



Establishing a Business-Driven Enterprise Architecture Practice in a Smaller Government Agency

Christian Sauvé - christian.sauve@cfp-psc.gc.ca

Manager, Enterprise Architecture Group
Information Technology Services Directorate
Public Service Commission

June 2021



Presentation Overview

- Present a smaller government agency and its enterprise architecture (EA) practice
- Provide ideas on how to build a business-driven EA practice
 - Describe the PSC's EA tools, tasks and governance
- Case study: Identify EA sustainability lessons from a pandemic
- Synthesis: How to influence an organization's digital transformation from the bottom-up, in collaboration with the business lines
- Envoi: Digital logistics and sustainability

About the Public Service Commission

- Established in 1907 to oversee merit-based appointments
- ~900 employees, headquartered in Gatineau with offices in Halifax, Montréal, Toronto and Vancouver
- Best known to the public for GC Jobs and to public servants for Second-Language Evaluation
 - Also for Political Activities Monitoring, Staffing Audits and Investigations
- ~110 IM/IT Employees (IT division created in 1968)
 - One CIO, three directors (Development, Operations, Corp. Management)
 - Undertake ~10 projects during a typical year (3-4 major ones)

Enterprise Architecture at the PSC

- First attempt in 2009-2011 (cause of death: SSC and ETI)
- Current group active since 2016
- 1 Manager (CS-4), 3 Enterprise Architects (CS-3)
- Integration of Client Portfolio Management (CPM) activities
- Administration of two governance committees
 - IT Managers "Architectural Review Committee" (Technology review & recommendation)
 - IT/Business "Business Operations Review Group" (Communication and discussion)
- Responsible for Technology Standards as well as New Technology Intake
- Interactions with larger EA units elsewhere in government (TBS, SSC)
- Presentations to the GC Enterprise Architecture Review Board in 2019, 2021

Small Agency EA: Challenges and Opportunities

- So:
 - Resources are limited for everyone in the organization
 - No place for domain architects – everyone needs to be a generalist
 - Many roles filled haphazardly; processes not always formalized
 - EA shares Corporate IM/IT Management director with IT Security, IM, PMO
- However:
 - EAs can shepherd files from inception to proposals for decision
 - Enterprise Architecture can take on many complementary responsibilities
 - Much closer to business clients and IT colleagues
 - One word: Influence

Business-Driven Enterprise Architecture

- Take it from a former farm-hand: Silos exist for a reason, but they're useless unless you can put things in and take them out
- Enterprise Architecture is at its best when it connects the organization's silos. But how can that work?
- In the next few slides: Ideas on how to strengthen the bond between EA and the business (...and other IT colleagues)
 - Not all of those ideas are applicable in your organization
 - Some may prove hazardous to your professional career

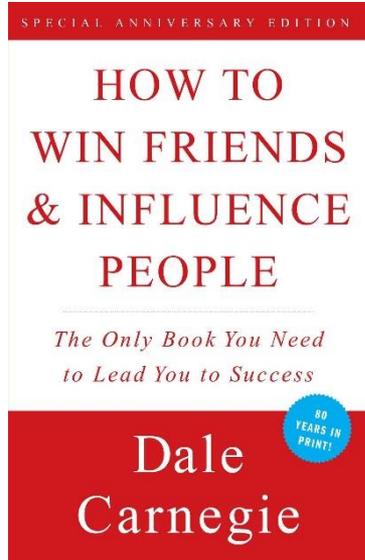
Idea: Accessible foundational documents

- An EA repository is not ideal if it locks information away from business clients and IT colleagues: Work in Word, Excel, PowerPoint, maybe Visio
- Create a high-level picture that includes everyone:
The Enterprise Architecture Blueprint/Roadmap (See **Appendix A**)
- Make your standards widely known and responsive to ongoing change:
The Technology Bricks (See **Appendix B**)
- Document your processes so that they can be understandable by all:
The New Technology Intake (See **Slide 14** and **Appendix C**)
- Iteration and regular review is the key to success (+Maturity Model)
- A predictable EA practice is a good EA practice

