesterday's innovations shape our present lives and encourage future scientific and technological experimentation.

Ingenium will continue to place priority on digitizing the collection, adapting to new technologies, and investigating diverse digital strategies and platforms to make the collection accessible to researchers, students and curious people. Ingenium has emerged as a leader in the heritage sector in terms of making its collection and content accessible through digital technologies and digital engagement strategies, like open data and open heritage. In 2017-2018, the Corporation will build on the success of its experimentation with 3D scanning of artifacts to develop plans for a digital media laboratory in the Collections Conservation Centre to be used by staff and external collaborators to explore a wide range of digital and virtual technologies using Ingenium collection as content.

Beginning in 2017-2018, the Corporation will implement a new research strategy to foster a strengthened research culture centred upon the Corporation's collection, audiences, exhibits and programs that attracts external collaborations and interdisciplinary approaches. The strategy's framework, developed in consultation with external experts, reflects research priorities and emerging trends, including: social and cultural dimensions to science and technology; contemporary science and technology; resources and environment; living systems; mobility; conservation of modern collections; and understanding audiences. It will serve to advance curatorial research, attract researchers to study the collection, and support collection development in under-represented areas. Implementation of the strategy will be aligned with

long-term exhibition and programming plans in order to contribute to their development. Staff is consulting on the design of the Collections Conservation Centre that will include a research institute for research fellows, visiting scholars and guest researchers to conduct and collaborate on research.

Along the same vein of strengthening and sharing its research expertise in science and technology, the Corporation has just hired science researchers, who have doctorates in the fields of astrophysics, biochemistry, and public health, as science advisors to the museums as well as to support science communications in Canada. They will be responsible for ensuring the accuracy of scientific interpretation across the museums' exhibits and programs, liaise with other scientists, academics and policy experts, and serve as science communicator and spokesperson on matters of science and technology in their fields.

An Indigenous Peoples engagement strategy will be developed to complement the research strategy and align with the government and the Minister of Canadian Heritage's commitment to Indigenous languages and cultures, recommendations from the Truth and Reconciliation Commission with respect to being inclusive of Indigenous peoples' cultural perspectives and historical experience, and the Crown's duty to consult. The Corporation consulted with the Canadian Museum of History in the development of the strategy and activities going forward. The strategy contains a myriad of recommendations in terms of active ways in which the Corporation can reflect Indigenous peoples' history in Canada's science and technology heritage. In 2017-2018, the Corporation will further explore activities and approaches, from exhibit content to staff training, in support of more consistent inclusivity, collaboration and consultation of Indigenous Peoples across its activities. The participation of Indigenous communities in the selection of artifacts and the development of the interpretative texts that will be displayed in the renewed CSTM exhibition space will be a significant step in the right direction.

Until the CSTM re-opens in November 2017, the curatorial, collection and conservation staff of the Corporation will continue to be an integral part of the CSTM exhibit project team, leading a wide range of activities including the selection and interpretation of artifacts, their proper restoration, handling and mounting in the Museum's new exhibitions.

In 2017-2018, Ingenium will begin preparations for the collection move to the Collections Conservation Centre. This will be a substantial endeavour given the over one hundred thousand artifacts to be moved into the new Centre, which will provide environmental controls to heritage standards that are conducive to the long-term preservation of the collection. A resourcing strategy is being developed for temporary staff to prepare the collection for the move, including curators, cataloguers and artifact handlers. A project manager will be hired to oversee the planning, preparations and implementation of the move. Curatorial, collection and conservation staff currently heavily involved in the CSTM project will be able to turn their attention to the CCC project for the last quarter of 2017-2018.

Preparations for the move to the Collections Conservation Centre will include planning for enhanced efforts to clear the backlog of objects to be assessed for acquisition, to advance the Collection Rationalization Project with a priority on disposal according to the Collection Rationalization Strategy, and to review the inventory in the current storage facilities. Temporary resources will be devoted to these activities.

Strategies for SO 1	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Make the collection more accessible digitally and physically.	Digitize the collection (ongoing).				
	Deliver virtual collection tours.	Develop collection tours in CCC.	Launch tours in CCC.		
	Explore other possible hosts for virtual content.				
Become leaders in science and technology subject-based research by focusing on and sharing expertise.	Implement new subject-based research plan.			Evaluate the research plan.	Implement revised plan.
	Open the Research Institute.				
	Use the collection to attract national and international researchers and program collaborators (ongoing).				
	Implement a science communications program.				
	Develop an Indigenous engagement strategy.				
Advance the Collection Rationalization Project.	Address cataloguing backlog and pursue rationalization.				
	Prepare for collection move.	Move collection into the CCC.			

**Outcome for SO 1:** Ingenium has a well-researched, preserved, comprehensive and rationalized collection that is accessible virtually and physically to all Canadians.

**Performance indicators**

**Targets for 2017-2018**

- |  |                                   |
|--|-----------------------------------|
| - Percentage of the collection digitized   | - 96% of the collection digitized |
| - Amount of space cleared by removing un-catalogued objects or deaccessioned objects from collection storage | - 400 m <sup>2</sup>              |

### 4.1.2 Best in Class — Education and Exhibitions

To consider itself to be the “Best in Class” for education and exhibitions, Ingenium will continue to challenge itself to create informative, engaging, relevant and compelling physical and digital exhibitions and learning opportunities.

#### Canada Science and Technology Museum Renewed Exhibition Floor

The modernization of the CSTM exhibition space will allow for new, dynamic and immersive exhibition techniques using artifacts to tell the stories of Canadian ingenuity and inventions and that impact Canadians’ daily lives.

With the building construction nearing completion, the space will be ready for installation of its all-new exhibitions in 2017-2018. The Museum will feature 7,400 m<sup>2</sup> (80,000 sq. ft.) of exhibition space, plus an 850 m<sup>2</sup> (9,200 sq. ft.) temporary exhibition hall to accommodate travelling exhibitions from around the world. The exhibition space has grown by over 10% by relocating workshops and reconfiguring back-of-

house and administrative spaces. In addition to its impressive galleries, the Museum will contain classrooms, a maker space, a demonstration stage, auditorium and conference hall.

Based on a Master Concept Plan developed in 2015-2016, the Museum will host five major galleries: Transforming Resources, Creating and Using Knowledge, Moving and Connecting, Technology in Our Lives and the Children's Gallery. In addition, the Museum will feature **Artifact Alley**, which will be showcasing a plethora of over 450 artifacts, thematically presented in cases as: Canadiana, Winter, Travel, Science Fiction, Tools, Materials, Printing and Smartphone. It will act as the building's main conduit, from the lobby to the temporary exhibit hall at the rear of the Museum, allowing visitors to discover the Museum's wonderful collection on their way to the other exhibitions. It features a circular demonstration stage in the centre of the Museum.

**The Transforming Resources Gallery** will explain that to meet our needs and wants over time, Canadians have developed technologies to transform the Earth's natural resources, and in the process, have changed the world around them. It will feature nine modules, covering topics such as mining, materials, energy and climate change. It will also feature case studies of steel, oil, fertilizer and water.

**The Creating and Using Knowledge Gallery** reveals how senses and technologies are used to learn about ourselves, the world around us and beyond. It will feature several exhibitions: *Medical Sensations*, which explores the five senses and their surprising role in the practice and experience of medicine; *Hidden Worlds* which will showcase science and technology that allows us to discover worlds beyond our senses such as the very small and the very far; *Perceptions and Illusions* will show how distorted senses can change our understanding of ourselves and our surroundings. This exhibition will also feature the staple Crazy Kitchen, which will have undergone renovations and a restoration while still keeping its effect. Its exterior will display many different optical illusions, making it more appealing than its former walls.

**The Moving and Connecting Gallery** will also feature three distinct exhibitions: *The Great Outdoors*, *Steam* and *Sound Design*. The latter will include sound technologies and experiences such as being subjected to the near perfect silence of an anechoic chamber. The Museum's locomotives will anchor the *Steam* exhibition. The space will provide both the glamorous and gritty aspects of the perceptions and realities of steam transportation in Canada from the 1900s to the 1960s. *The Great Outdoors* will take a nostalgic look at Canadians' enjoyment of outdoor spaces as well as old and new technologies used, including adaptive technologies such as the sit-ski.

**The Technology in Our Lives Gallery** explores how we transform technologies and how our lives are shaped by the daily interactions with technology. The gallery will feature two exhibitions: *Wearable Technology*, which highlights a wide variety of personal mobile technologies and *Household Consumption*, which will explore the relationships we have through the household and its domestic technologies since the end of the Second World War.

**The ZOOM Children's Gallery** is composed of nice circle-themed modules that provide opportunities for play and experimentation. It is designed for children of ages 2 to 8 and will also include a designated space for toddlers in close proximity to the family room. The University of Ottawa's living lab will be located in the Children's space in order for researchers to interact with families.

### **A Variety of Perspectives**

The renewed, modern CSTM will continue to promote and celebrate Canada's long history of scientific and technological achievements. It will also aim to approach history using various perspectives and



approaches. It is an opportunity to showcase stories of different cultural, ethnic, linguistic, demographic, and physical abilities to represent Canada's diverse population.

Ingenium wishes to contribute to and facilitate a national dialogue on the presence of Women in STEM by raising awareness about the challenges faced and providing positive examples of the successes of women in the various fields of science and technology. *Household Consumption* will discuss the evolution of the role of women in the household; the Mining module will showcase modern technologies and equipment developed by women for women in the industry, to give a few examples.