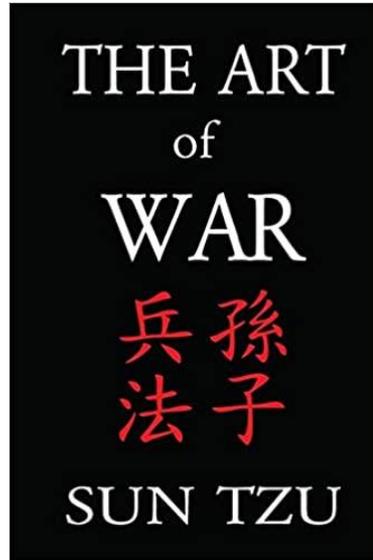
Idea: Integrating EA and CPM functions

- EA without CPM is untethered; CPM without EA is powerless
- Makes work more interesting and fulfilling
 - What's the added value of a CPM as an order-taker for others?
 - A single EA/CPM can meet clients, gather requirements, investigate options, propose a solution, conduct a pilot project, recommend implementation, and present it for approval
- Makes Enterprise Architecture analysis extremely well-informed
- Reduces the chances that EA will be so abstract as to be useless
 - A client-driven EA is a sustainable, long-lived EA practice

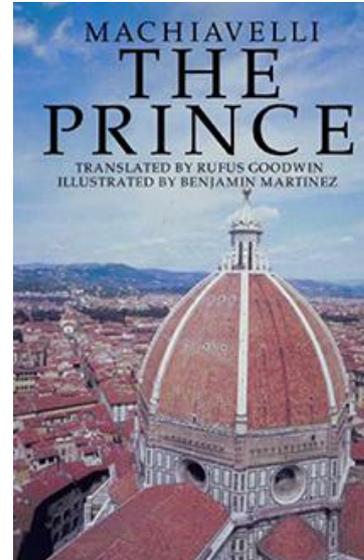
Idea: Your essential reading list



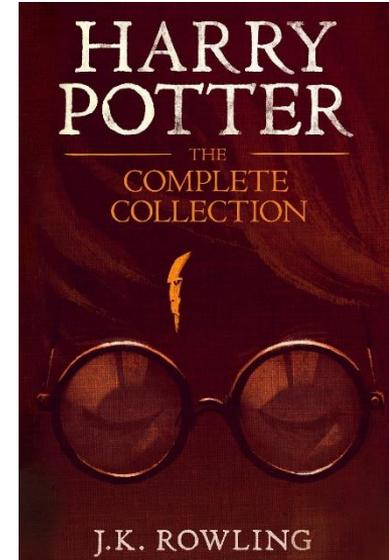
Be professional



Be prepared



Be political



Make friends!

Idea: Integrate APM, Standards and Planning

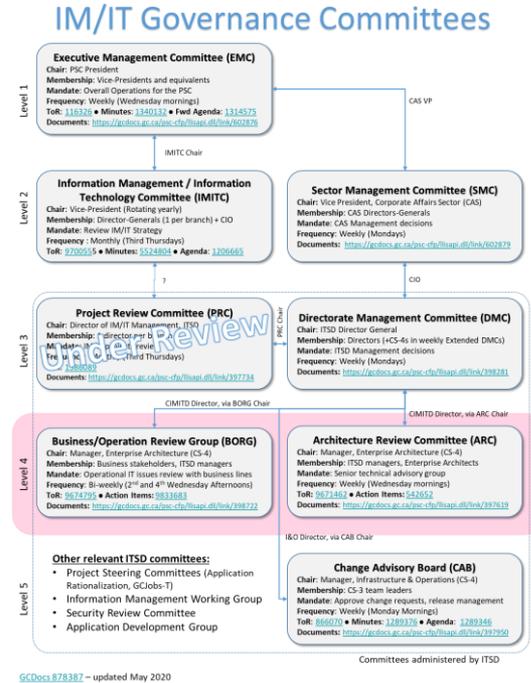
- Transform the annual Application Portfolio Management (APM) review cycle into an opportunity to meet clients, discuss IT with business lines and become a source of actionable information
- Make the link between APM, TIME assessments and technology standards
 - Tolerate and Innovate/Invest → Current standard
 - Migrate → Contain
 - Eliminate → Decommission
- Ensure that APM results feed into yearly planning
 - Low assessments should lead to new replacement project proposals
 - (This is now an explicit part of the TBS IT Plan template)
- At the PSC: From 73 to 49 APM applications in six years

Idea: Treasury Board is your Friend

- Major achievement: GC Enterprise Architecture as a cohesive discipline
- Leveraging the framework for influence within the organization
 - The GC Digital/Architectural Principles are widely available and shareable
 - TBS can and will talk to your Departmental Architectural Board
- Presenting projects to GC EARB
 - Two appearances, three presentations in 2019 and 2021
 - Effectively an internal EA review of the project, which may force some necessary discussions between IT and the business clients (and others!)
 - TBS extremely helpful in shepherding the submission
 - One challenge for EA: Keeping track of applicable principles

Idea: Seize the Means of Governance

- Architectural Review Committee
 - Weekly IT Manager-level meeting
 - Formerly known as Technical Review Committee
 - Regular touch-point between EAs and Managers
 - Recommends decisions to IT Management
- Business Operations Review Group
 - Bi-weekly IT/Business Manager-level meeting
 - Regular Operational IT updates to clients
 - Crucial at times of operational changes (email, M365 office, browser update, etc.)
 - Great source of pilot project volunteers



Idea: New Technology Intake process

- EA took over the New Technology Intake process in 2017, initially simplifying a previous Excel document (borrowed from a bigger department) that was impossible to fill out properly
 - Redefined as presentation, with individual slides focusing on areas of managerial expertise – see →
 - Iteratively refined every year, focusing on changes and shortcomings
 - 2021: Greater emphasis on the governance aspect
- Process Description in **Appendix C**
- Bring experts together to review any red flags
- Summarizes analysis and costs/consequences

Business Need and Background
Proposed Solution

- Enterprise Sustainability
- Enterprise Architecture
- IT Security
- Information Management
- Project Management
- Application Development
- COTS, QA, Data/Database
- Operational Service Management
- Desktop Operations
- Server Infrastructure/Operations
- Cloud/M365 Operations
- Helpdesk
- Accessibility
- Bilingualism
- Asset Management and Procurement

Total cost of intake

Idea: How to hire enterprise architects

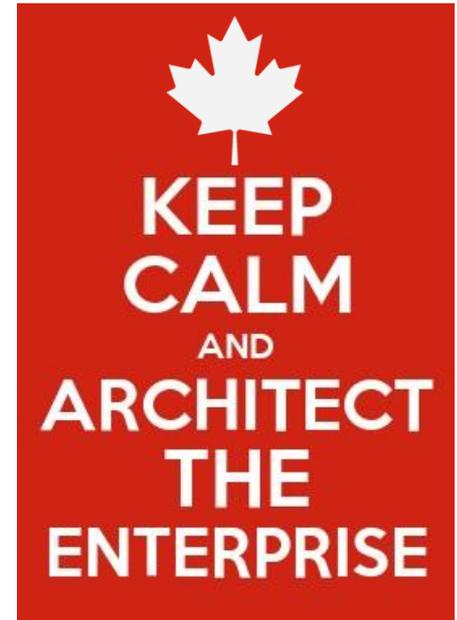
- Don't necessarily hire pre-made Enterprise Architects – Hire people ready to become Enterprise Architects
 - Even at best, it takes *months* before an Enterprise Architect is effective
- At the PSC, 4 main qualifications:
 - At least a decade of experience in IT, the wider the better
 - Strong client service skills
 - Strong analytical skills
 - Bilingualism
- Selection process based on analysis/presentation
 - 2019: Collaboration between several departments (50%+ hiring rate)

Case Study: Lessons from a pandemic (1)