Indigenous technologies have been one of the major gaps in both the collection and the way in which it was interpreted. For the longest time, Ingenium did not actively seek to include traditional technologies mainly developed by Indigenous peoples in its collection as their cultural representation was seen as the domain of the Canadian Museum of History. However, the ability to travel long distances, stay warm in frigid temperatures and walk on snow without sinking are all challenges to which the Indigenous Peoples found creative solutions while using the resources of the land. The renewed Museum will include some of these technologies and Indigenous perspectives by working with the Huron-Wendat Nation in Quebec to develop content on snowshoe culture, and presenting oral histories of Cree leaders and business owners who have found success in the oil sands industry of Northern Alberta.

Since the commencement of the renewal process, the CSTM's staff has been working alongside youth to insure the new exhibits and experiences are stimulating and relevant to students, through consultations with a *Youth Advisory Council* comprised of students from 11 to 16 years old.

### **Accessibility**

Among the Museum's most important changes is not only its content, but the ways in which it will attract and welcome visitors, physically and virtually. People who may never set foot in the Museum will be able to become "virtual" visitors thanks to digital technologies both on and off the floor. The Museum is being fit-up with audio-visual equipment and technology infrastructure that will support live streaming, distance learning, and video-conferencing, to facilitate the exchange of ideas beyond the Museum's walls.

The best way for public institutions to achieve accessibility is to prevent barriers in the form and function of the environment from being created. The Corporation's new Accessibility Standards for Exhibition were created with this express aim, drawing upon the expertise of the Canadian Museum for Human Rights, to take into account physical, sensory, and cognitive impairments in the design of exhibits and interactive experiences. The document provides guidance in the design of circulation routes, cases and displays, exhibition seating, mechanical interactives, tactile experiences, audio-visual media, digital interactives, texts and graphics, and exhibition lighting. The re-construction of the CSTM building allowed many physical improvements to be made, such as leveling the floor, creating wider spaces, and improving natural and artificial light and sound buffering that will contribute to the improved accessibility of the Museum.

### **Artifact Increase and Visitor favourites**

For several decades, the CSTM has been collecting a wide variety of artifacts ranging from light bulbs and vacuum tubes to fire trucks and steam engines. While previously only showcasing approximately 1.6% of the collection on the floor, the Museum now has the opportunity to display a much larger number of artifacts by reconfiguring and enlarging the exhibit floor space of the CSTM. The renewed Museum floor will feature over 3,100 artifacts, equating to 8.4% of its collection. While many staples will return, they will

get a facelift and/or return with opportunities for interactivity, such as the Tokamak nuclear fusion reactor, which visitors will be encouraged to “activate”. In addition to its immense number of 3D artifacts, the Corporation possesses an impressive archival collection. A wide variety of this 2D collection will be used, mainly in Artifact Alley, where over 50 archival pieces, such as trade literature, rare books, photos and blueprints will be on display to support the contextualization and interpretation of the 3D artifacts. The CSTM renewal will also feature several international loans such as the Robert Hooke Microscope from the London Science Museum and a terrestrial telescope from the Museo Galileo in Italy.

### Other activities

Ingenium will pursue exhibit renewals at its other museums as well. The CAFM will develop a new temporary exhibit and a travelling exhibit on canola, a Canadian-made crop that is widely exported around the world, as well as a discovery zone on soil, both of which are being developed in collaboration with multiple academic, governmental and NGO, and industry groups. CASM will enhance its exhibits and programming around its space theme.

In the past, Ingenium hosted special exhibits on an infrequent basis mainly due to space constraints and limited resources. In recognition of the importance of special exhibits that provide new experiences and learning opportunities for visitors, Ingenium has developed a strategy for hosting special exhibits. In 2016, contracts were signed for The Art of the Brick in summer 2018 and Di Vinci Alive in summer 2019 at the CSTM’s new temporary exhibit hall. Special exhibits, on a smaller scale, are also being considered for the CAFM and CASM.

### STEM/STEAM

Ingenium will continue to support the lifelong learning of Canadians in science, technology, engineering, arts and mathematics (STEAM) through engaging and immersive programs. School programs at the museums will continue to offer teachers curriculum-connected content that will engage students in hands-on STEAM and immerse them in Canadian history. In 2017-2018, Ingenium will launch its new plan to embark on a national initiative in support of Women in STEM (science, technology, engineering and mathematics), to support international efforts on this front led by UNESCO. The Corporation will explore a fellowship to work on STEM-themed programming.

The Corporation supports the CSTMC Foundation’s new national prize for young people who have been recognized for achievements in the fields of science, technology, engineering, arts and math (STEAM). STEAM Horizon Awards with a \$25,000 prize will be awarded to up to seven high-performing students, two prizes will go to Indigenous youth, for their post-secondary education in a STEAM field in Canada. The prizes have been contributed from an array of private and public donors. The National Research Council will evaluate the submission and winners will be recognized for their achievements at the Foundation’s National Science and Innovation Gala.

### Canada 150

The grand re-opening of the CSTM in November 2017 will be a unique opportunity to wrap up a year of Canada 150 celebrations coinciding with the 50<sup>th</sup> anniversary of Ingenium. Canada Day celebrations at the CAFM and CASM will tie in Canada 150 themes as plans are finalized in spring 2017.

Through an interactive digital storybook, the Corporation along with partners from leading science institutions, and with the contribution of crowd-sourced content, will celebrate Canada’s proud history of

innovation through its Innovation150.ca platform. The theme of “Canada’s Spirit of Innovation” for the digital platform showcases the people, places and things that have contributed to Canada’s Spirit of Innovation over the past 150 years since Confederation. This digital collaboration brings together initiatives such as a travelling exhibition on Quantum Computing and the Power of Ideas Tour, which will bring cutting-edge programming in science, technology, engineering, and more to 60 communities across the country, with a special focus on youth and Indigenous audiences.

Strategies for SO 2	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Create unique exhibitions that are relevant, engaging and entertaining experiences.	Complete and install exhibits & re-open CSTM Pursue permanent and temporary exhibit space renewals at the museums (ongoing). Host special exhibitions at each museum on a cyclical basis (ongoing). Develop new collaborations with academia, industry and government to showcase cutting-edge innovations at the museums (ongoing).				
Offer STEAM educational programming in formal and informal forums.	Host annual STEAM Horizon awards. Develop plan for women in STEM      Launch women in STEM initiative      Support women in STEM (ongoing). Deliver virtual and digital educational programs for families (ongoing).				
Celebrate significant and inspiring Canadian science and technology innovations.	Celebrate Canada’s 150 <sup>th</sup> /CSTM’s 50 <sup>th</sup> anniversary. Grow Innovate150 platform. Promote annual GG Innovation Awards.				

**Outcome for SO 2:** Ingenium delivered programs, products and services that tell the stories of Canadian ingenuity and innovation.

Performance indicators	Targets for 2017-2018
- Attendance at CAFM, CASM and CSTM	- CAFM: 185,000/CASM: 260,000/CSTM: 150,000
- Number of downloads of educational materials	- 88,700 downloads
- Percentage of visitor satisfaction	- 90% satisfaction
- Number of school programs / number of participants	- 1,580 programs / 50,000 participants

### 4.1.3 National Outreach

Ingenium recognizes that many Canadians and tourists don't have the opportunity to visit Ottawa and/or the Corporation's museums to experience live, hands' on learning about the science and technology innovators and inventions. Moreover, physical space for exhibits is limited by museum floor space. That is why it has developed so many different approaches, both physical and digital, for promoting science and technology literacy outside of the museums' walls to bring science and technology content to communities across Canada. For instance, efforts will continue on *Let's Talk Energy*, a multi-year energy literacy initiative that reaches Canadians across the country through games, social media, webinars, and travelling exhibitions such as *Climate Change Is Here*.

To effectively increase national presence and outreach, Ingenium and its three national museums have been pursuing ways to maximize their recognition across the country as trusted authorities and leaders in their fields. They continue to find alternative ways to communicate more narratives, to reach broader audiences and to engage in national story telling. Ingenium also recognizes the importance of being relevant to ensure its sustainability. The Corporation will endeavour to reach, connect and engage with Canadians across the country through a variety of innovative ways, with a particular focus on digital natives. In pursuit of these objectives, Ingenium will continue to provide digital programs, such as distance education and other similar platforms increasing national presence and knowledge of the collection. New and existing distance connections will be formalized, to increase the regularity of the connections, reach new audiences and ensure the programs are impactful to the community.

Building on the success of the *Ace Academy* mobile games series, which have been downloaded nearly 300,000 times across 175 countries, Ingenium is developing additional gaming apps to expand its Space Frontiers series and a virtual reality version of *Ace Academy: Black Flight* led by the CASM, as well as a mobile game on the theme of bees and agriculture by the CAFM, which will be launched in 2017-2018. While these mobile games have reached citizens in countries the Corporation could never have imagined, given that they are based on real artifacts and how they were used, grounded in research, and/or are intrinsically tied to the museums' exhibits and programs, they could be said to become exhibits in and of themselves. For instance, the *Bee odyssey* mobile game is heavily based on the recent CAFM exhibit on bees. This is an example of how the museum can deliver programming in a variety of ways.

New networks and innovative partnerships will continue to be built and fostered to support national outreach initiatives. Efforts to bring the science and technology national collection to Canadians from coast to coast to coast will increase as the Corporation explores ways to develop collaborations to produce new products, such as travelling exhibitions and displays. Building on the popularity of programming at high attendance events such as ComicCon, the Corporation will be exploring having a presence at other similar events and venues.

Ingenium will increase the scope and scale of the travelling exhibitions program, including designing new exhibitions through the collaboration of other institutions and expanding its network of venues domestically and abroad. For example, it is working with five leading science museums from Israel, Germany, Italy and the US, to develop an international travelling exhibition on bicycles, which will launch in 2017-2018. The anticipated \$1.6 million required to develop the interactive, multi-language exhibition will be cost-shared among the collaborators and with sponsorships they raise. Ingenium will work with a third-party consultant to explore the potential for creating travelling exhibitions based on the science and technology collection. The third-party would develop and travel the exhibit, which would eventually be

installed at one of Ingenium museums, at little to no cost to the Corporation. These are examples of cost-effective strategies that Ingenium will continue to explore to expand its program outreach.

With channels such as Open Heritage, Ingenium is exhibiting total transparency while encouraging people to share their opinions and their perspectives and, ultimately, to correct and question the Corporation. Its main goal is to increase total participation and the possibility of co-creation. In 2017-2018, the Corporation will further increase the content available on its open heritage platform, provide open archives, and share its experimentation and lessons learned in Open Heritage with other governmental and academic institutions. For instance, by working on a master's level course with the University of Ottawa's information studies program and with Carleton University's Faculty of Public Affairs and the School of Journalism and Communications.

Ingenium will also explore applications of augmented reality and virtual reality in a museum context. Contracts have been signed with two firms to develop an augmented reality to enhance the museum experience and virtual reality apps that allow audiences to examine and manipulate the collection's artifacts in 3D, to better understand the mechanics and technology behind them. These will be completed and launched in 2017-2018.

In 2017-2018, the Corporation will be involved in the production of the first of many 52-minute, full-feature documentaries that will be produced over the next few years, with international distribution. The documentaries are being produced by an independent producer. Costs will be shared by the producer, Ingenium, and other content collaborators as well as the broadcasters and channels that will air the documentaries, thereby significantly reducing the cost to each individual contributor. The documentaries are guaranteed to include 35% Canadian content. Ingenium and the independent producer are seeking out international partners, among them French-speaking countries in order to support the bilingual production of the documentaries. The themes of the documentaries will align with key initiatives and prominent artifacts of the national science and technology collection. For instance, there are plans for a three-part international documentary on Women in STEM. By bringing together exhibits, programs, mobile and digital offerings, and traditional and social media content around common themes, the Corporation is creating synergies while also greatly improving its ability to reach, connect and engage with citizens on multiple platforms.

Guided by a new global outreach strategy, in 2017-2018, the Corporation will continue to promote world-leading excellence in science, technology and innovation by initiating and participating in collaborative relationships with like-minded public and private institutions at local, national, and international levels. It will foster academic, government and private sector relations and provide a showcase for Canada's newest innovations on the world front. It will seek to expand its cross-border collaborations to strengthen Canada's reputation as an inventive and innovative country.

The Corporation will launch the new corporate identity of "Ingenium – Canada's Museums of Science and Innovation" in 2017-2018, which will reflect its role as a promoter of Canadian innovation. The new corporate identity will be used alongside the three museums' names, and is expected to raise the national and international profile of the three museums and of corporate-wide initiatives and programs.

Strategies for SO 3	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Build a creative and relevant line of outreach products.	Promote and coordinate artifact loans across Canada (ongoing).				
	Launch new travelling exhibitions or redevelop existing ones through collaborations and sponsorships (ongoing).				
	Marketing of travelling exhibitions products (ongoing).				
	Launch AR/VR apps at CSTM.	Launch new mobile applications (ongoing).			
Produce up to 12 documentaries over the next four years (to 2020-2021).					
Build and sustain strong regional, national and international networks.	Continue to contribute, enrich and manage outreach networks (ongoing).				
	Launch global outreach strategy.	Sustain, establish and develop new relationships with international organizations aligned with the Corporation's mandate (ongoing).			
Increase awareness with new marketing and branding strategies.	Implement new corporate brand.	Promote new brand strategy.		Evaluate impact of new brand.	

**Outcome for SO 3:** Ingenium developed and created products that reached, connected and engaged with new and existing audiences outside the museums.

Performance indicators	Targets for 2017-2018
- Number of virtual reach, connections and engagements*	- 26 million
- Attendance for travelling products and national programs	- 3.8 million
- Number of Edukit rentals/number of students engaged	- 15 rentals / 1,000 students

\* Virtual reach is the number of impressions (on Twitter and Facebook), Flickr and website views; virtual connections is the number of followers on social media; virtual engagements is the number of *re-tweets, comments, shares, YouTube views* of Ingenium's content on social media.

#### 4.1.4 Sustainable and Profitable

Being sustainable and profitable for the Corporation means pursuing consistent increases in efficiencies and revenues and ensuring that the resources and conditions are in place for success. Decisions with respect to revenue-generating opportunities, such as special exhibits, are founded on business cases. The Museums continue to make adjustments to their educational and public programs to ensure they meet the needs of their clientele. Ingenium is taking an aggressive approach to facility rentals and retail sales to increase its commercial revenue streams. In 2017-2018, Ingenium will launch a new membership strategy, which will include a fee increase, as well as new admission pricing to reflect the CSTM renewal.

In 2017-2018, the Corporation will implement a new digital asset management software system called Media Management, which is configurable and customizable to enable data sharing, synchronization and collaboration to ensure the Corporation has the agility needed in terms of information technologies that supports the creation, management and delivery of its digital assets. Media Management will provide an

effective solution for Ingenium to store, organize, find, retrieve and share digital assets such as photographs, design files and videos by internal users and external users on the Open heritage platform.

Ingenium will continue to focus its efforts on obtaining sponsorships and donations, developing cooperative relationships and putting a greater emphasis towards increasing philanthropic activities, as these sustain the Corporation's ability to invest in new exhibits and programming. A driver for success for the Corporation is the development of collaborative approaches and presenting a diverse range of offerings and meaningful engagement opportunities for a variety of organizations and individuals.

A highly skilled workforce remains one of the Corporation's greatest assets, and so it remains dedicated to fostering leadership and providing career development and learning opportunities to staff. In 2017-2018, Ingenium will incorporate mental health awareness in its corporate wellness program, to support open and stigma-free dialogues in the workplace with joint learning programs dealing with mental health and its challenges in both the workplace and in the home.

In 2017-2018, the Corporation will invest in proper accommodations for the CSTM staff moving back into the Museum building, which will serve as a model for the accommodations for the staff that will move into the new Collections Conservation Centre in 2018-2019.

Strategies for SO 4	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Implement a sound business model that diversifies and maximizes commercial returns.	Develop site-specific business plans on a yearly basis and review quarterly (ongoing).				
	Implement new membership strategy and pricing.		Evaluate membership strategy & adjust.		
	Review retail product mix and margins.		Review food services options.		
Invest in digital (creative) infrastructure.	Pursue sales strategy for business development (ongoing).				
	Implement Media Management System.	Training on Media Management.		Evaluate and adjust Media Management.	
	Contribute to Open Heritage data platforms (ongoing).				
Invest in our workforce and workplace.	Develop 3D collaborations and sponsorships.	Launch digital innovation lab in CCC (incl 3D tech).	Launch projects developed with 3D technology.	Evaluate 3D strategy and adjust.	
	Incorporate Mental health awareness and training in Wellness program.				
	Support employee development to meet succession plan and business plan needs (ongoing).				
Invest in our workforce and workplace.	Implement revised HR plan for CSTM.	Implement new HR plan for CCC.	Update HR plans as business plans evolve (ongoing).		
	Provide proper accommodations at CSTM	CCC			

**Outcome for SO 4:** Ingenium is a profitable, innovative, well organized, and financially viable organization.

<i>Performance indicators</i>	<i>Targets for 2017–2018</i>
- Amount of operating revenue generated (excluding contributions)	- \$4.89 million in revenue generation
- Amount of contributions from donations, sponsorships and in-kind	- \$2.6 million in contributions and sponsorships
- Number of collaborative agreements (with signed MOUs)	- 30 active agreements
- Number of training hours for staff	- 2,000 hours

#### 4.1.5 Renewed and Innovative Physical Infrastructure

Accommodations include all activities which involve the physical environments that are required to house, protect and display the collection; the public facilities where hundreds of thousands of on-site visitors are welcomed each year; and office and administration space for staff.

In 2017-2018, the Corporation will complete the infrastructure modernization of the Canada Science and Technology Museum and re-open the Museum in November 2017. Despite some unforeseen work, as is common in all renovation projects, the Corporation continues to work diligently to maintain the schedule and respect the budget for the project by consistently exploring value-engineering proposals and overlapping trade work. By April 2017, the reconstruction of the roof and walls and seismic reinforcements of the building, as well as the new exterior façade and lobby will be completed. Efforts will turn to fitting-up the interior for staff relocation and exhibition installation. The fabrication of the new exhibits will be completed in spring 2017, with installation to begin in early summer for completion by October 2017 for opening on November 17, 2017, in the year of Canada's 150<sup>th</sup> anniversary of Confederation.