- Obviously:
 - “Beyond 2020” never included an overnight Friday-the-13th shift to a distributed workforce linked by pure-digital processes
 - 90%-prepared for telework is not completely prepared for telework
 - Extreme weather events as preparation for a pandemic
- Not so obviously:
 - Tumbling down Maslow’s pyramid: Operations suddenly dominant
 - The power of a sharp focus on less than a handful of projects
 - Suddenly: Agile re-prioritization! Formal capacity planning!
 - Opportunity for a technology debt overhaul

Case Study: Lessons from a pandemic (2)

- How to adapt Enterprise Architecture to crises when operations are dominant and long-term planning isn't
 - "Why isn't EA at 100% capacity?"
- What you will need:
 - Accumulated good-will and established processes/governance
 - Practical skills to help implement top priorities
 - A legally-permissible amount of deviousness
- What you will be doing:
 - Keep calm and carry on – governance, processes, documents
 - Participate in operational priorities as Enterprise Architects
 - Never waste a crisis in achieving your own objectives



Synthesis: Influencing digital transformation from the bottom up

- Putting all of this together as an Enterprise Architecture group...
 - Coordinating client intake ensures that EA knows what is emerging elsewhere in the organization – especially if it chairs a regular Business/IT meeting
 - Maintaining standards/APM also means identifying aging areas of the infrastructure and proposing replacement projects
 - Positioning EA as an analytical unit solidifies its position to identify and propose forward-looking changes according to a coherent agenda
 - Administering New Technology Intake means that EA gets to build consensus with other managers, and be a regular participant at the IT management table to present those new technologies for approval
- Proof: Pandemic transformation and EA's continued role

Envoi: Digital logistics and sustainability

- To borrow a phrase: Amateurs talk about strategy and tactics. Professionals talk about logistics and sustainability
- Ideas are everywhere, but a lot of dull work is required to implement them sustainably – this is where EA can make a difference
 - Dull work *increases* in times of exciting changes
- Processes and governance will help solidify new ideas and make sure they have buy-in
 - Anything that survives governance is more likely to endure
- Take the long-term view and resolve risks before they become issues – use setbacks as a way to identify underlying questions
- You can't do it alone, but you can be friends with those who can help. Enable them to work together. Be the glue.

Appendices: EA Artifacts

CURRENT STATE (FY2020-21)

Color	Meaning	Color	Meaning (TIME guidance)
Yellow	Ongoing/Upcoming Project	Black	In-use ("Invest")
Green	Cloud-based Software-as-a-Service	Blue	New ("Innovate")
Red	Ongoing Product Management	Brown	Contained ("Tolerate")
		Red	Obsolete/Retired ("Migrate/Eliminate")

Through collaboration with departments and agencies, the Public Service Commission is dedicated to building tomorrow's public service that is based on excellence and is representative of Canada's diversity. It safeguards non-partisanship and promotes and protects merit and the use of both official languages in a staffing and recruitment context. It supports departments and agencies in recruiting talented people from coast to coast through the use of innovative and modern services, tools and practices.

Priority 1: Provide leadership and enable organizations to efficiently hire a diverse and competent public service.
 Priority 2: Promote and safeguard the integrity of the staffing system and the non-partisan nature of the federal public service.
 Priority 3: Provide programs, services and systems that contribute to the hiring of a competent, diverse and professional public service.
 Priority 4: Support the Public Service Commission's workforce by promoting a healthy and modern workplace that is diverse and inclusive.