As part of the federal infrastructure initiative announced in Budget 2016, Ingenium has received approval of funding of \$156.4 million over two years for the construction on a new Collections Conservation Centre to preserve and protect priceless Canadian heritage artifacts. This building will have specialized temperature and humidity controlled, sealed and secure artifact storage space, laboratories and workshops, as well as the technical equipment to preserve and conserve collections. In 2017-2018, the Corporation will complete the design and construction of the new building, which will be ready for fit-up and occupancy in fall 2018.

In 2017-2018, the Corporation will continue to explore funding models for a new conservation and restoration facility at the CASM site, and a new Food Innovation Centre at the CAFM site, based on the business cases it has completed.

As the aviation collection expands, so does the Corporation's need for a conservation and restoration facility at the CASM. Based on its understanding of the aviation industry and institutions providing pilot training and education, the Corporation has noted the need for pilot training and technical laboratory space for the growing astronautics industry. The technical laboratory space is the same type of space that the Corporation would need to do conservation and restoration work on aircraft.



As the CAFM explores new frontiers and diversifies its audiences with the Learning Centre, it continues to look to the future. To complete the final phase of the Master Site Plan, the CAFM will continue to raise awareness and investigate the feasibility of a capital campaign for the Food Innovation Centre. This space will serve as an inspiring backdrop for national discussions on food literacy, food security and food policy, while providing amenities for visitors (food services), and revenue-generating opportunities such as facility rentals and retail space.

With funding from Budget 2016, Ingenium will also complete health and safety projects identified for funding in 2017-2018, and work on plans for upcoming projects. This temporary capital funding will address a number of deferred capital replacements and repairs, which will result in the Corporation's sites being safer and more secure for the collection, the farm animals, and the visitors, volunteers and staff.

<b>Strategies for SO 5</b>	<b>2017-2018</b>	<b>2018-2019</b>	<b>2019-2020</b>	<b>2020-2021</b>	<b>2021-2022</b>
Launch the renewed CSTM.	Complete and open CSTM.				
Address the need for a conservation and restoration hangar for the aviation collection.	Strengthen business case for hangar.	Identify sources of funding for the hangar.	Build and open the hangar should funding be secured.		
Capital campaign for Food Innovation Centre at CAFM.	Study feasibility of capital campaign for the FIC.	Launch the capital campaign.	Build and open FIC should funding be secured.		
Design and build the Collections Conservation Centre.	Design and construction of the CCC building.	Complete the fit-up for occupancy.	Move into the CCC.		
Implement health and safety projects.	Complete the projects identified for funding each year (to 2020-21).				

**Outcome for SO 5:** Ingenium's three museum campuses are recognized by Canadians and international audiences as destinations of choice in the Canada's Capital Region.

<b>Performance indicators</b>	<b>Targets for 2017-2018</b>
- Meet project milestones for the CSTM modernization	- Milestones met; CSTM opens on time in mid-November 2017
- Successfully launch the capital campaign for the FIC	- Planning continued
- Identify funding for ATRC	- Funding strategy developed
- Meet milestones for the Collections Conservation Centre	- Milestones met
- Health and safety projects are completed on time and within budget.	- 4 projects completed; two started in 2016-17 and two planned in 2017-18

## 5.0 FINANCIAL DISCUSSION<sup>4</sup>

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### 5.1 Financial Overview

#### 5.1.1 Year in progress

The Corporation's net result for the 2016-2017 fiscal year should be within +/-1% of its revised budget forecast. A significant increase in revenues was projected due to presentation of the *Star Trek: StarFleet Academy* exhibition from May to September 2016, which did not materialize due to low attendance in the spring, which greatly affected admission and retail revenues. Attendance improved over the summer and the *Star Trek: Starfleet Academy* exhibition rated high in terms of visitor satisfaction. Through diligent budget monitoring, the Corporation has adjusted its planned spending in 2016-2017 to align with a more attainable revenue forecast, which was revised to \$6.980 million.

#### 5.1.2 Planning Period

The Corporation's plans for the 2017-2018 to 2021-2022 are based on the assumption that it will continue to receive the base level of appropriations from government and the approved temporary funding to complete two major projects, the Canada Science and Technology Museum infrastructure modernization project and the construction of the new Collections Conservation Centre, and temporary capital funding to complete health and safety-related projects across the Corporation's sites over 2017-2018 to 2020-2021.

In terms of revenues, the Corporation expects that starting in late 2017-2018 they will begin to rebound. As of 2018-2019 and ongoing, self-generated revenues will exceed the levels that were achieved prior the closure of the Canada Science and Technology Museum in 2014, as the renewed CSTM will be a significant draw for schools, residents and tourists. The Corporation expects to sustain a total revenue level of approximately \$8 million per year by keeping its on-site exhibits and programming fresh to attract return visits, sponsors and donors. For instance, exhibition plans include systematic renewals of temporary exhibits, incremental updates to permanent exhibitions, and hosting major special exhibitions in the CSTM new temporary exhibit hall—contracts have already been signed for presenting *The Art of the Brick* in summer 2018 and *Da Vinci Alive* in summer 2019.

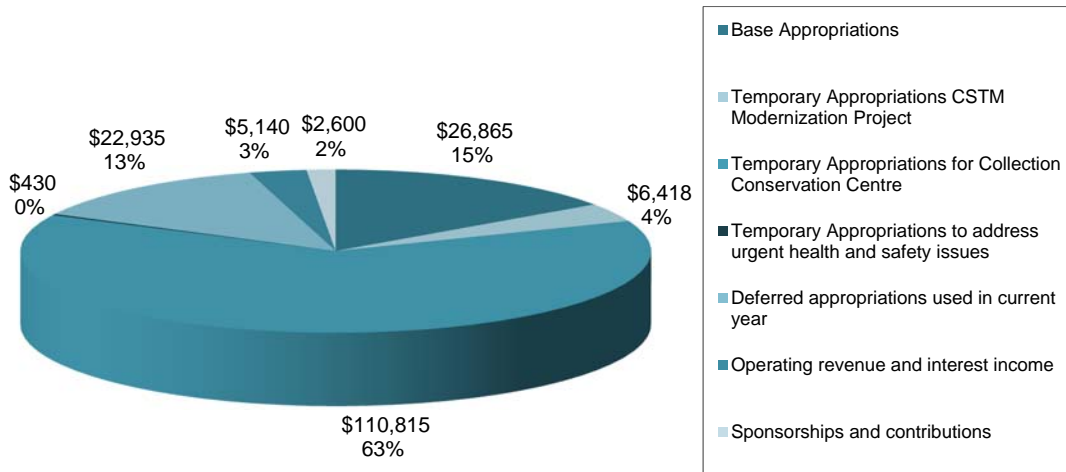
In addition to its parliamentary appropriation and revenues (represented in Chart 1 below), in 2017-2018, the Corporation will use a portion of its unrestricted net assets to invest in the visitor experience and re-opening of the CSTM and will consequently post a deficit of \$2 million (not reflected in the chart).

Over the remaining planning period of 2018-2019 to 2021-2022, the Corporation presents balanced operating and capital budgets.

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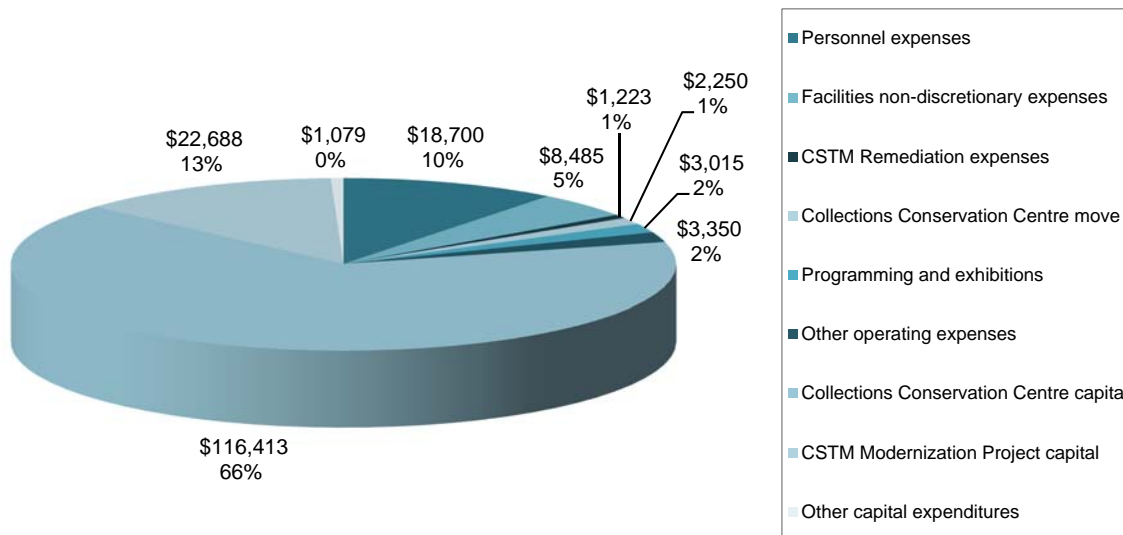
<sup>4</sup> Appropriations are reported on a cash basis except for the appropriation amount presented in the Statement of Operations (see Section 6.0) that is reported on an accrual basis in accordance with the Canadian public sector accounting standards applicable to government-not-for-profit organizations.

Chart 1  
**Source of Funds 2017-2018**  
*(in thousands of dollars)*



The majority of the Corporation’s spending in 2017-2018 will be to complete the infrastructure modernization of the CSTM and to build the new Collections Conservation Centre, hence, over 80% of the expenditures will be related to infrastructure projects. The amortization of capital assets is accounted for in the Accommodations program. Chart 2 below shows the planned expenditures on the Corporation’s programs and toward the infrastructure projects for which temporary funding is being provided.

Chart 2  
**Operating and Capital Expenditures 2017–2018**  
*(in thousands of \$)*



## 5.2 Financial Planning Assumptions and Projections

### 5.2.1 Parliamentary Appropriations

Ingenium parliamentary appropriation for the fiscal year 2017–2018 will total \$144.528 million on a cash basis. This represents the largest amount of appropriations provided by government to Ingenium in a fiscal year, and the investment in the construction of the new Collections Conservation Centre represents the most significant capital investment in Ingenium’s facilities since its creation 50 years ago.

Parliamentary funding is comprised of Ingenium’s base appropriations of \$26.865 million, of which the Corporation allocates \$26.065 million to its operating budget and \$0.8 million to its capital budget, as well as temporary operating and capital funding for infrastructure projects as follows:

- \$8.75 million and \$0.168 million for the modernization of the CSTM and for the mold remediation plan, respectively (less a return of \$2.5 million of unspent mold remediation funding from the Management Reserve);
- \$110.815 million for the construction and the move into the Collections Conservation Centre; and,
- \$0.430 million for capital replacements and repairs to address health and safety projects.

### 5.2.2 Expected Attendance

Revenue projections are intrinsically linked to the visitor attendance at the museums. Visitors typically pay admission and parking; they have the option of partaking in a thematic experience at an extra cost, purchasing food or beverages, and shopping in the boutique.

Paid attendance includes visitors that pay an admission fee at the door, whether full priced or reduced-rate, as well as members, participants in educational and other programming and group tour, guests at corporate and museums after-hours events, facility rental users and birthday party’s attendees, for all of whom some form of payment has been received. Unpaid attendance includes people using the Museum site without actually using the facilities (i.e. land use only), as well as visitors that visit the museums during the free admission periods.

The total attendance target for the budget year 2017–2018 is 585,000 visitors as the CSTM re-opens in November 2017. The projected attendance at the renewed CSTM is based on the average number of visitors per month (for November to March) prior to closure, increased by 70%, which is based on the proportional attendance increase other national museums experienced when they re-opened. In terms of trends, the attendance at CAFM and CASM are expected to be aligned with those of the previous two years, with a notable increase in unpaid visitors at CASM due to special events surrounding the Canada 150 celebrations (see Table 1).

Table 1  
**Visitor Attendance**

	2013–2014	2014–2015	2015–2016	2016-2017		2017-2018
	Actuals			Budget	Forecast	Budget year
CSTM – Paid	253,456	144,652	-	-	-	130,000
CSTM – Non-Paid	31,807	20,986	-	-	-	20,000
CASM – Paid	313,325 <sup>1</sup>	167,148	182,806	300,000	237,000	185,000
CASM – Non-Paid	45,336	44,003	39,363	40,000	45,000	75,000
CAFM – Paid	123,209	146,703	149,892	148,000	148,000	150,000
CAFM – Non-Paid	21,867	32,861	37,676	30,000	35,000	35,000
<b>Total</b>	<b>789,000</b>	<b>556,353</b>	<b>409,737</b>	<b>523,000</b>	<b>465,000</b>	<b>585,000</b>

<sup>1</sup> Temporary increase due to *Star Wars™ Identities* exhibition hosted by CASM

## 5.2.3 Revenue Projections

The Corporation expects to supplement its budget with a number of funding sources including revenues, sponsorships, and philanthropic support. Total revenue from all sources for the Corporation is projected at \$7.740 million for 2017–2018, which reflects the revenues from the re-opening of the CSTM in the middle of the third quarter of 2017-2018.

Since the closure of the CSTM in September 2014, revenues have dropped significantly and are not expected to return to their 2012–2013 level until 2018–2019, which will be the first full year that the CSTM is reopened. No other significant revenue gains are expected although the Corporation aims to maximize revenues from all possible sources. It has limited means to invest further in expanding or creating new revenue-generating opportunities.

### Admissions, Memberships and Programming

Ingenium’s largest sources of self-generated revenue come from admissions, educational and other on-site programs, and memberships, in that order. The projected revenues from admissions, memberships and programming is \$2,710,000, which reflects the re-opening of the CSTM in mid-November 2017.

#### **Admission revenue**

The projected revenue from admissions for the budget year 2017–2018 is based on the expected paid attendance total of 465,000, of which an estimated 222,000 visitors will pay admission, at an average admission price of about \$7.84, for a total of about \$1.74 million across the three museums. The average admission price per visitor is higher than in previous years as the Corporation is evaluating a price increase at the CSTM as the market value of the experience will be much greater than before. The balance of paying visitors are captured in programming and membership revenue and facility rentals revenues.

#### **Educational Programming revenue**

Visitors also come to the museums through programming activities. Revenue is generated from fees charged for school groups, camps, guided tours and birthday parties. Ingenium’s revenues from this category have been significantly affected by the CSTM’s closure. Given that the CSTM will not re-open in time for the 2017 summer camp season, the educational programming revenue is expected to be about the same as it was in 2016-2017.

### ***Membership revenue***

The Corporation's approach is a tiered membership-sales strategy that provides membership privileges such as unlimited admission to the CSTM, CASM and CAFM, discounts at the boutique and cafeteria, and invitations to exclusive members-only events. As members receive unlimited admission to the museums, they are included in the attendance numbers and are considered paying visitors for the calculation of admission revenue.

The Corporation is gearing up to launch new membership pricing with an aggressive sales strategy in an effort to regain lapsed members and attract new ones coinciding with the CSTM's re-opening in 2017. The value of the membership will greatly increase with the renewed museum, while continuing to provide excellent value for members at the CAFM and CASM.

## **Commercial Operations**

### ***Retail / boutiques revenue***

Two of the museums have boutiques on site (CASM and CSTM), complemented by a corporate online retail site offering books, toys and games, giftware, apparel, and other branded merchandise related to the subject matter and exhibitions of the museums. The Corporation's net retail revenue projected for 2017-2018 of \$800,000 is based on \$2.85 average per CSTM and CASM visitor, excluding those who come for facility rentals or after-hours events when the boutiques are closed. In 2016-2017, the dedicated Star Trek boutique at the exit of the exhibition did not yield the retail sales revenue expected due to lower than anticipated attendance.

### ***Parking revenue***

Parking at the museum sites is available for a daily fee. Visitors can re-use the parking receipt throughout the day at any of the Corporation's museums. The parking is monitored by a third-party company which is responsible for collecting parking fees and for the maintenance of the machines.

Taking into account the CSTM re-opening, and the extension of the agreement to provide temporary parking spaces to the Montfort Hospital, the forecasted parking revenues for 2017-2018 are projected at \$330,000. The Corporation also temporarily rented spaces to the Canada Mortgage and Housing Corporation over 2016-2017, which increased revenue for this category.

### ***Facility rentals revenue***

The calculation of facility rentals revenue uses a fee-per-event model plus a profit-sharing model with the cafeteria/catering services. The popularity of the attractive rental spaces in the CAFM Learning Centre and at the CASM is growing rapidly and so the projected facility rentals revenue in 2016-2017 has been adjusted upwards. As the awareness of the CSTM renovated conference hall, auditorium, classrooms and other rentable spaces grows, projections for facility rentals revenue over the planning period assumes an increase of 10 to 15 rentals per year.

### ***Thematic experiences revenue***

Visitors may choose to participate in unique thematic experiences offered at the museums at an additional cost. The CASM has seen the most success with this strategy, with aircraft rides and simulator rides. Ingenium expects the popularity of thematic experiences to increase steadily over the planning period. Revenues from thematic experiences are expected to increase to \$80,000 in 2017-2018.

### **Farm operations revenue**

The CAFM includes a demonstration working farm which generates revenues from milk production. Revenues from this activity are projected to remain constant for 2016-2017 and 2017-2018 at \$340,000.

### **Other (miscellaneous) revenue**

An amount has been budgeted, normally on a cost-recovery basis, for revenues from travelling exhibitions, licensing and copyright. The forecast of \$350,000 in revenue for this category in 2016-2017 is mainly due to the success of its travelling exhibitions program, particularly with the launch of new travelling exhibitions, including *Game Changers* and *Climate Change is Here*. The projection of miscellaneous revenues for 2017-2018 is \$250,000.

### **Sponsorships and Contributions**

The Corporation seeks to increase sponsorship and create long-term collaborations to enhance programs and deliver on its mandate. The revenues and expenses of projects funded from new sponsorships will permit Ingenium to advance projects showing corresponding income and expenses and will not affect the net income for the planning period.

The sponsorship target for 2017-2018 is \$1,800,000, which is feasible given the successful initiatives and programs the Corporation has recently developed by successfully securing significant funds for a the new Canola exhibition, the CSTM renewal project, as well as for the renewal of the *Let's Talk Energy* pan-Canadian initiative.

The Corporation anticipates a contribution of \$800,000 from the CSTMC Foundation in 2017-2018. The Corporation supports the foundation's fundraising opportunities by providing venue space for special events and personnel to carry out fundraising activities and events.

Other contributions in this category include contributed support from employees from other government organizations for which the fair market value can be determined.

### **Investment Income**

The short-term cash balance is invested in low-risk vehicles with an expected yield of 1.0%. The increase in the cash balance is affected by the timing of the availability of the capital infrastructure funding and when the work is completed. Given the current cash balance being carried in 2016-2017 associated with the major infrastructure projects underway, it is yielding a higher investment revenue than originally anticipated at the start of the year (from \$140,000 to \$325,000), and is expected to yield about \$250,000 in interest income in 2017-2018.

## 5.3 Operating Budget 2017-2018

### 5.3.1 Planned Expenditures according to the PAA

The Corporation's funding is allocated against and reported on to government according to the four programs of its program alignment architecture (PAA).

Planned expenditures for 2017–2018 and subsequent years take into consideration the re-opening of the CSTM as of November 2017, as well as the ongoing and new activities planned over the period identified in the previous chapter of this plan. The Corporation's projections assume that the five-year strategic framework for the 2015-2016 to 2019-2020 period will continue until a new five-year plan is developed in 2019-2020.

Table 2 shows how the strategic objectives and outcomes align with the functional programs that make up the Corporation's Program Alignment Architecture (PAA). The Corporation receives parliamentary appropriations according to the PAA.

Table 2  
**Strategic Objectives and Outcomes mapped to the Program Alignment Architecture**

PROGRAMS	STRATEGIC OBJECTIVES AND OUTCOMES	
<i>Heritage Preservation</i> Corporate activities dedicated to developing and preserving the collection.	<b>1. Best in Class – Collection</b> Ingenium has a well-researched, preserved, comprehensive and rationalized collection that is accessible virtually and physically to all Canadians.	
<i>Sharing Knowledge</i> Interpretation of the collection and demonstration of scientific and technological products and processes to Canadians.	<b>2. Best in Class – Education and Exhibitions</b> Ingenium delivered programs, products and services that tell the stories of Canadian ingenuity and innovation.	<b>3. National Outreach</b> Ingenium developed and created products that reached, connected and engaged with new and existing audiences outside the museums.
<i>Internal Services</i> Stewardship and management of corporate infrastructure, resources and services.	<b>4. Sustainable and Profitable</b> Ingenium is a profitable, innovative, well organized, and financially viable organization.	
<i>Accommodation</i> The physical environment required to house, protect and display the collection; the public facilities where on-site visitors are welcomed; and office and administration space for staff.	<b>5. Renewed and Innovative Physical Infrastructure</b> Ingenium's three museum campuses are recognized by Canadians and international audiences as destinations of choice in the Canada's Capital Region.	

Heritage Preservation: \$4.325 million

Heritage preservation includes all corporate activities dedicated to developing and preserving the collection, such as documenting, cataloguing, conserving artifacts, historical research, the library and related services. Ingenium aims to enrich the collection and enhance its national and international reputation.



In doing so, work on collection documentation and basic preventive conservation measures will be undertaken. A focus on sharing the collection with museums across Canada will help to alleviate some overcapacity and the added storage pressure caused by the closure of the CSTM. Borrowing institutions will be required to incur the associated costs—these amounts will be accounted for as agreements are brokered.

### Sharing Knowledge: \$13 million

Sharing knowledge includes all activities dedicated to the interpretation of the collection and the demonstration of scientific and technological processes to Canadians. Ingenium aims to engage Canadians with the past, present and future of science, technology and impacts on society through rich and compelling experiences. It also aims to increase its outreach with a variety of stakeholders involved in science, technology and culture in all provinces and territories.

The main investment for these goals will be in programs to interpret the collection and the upkeep of current exhibitions at CASM and CAFM, as well as the implementation of the national outreach strategy. New exhibitions will continue to be dependent on collaborators and revenues. The Corporation will continue to make small changes to the CASM and CAFM and maintain the visitor base through enhanced visitor experiences. National initiatives such as *Let's Talk Energy* will allow the Corporation to continue to work with institutions across the country to help promote science and technology literacy.

### Internal Services: \$7.1 million

Internal services support all of the Corporation's activities, and include costs pertaining to governance, management and reporting requirements, as well as efforts to increase revenue generation through sponsorships and commercial activities and accommodations expenditures to operate Ingenium's three museums' facilities. Internal services comprises all support activities which involve the stewardship and management of corporate infrastructure, resources and services. Ingenium aims to demonstrate responsible management and governance of financial and other resources, and to attract, develop, support and retain a highly skilled, dynamic workforce.

This area continues to be studied in an effort to minimize all operating costs. Investments in tools to streamline processes and gain longer-term efficiencies, such as a new human resources management system, digital asset management system, and procurement system continue to be a priority.

### Accommodation: \$16.098 million

Accommodations includes all activities which involve the physical environments that are required to house, protect and display the collection; the public facilities where hundreds of thousands of onsite visitors are welcomed each year; and office and administration space for staff. Ingenium will create nationally recognized destinations for all Canadians, enriching the collection and its reputation and demonstrating responsible fiscal management.

Ageing infrastructure among the Corporation's portfolio is causing increased repairs and maintenance costs. Inflationary costs of service providers and increases in utility costs are other sources adding to pressure in this spending area.

In 2017-2018, accommodation expenses will increase compared to recent years due to the re-opening of the CSTM, and costs related to moving artifacts and staff back inside the Museum, using funding that was provided under the mold remediation plan. Expenses will also increase due to preparations for the collection move into the new Collections Conservation Centre under construction.

### 5.3.2 Operating Budget

Table 3 presents Ingenium's operating budget for 2017-2018 is higher than in 2016-2017 due to the staff and artefact move back into the CSTM using the balance of the mold remediation funds, as well as the future move to the new Collections Conservation Centre with funding received from Budget 2016. The key variation between the 2016-2017 budget and its forecast is due to the investments in programming and exhibitions that were made possible with sponsorship funding.

In 2014-2015, the Corporation received one-time funding for the mold remediation and stabilization plan of the CSTM, of which \$3.9 million was eventually capitalized. This funding will expire in 2017-2018.

Table 3  
Operating Budget 2017-2018

<i>(in thousands of \$)</i>	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
		Actuals		Forecast	Budget
Personnel costs	\$20,488	\$19,447	\$18,039	\$18,755	\$18,700
Facilities fixed costs	\$9,443	\$7,995	\$6,993	\$8,200	\$8,485
Urgent mold remediation	\$0	\$1,135	\$924	\$320	\$1,223
Collection moving	\$0	\$0	\$0	\$0	\$2,250
Amortization	\$3,312	\$5,025	\$4,228	\$3,400	\$3,600
Collection development and management	\$520	\$510	\$575	\$580	\$580
Programming and exhibitions	\$5,100	\$1,511	\$2,971	\$4,370	\$3,015
Internal services support	\$1,820	\$1,545	\$1,595	\$1,640	\$1,650
Advertising	\$797	\$335	\$495	\$875	\$600
Gift shop products	\$949	\$328	\$274	\$510	\$420
<b>Total</b>	<b>\$42,429</b>	<b>\$37,831</b>	<b>\$36,094</b>	<b>\$38,650</b>	<b>\$40,523</b>

The facilities fixed costs, which are forecasted to be \$8.485 million in 2017–2018 are non-discretionary costs associated with the operation of its 19 facilities, based on contractual obligations and market prices over which the Corporation has little to no influence. The Corporation attempts to slow the increase in facilities costs by using energy efficiency programs, minimizing maintenance, and employing other containment measures. For the balance, the Corporation bridges the gap between the base appropriations and the expenses it incurs for operating its facilities by reducing spending in other areas, such as programming and service delivery.

### 5.3.3 Full-Time Equivalent (FTEs)

Ingenium's knowledgeable and dedicated employees are its greatest asset and key to its success. Collectively, Ingenium's staff strive to fulfill the Corporation's mandate by inspiring Canadians to understand and engage with science, technology, engineering and mathematics; and in making each visit at the museums an educative, inspiring and memorable experience.

Human resources absorb more than half of the Corporation's total operating funds. In 2016-2017, bargaining began with the Public Service Alliance of Canada, who represents the Corporation's unionized employees, toward a new collective agreement, as the previous agreement expired on March 31, 2016. The projected expenditures for the planning period do not reflect the impact of salary economic increases, as a new collective agreement is under negotiation in 2016-2017 and expenditures will be adjusted accordingly to balance the budget.

In 2017-2018, Ingenium staff will represent a total of 239.5 full-time equivalents positions (FTEs), which includes temporary resources hired with skills sets required to support the completion of the CSTM modernization project and the construction of the new Collections Conservation Centre. These include a variety of specialties including project management, curatorial and research, conservation and artifact handling, interpretative and programming development. The re-opened CSTM will require more staff to ensure visitors are fully engaged with all that the new exhibitions and new experiences have to offer, in particular the new interactive and digital components. New audio-visual technologists will be hired to support the new digital interactives on the CSTM floor. The Corporation has made the assumption that it will receive transfers for salary and compensation increases for 2017-2018 and future years in its projection for FTEs.

Ingenium will continue to re-invest revenues in programming and in staff to deliver that programming whether on site or on digital platforms, carefully planning the required FTEs to support new and ongoing initiatives, while at the same time ensuring the overall financial health of the organization.

## 5.4 Capital Budget 2017-2018

### 5.4.1 Capital funding

The capital budget for 2017-2018, the largest in the Corporation's history, will be used to complete two major capital projects, conduct a few health and safety projects, make essential lifecycle repairs and replacements, and produce permanent exhibitions funded from sponsorships.

The Corporation will use a capital funding of \$800,000 in 2017-2018 from base appropriations to replace critical components of its building operating systems, information technology infrastructure and software, and capital equipment, as is the case each year.

In 2015-2016, the Corporation embarked on a major infrastructure project for the CSTM with one-time capital investment from the Government of Canada totalling \$70.7 million over three years. Of this amount, the Corporation will spend \$22.7 million in 2017-2018 to complete the CSTM modernization by November 2017. The project includes a complete roof replacement, structural work to retrofit the perimeter walls and the fire-suppression system to withstand seismic disturbances, the modernization of the exhibition space, and a new exterior façade.

As part of the federal infrastructure initiative announced in Budget 2016, Ingenium has received funding totalling \$156.4 million over two years, concluding in 2017-2018, to construct and move into a new Collections Conservation Centre to preserve and protect priceless Canadian heritage artifacts. The Corporation will spend \$116.4 million in 2017-2018 to complete the CCC project. This building will be shared with other federal heritage organizations in order to maximize synergies among them, which all require specialized temperature and humidity controlled, sealed and secure artifact storage space, laboratories and workshops, as well as the technical equipment to preserve and conserve collections.

## 5.4.2 Capital Expenses

Over the next few years, Ingenium will complete two major capital projects, the CSTM infrastructure modernization and the construction of the Collections Conservation Centre as well as address health and safety associated capital projects and repairs. The Corporation will be able to make capital replacements and repairs to facilities and equipment, many of which had been deferred for a number of years.

Aside from the capital projects, the Corporation's base appropriation level permits only minimal investment in essential replacement of equipment and urgent repairs that will extend the useful life of buildings. Table 4 provides the Corporation's capital budget.

Table 4  
**Capital Budget 2017-2018**

<i>(Thousands of dollars)</i>	2015–2016 Actual	2016–2017 Forecast	2017-2018 Budget
CSTM Modernization	\$10,717	\$44,550	\$22,688
Collections Conservation Centre		\$33,776	\$116,413
Health & Safety projects		\$2,569	\$430
<b>CSTM Scheduled Lifecycle repairs</b>			
Grounds			
<b>CASM Scheduled Lifecycle repairs</b>			
Building envelope	\$178	\$125	
Mechanical			\$75
Electrical			\$50
<b>CAFM Scheduled Lifecycle repairs</b>			
Building envelope	\$87	\$25	
Interior			\$25
Mechanical	\$88		\$50
Electrical		\$50	
Grounds	\$59		
<b>Corporate assets</b>			
IT infrastructure	\$108	\$200	\$300
Security equipment	\$90		\$75
Farm equipment	\$135	\$25	\$25
Technical equipment	\$75	\$50	\$25
Fleet and other equipment	\$107	\$75	\$25
Tenant Improvements	\$101		
Permanent exhibitions <sup>1</sup>	\$499	\$250	
<b>Total</b>	<b>\$12,244</b>	<b>\$81,695</b>	<b>\$140,180</b>

<sup>1</sup> Investment in this category is dependent on sponsorship funding received specifically to support permanent exhibitions. The renewal of the exhibitions at CSTM is captured in the CSTM Infrastructure modernization line.

## 5.4.3 Corporate-Wide Assets

Corporate assets are primarily operational and consist of equipment, including a fleet of vehicles to deliver programming and events off-site, material handling equipment, information technology assets, furniture and fixtures. The sharing knowledge portion of its mandate has changed remarkably as well, with

external and internal clients expecting increased access to digital information and images. Data servers, bandwidth, firewalls and digital equipment have become a necessity, and will require increased resources. Ingenium continues to focus on making investments in digital infrastructure and technology that lead to operations efficiencies.

#### 5.4.4 Major Capital Projects

##### Canada Science and Technology Museum Instructure Modernization Project

The Canada Science and Technology Museum modernization project's estimated total cost is \$77,954,570, including the \$70,715,000 that was requested for temporary capital funding for the project, the funds provided from the commissioning of studies and estimates which were provided before the project funding was approved, as well additional funds garnered from sponsorships and its own equity. As the Museum's mandate is tied to science and technology literacy, the Corporation believes very strongly that the exhibitions and programming that will be offered in the renewed Museum should incorporate digitally-driven interactivity. The Corporation expects to complete the project within the projected budget, and on time by November 2017.

##### Collections Conservation Centre

As part of the federal infrastructure initiative announced in Budget 2016, Ingenium has received approval of funding of \$156.4 million over two years to support the construction of a new Collections Conservation Centre to preserve and protect priceless Canadian heritage artifacts. The approximately 36,000 square meter building will house the national science and technology collection, archives and library, conservation laboratories and specialized workshops, as well as the corporate offices. The artifact move will begin by winter 2019, is expected to take up to three years to complete. The building is expected to be ready for occupancy as of March 2019.

## 6.0 FINANCIAL STATEMENTS

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Budgets are presented on the accrual basis of accounting, consistent with the Corporation's financial statements and other reports. This presentation displays revenues by source and expenses by activity, consistent with Ingenium's program alignment architecture reported in the *Main Estimates*.

##### *Pro Forma* Financial Tables

The *pro forma* financial statements have been prepared in accordance with Section 4200 series of the Canadian Public Sector Accounting Standards applicable to government-not-for-profit organizations. They are consistent with those reported in the institution's annual report. The Corporation applies the deferral method of accounting for contributions for not-for-profit organizations.

Table 5  
**Balance Sheet – Accrual Basis**  
(in thousands of dollars)

	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021	2021- 2022
	Actual	Forecast	Budget	Projection	Projection	Projection	Projection
<b>ASSETS</b>							
Current assets							
Cash and cash equivalents	\$38,318	\$35,022	\$12,652	\$7,842	\$7,932	\$8,022	\$8,122
Accounts receivable:							
- Government departments	\$1,685	\$1,500	\$1,500	\$900	\$900	\$900	\$900
- Trade	\$375	\$375	\$375	\$375	\$375	\$375	\$375
Inventories	\$401	\$400	\$600	\$600	\$600	\$600	\$600
Prepaid expenses	\$592	\$400	\$400	\$400	\$400	\$400	\$400
	\$41,371	\$37,697	\$15,527	\$10,117	\$10,207	\$10,297	\$10,397
Other assets							
Collection	\$1	\$1	\$1	\$1	\$1	\$1	\$1
Capital assets	\$71,911	\$149,956	\$283,536	\$279,386	\$272,761	\$269,011	\$262,011
<b>TOTAL ASSETS</b>	<b>\$113,283</b>	<b>\$187,654</b>	<b>\$299,064</b>	<b>\$289,504</b>	<b>\$282,969</b>	<b>\$279,309</b>	<b>\$272,409</b>
<b>LIABILITIES AND EQUITY</b>							
Current liabilities							
Accounts payable and accrued liabilities	\$6,549	\$4,500	\$4,500	\$3,000	\$3,000	\$3,000	\$3,000
Current portion of employee future benefits	\$297	\$220	\$220	\$220	\$220	\$220	\$220
Deferred revenue	\$30,295	\$28,653	\$8,718	\$4,718	\$4,718	\$4,718	\$4,718
	\$37,141	\$33,373	\$13,438	\$7,938	\$7,938	\$7,938	\$7,938
Other liabilities							
Employee future benefits	\$196	\$190	\$180	\$170	\$160	\$150	\$150
Long-term advance	\$4,533	\$4,533	\$4,208	\$4,208	\$4,208	\$4,208	\$4,208
Deferred capital funding	\$58,140	\$136,285	\$269,965	\$265,915	\$259,390	\$255,740	\$248,840
	\$100,010	\$174,381	\$287,791	\$278,231	\$271,696	\$268,036	\$261,136
Net assets							
Unrestricted	\$3,171	\$3,171	\$1,171	\$1,171	\$1,171	\$1,171	\$1,171
Investment in Capital	\$10,102	\$10,102	\$10,102	\$10,102	\$10,102	\$10,102	\$10,102
	\$13,273	\$13,273	\$11,273	\$11,273	\$11,273	\$11,273	\$11,273
<b>TOTAL LIABILITIES AND NET ASSETS</b>	<b>\$113,283</b>	<b>\$187,654</b>	<b>\$299,064</b>	<b>\$289,504</b>	<b>\$282,969</b>	<b>\$279,309</b>	<b>\$272,409</b>

Note: The Investment in capital line represents the land transferred to the Corporation when it became custodian of its museums.

\*Long term advance: The Corporation received funding from Treasury Board Secretariat between fiscal years 2008 and 2010 to construct revenue generating facilities (\$4.2 million) at the CASM and establish a foundation (\$0.3 million). The funding was received on the basis that a repayment mechanism be established but no repayment schedule has been established yet. The Corporation is making the assumption that \$125,000 will be reimbursed in 2016-2017.

Table 6  
**Statement of Operations – Accrual Basis**  
(in thousands of dollars)

	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021	2021- 2022
	Actual	Forecast	Budget	Projection	Projection	Projection	Projection
<b>REVENUE</b>							
Admission							
Science and Technology	\$37	\$50	\$900	\$2,000	\$1,800	\$1,700	\$1,700
Aviation and Space	\$767	\$1,600	\$710	\$680	\$690	\$700	\$710
Agriculture and Food	\$834	\$730	\$750	\$700	\$710	\$720	\$730
Boutique Sales	\$503	\$900	\$800	\$1,100	\$1,160	\$1,190	\$1,190
Facility Rentals and concessions	\$315	\$330	\$380	\$400	\$410	\$420	\$420
Parking	\$468	\$420	\$330	\$350	\$360	\$360	\$360
Membership	\$270	\$260	\$350	\$440	\$470	\$500	\$500
Farm Operations	\$347	\$340	\$340	\$350	\$355	\$360	\$360
Thematic Experiences	\$63	\$75	\$80	\$85	\$90	\$95	\$95
Other	\$252	\$350	\$250	\$250	\$250	\$250	\$250
<b>Total operating revenue</b>	<b>\$3,856</b>	<b>\$5,055</b>	<b>\$4,890</b>	<b>\$6,355</b>	<b>\$6,295</b>	<b>\$6,295</b>	<b>\$6,315</b>
Contributions	\$1,484	\$1,600	\$2,600	\$1,600	\$1,600	\$1,650	\$1,650
Interest	\$273	\$325	\$250	\$90	\$90	\$90	\$90
<b>TOTAL REVENUE</b>	<b>\$5,613</b>	<b>\$6,980</b>	<b>\$7,740</b>	<b>\$8,045</b>	<b>\$7,985</b>	<b>\$8,035</b>	<b>\$8,055</b>
<b>EXPENSES</b>							
Heritage preservation	\$4,380	\$4,200	\$4,325	\$4,450	\$4,450	\$4,475	\$4,475
Sharing knowledge	\$11,328	\$13,684	\$13,000	\$13,310	\$13,100	\$13,275	\$13,285
Internal services	\$7,254	\$7,025	\$7,100	\$7,350	\$7,300	\$7,325	\$7,350
Accommodation	\$13,132	\$13,741	\$16,098	\$20,700	\$16,900	\$16,725	\$16,710
<b>TOTAL EXPENSES</b>	<b>\$36,094</b>	<b>\$38,650</b>	<b>\$40,523</b>	<b>\$45,810</b>	<b>\$41,750</b>	<b>\$41,800</b>	<b>\$41,820</b>
Net Results of operations before government funding	-\$30,481	-\$31,670	-\$32,783	-\$37,765	-\$33,765	-\$33,765	-\$33,765
Parliamentary Appropriation*	\$30,839	\$31,670	\$30,783	\$37,765	\$33,765	\$33,765	\$33,765
<b>Net earnings (Loss) **</b>	<b>\$358</b>	<b>\$0</b>	<b>-\$2,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

\*Appropriation has been reported on an accrual basis, modified from our parliamentary vote as shown in Table 7.

\*\* The Corporation is expecting to post a deficit of \$2 million in 2017-2018, which will be covered using its unrestricted net assets, in order to invest \$2 million in equity in the CSTM Renewal project.

Table 7  
**Parliamentary Appropriations – Accrual Basis**  
(in thousands of dollars)

	2015- 2016	2016- 2017	2017-2018	2018- 2019	2019- 2020	2020- 2021	2021- 2022
	Actual	Forecast	Budget	Projection	Projection	Projection	Projection
<b>PARLIAMENTARY FUNDING</b>							
Base Appropriations	\$26,865	\$26,865	\$26,865	\$26,865	\$26,865	\$26,865	\$26,865
One time funding	\$491	\$0	\$0	\$0	\$0	\$0	\$0
Health and safety funding	\$0	\$2,569	\$430	\$2,850	\$375	\$3,250	\$0
CSTM mold remediation	\$2,890	\$505	\$168	\$0	\$0	\$0	\$0
Return of unspent funds	\$0	\$0	-\$2,500	\$0	\$0	\$0	\$0
CSTM Infrastructure renewal	\$29,355	\$32,610	\$8,750	\$0	\$0	\$0	\$0
CCC construction project	\$0	\$45,624	\$110,815	\$0	\$0	\$0	\$0
Sub-Total Main Estimates	\$59,601	\$108,173	\$144,528	\$29,715	\$27,240	\$30,115	\$26,865
Deferred appropriations used in current year	\$0	\$21,642	\$26,935	\$4,000	\$0	\$0	\$0
Appropriations approved in current year for specific projects in future years	-\$20,642	-\$20,000	-\$4,000	\$0	\$0	\$0	\$0
Amount used to purchase capital assets	-\$12,037	-\$81,445	-\$140,180	-\$3,650	-\$1,175	-\$4,050	-\$800
Amortization of deferred Capital funding	\$3,917	\$3,300	\$3,500	\$7,700	\$7,700	\$7,700	\$7,700
<b>Appropriations reported in Statements</b>	<b>\$30,839</b>	<b>\$31,670</b>	<b>\$30,783</b>	<b>\$37,765</b>	<b>\$33,765</b>	<b>\$33,765</b>	<b>\$33,765</b>



Table 8  
**Statement of Cash Flows**  
(in thousands of dollars)

	2015- 2016 Actual	2016- 2017 Forecast	2017-2018 Budget	2018- 2019 Budget	2019- 2020 Budget	2020- 2021 Budget	2021- 2022 Budget
<b>OPERATING ACTIVITIES</b>							
Cash received (clients)	\$4,708	\$25,240	\$8,890	\$6,955	\$6,295	\$6,296	\$6,315
Parliamentary Appropriations received for operations	\$26,658	\$28,370	\$27,283	\$30,065	\$26,065	\$26,065	\$26,067
Cash paid to suppliers	-\$13,717	-\$36,489	-\$36,633	-\$38,820	-\$33,260	-\$33,310	-\$33,320
Payments related to salary and benefits	-\$18,520	-\$18,755	-\$18,700	-\$19,550	-\$19,550	-\$19,550	-\$19,550
Cash Received from the Foundation	\$42	\$900	\$2,100	\$900	\$900	\$950	\$950
Interest received	\$247	\$325	\$250	\$90	\$90	\$90	\$90
<b>Net cash flows generated from/used for Operating Activities</b>	<b>-\$582</b>	<b>\$18,346</b>	<b>\$1,890</b>	<b>-\$810</b>	<b>\$90</b>	<b>\$91</b>	<b>\$102</b>
<b>CAPITAL ACTIVITIES</b>							
Payments related to capital acquisitions	-\$9,964	-\$81,445	-\$137,180	-\$3,650	-\$1,175	-\$4,050	-\$800
<b>Net Cash used through Capital Activities</b>	<b>-\$9,964</b>	<b>-\$81,445</b>	<b>-\$137,180</b>	<b>-\$3,650</b>	<b>-\$1,175</b>	<b>-\$4,050</b>	<b>-\$800</b>
<b>FINANCING ACTIVITIES</b>							
Funding for acquisition of capital assets	\$39,825	\$59,803	\$113,245	-\$350	\$1,175	\$4,049	\$798
Pay back loan on establishment of CSTMC Foundation	\$0	\$0	-\$325	\$0	\$0	\$0	\$0
<b>Net cash flows from Financing Activities</b>	<b>\$39,825</b>	<b>\$59,803</b>	<b>\$112,920</b>	<b>-\$350</b>	<b>\$1,175</b>	<b>\$4,049</b>	<b>\$798</b>
Increase (Decrease) in Cash and short-term investments	\$29,279	-\$3,296	-\$22,370	-\$4,810	\$90	\$90	\$100
Cash and cash equivalents, beginning of year	\$9,039	\$38,318	\$35,022	\$12,652	\$7,842	\$7,932	\$8,022
<b>Cash and cash equivalents, end of year</b>	<b>\$38,318</b>	<b>\$35,022</b>	<b>\$12,652</b>	<b>\$7,842</b>	<b>\$7,932</b>	<b>\$8,022</b>	<b>\$8,122</b>

## ANNEX 1 — PLANNED EXHIBITIONS FOR 2017–2018

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### Canada Agriculture and Food Museum

- **Canola** travelling exhibition
- **Canola** temporary exhibition
- **Soil Lab** an immersive discovery zone

### Canada Aviation and Space Museum

- **Space Summit**

### Canada Science and Technology Museum (Closed until November 2017)

- **Game Changers** travelling exhibition hosted in temporary hall
- **QUANTUM: The Exhibition** travelling exhibition hosted in temporary hall

## ANNEX 2 — INGENIUM BOARD OF TRUSTEES

(as of April 1, 2017)

<b>Board Member</b>	<b>City, Province</b>	<b>Term</b>
Gary Polonsky, Chairperson	Courtice, Ont.	January 14, 2014–January 13, 2018
Jim Silye, Vice-Chairperson	Arnprior, Ont.	June 18, 2014–June 17, 2018
Marie-Claire Bélanger	Montréal, Que.	March 1, 2012–February 29, 2016*
Harold F. Bjarnason	Gimli, Man.	October 1, 2013–September 30, 2017
Jane Hungerford	Vancouver, B.C.	March 7, 2013–March 6, 2017*
Helen Johns	Exeter, Ont.	October 4, 2013–October 3, 2016*
Glenn Schmidt	Calgary, Alta.	December 17, 2013–December 16, 2017
E. Virginia I. McLaughlin	Cobourg, Ont.	December 18, 2012–December 17, 2016*
David Cohen	Westmount, Que.	June 13, 2014–June 12, 2018
Neil Gary Russon	Fredericton, N.B.	March 1, 2012–February 29, 2016*
David Desjardins	New Maryland, N.B.	February 5, 2015–February 4, 2019

\* Note: At the end of their term, trustees continue to serve on the board until a replacement is named.