Appendix A: Blueprint / Roadmap

PSC Mandate and Priorities
 Business Capabilities

Program: Political Activity	Program: Staffing Systems	Program: Staffing Systems	Program: Staffing Systems
PA Tool PIMS (PESA)	Public Service Resourcing System (PSRS) COOP GCJobs-T	Student Recruitment System (SRS) Infotel	Test Scoring and Results Reporting (TSRR) On-Line Oral Proficiency System (OOPS) Test Inventory Control System (TICS) Competency Assessment Tool (CAT) Apollo Test Definition (TD) RST & SLE-UIT Duty to Accommodate (DtA) Online Internet Testing (OIT) On-Line Testing Facility (OLTF) Scoring Web Service (SWS) Teleform SLE-Scheduling System (RF) Test Results Search Tool (TRST) ACIIS E-Testing Centres

Program: Oversight, Monitoring and Non-partisanship
Data Services Analytical Environment (SAS) JAIS Investigations IMIS SAT-OVD Teammate

Corporate Capabilities
 Financials, Human Resources, Communications, Internal Audit, Commission Secretariat, Legal Services

Program: Internal Services	Media Management	Desktop Productivity	Data Reporting/Analytics	Correspondence Management	Time Tracking	Directory Services	Form Management	Web Communications	
Helpdesk IceBar Email Client GroupWise (Client) M365 Outlook (DCCP)	VLC Media Player Audacity Camtasia Photoshop Elements Snagit Adobe Digital Editions	MS Word MS Excel MS PowerPoint MS Access MS Visio MS Project MS OneNote Internet Explorer Mind Mapper Adobe Acrobat M365 Office (DCCP)	Crystal Reports Impromptu Jasper Report / Studio SAS-EG MS PowerBI SPSS Rstudio / Python Spyder QSR-Nx (Nvivo), iThink	CCM Enterprise Barcode / Label System Versatile Express GC Docs Physical Objects Label-maker Issues Tracking Remedy Bugzilla Encryption GroupShare , PKI Entrust	MS Project Online	PSC Phone Directory Printing Management Papercut, Autostore Information Mngt Shared Drives	Adobe Life Cycle Designer Forms Selector (EFS) Travel Application FormFlow Human Resources OrgChart Pro Platinum ED RMS GC Docs (Client)	Finances ▼ CMS ▼ CMS Reporting ▼ DDNT ▼ FBF ▼ FRS ▼ FSA ▼ FASD Maintenance Tool ▼ PBHC ▼ RMS GC FM – GC Financial Management System Transformation	Mediawiki Piwik ?ORS/ERS WordPress Dreamweaver Formmail Event Planning Sli.do
			Web Sites intranet, intranet2/5 extranet, extranet2/5 www.psc-cfp.gc.ca, jobs-emplois.gc.ca, www2/5		Cloud Services Prezzi Loop11 Powtoon Medium.com Balsamiq Cloud Pearltrees Trello	ATIP Management ATIP Access Pro	Instant Messaging GroupWise Messenger M365 Teams (DCCP)	Writing Tools Antidote PerfectIT VisibleThread	

IM/IT Capabilities

Accessibility	Development Tools	Database Management	Web Dev. Languages	Desktop Dev. Lang.	Application Servers	RDBMS	Web Servers	Source Control
Zoomtext Extra Kurzweil 3000 JAWS, TextAloud Duxbury Braille Translator PDF Accessibility Checker Dragon Naturally Speaking Read&Write Gold Magic eClipseWriter	UltraEdit Firefox, Chrome IntelliJ JIRA Java JDK Filezilla, SecureCRT Jrebel, Xrebel Visual Studio Code Enterprise Architecture	SQL Diagnostic Manager TOAD, MySQL GUI – Take 2 Oracle Client / ODBC SDDM CA-Erwin PHP ApexSQL Desktop management Zenworks / SCCM AdminStudio	Java JavaScript Python / ReactJS PrimeFaces / Thymeleaf PL/SQL PHP Perl	Java AutoIT VB.NET PowerShell OpenRoad C MS-Access (VBA)	Tomcat 9 WebLogic 12.1.3 WebLogic 14.x	PostgreSQL (Community) Oracle (▼11, ▼12, ▲19) MySQL MS-SQL MS Access	Apache 2.2 IIS	MS-Visual Source Safe Git, Github
			Project Management MS Project Online	Password Management KeePass	Desktop OS Windows 10 Windows 7 MacOS	IT Security BURP Suite Pro Nexpose Encase	QA Testing (QAT) Selenium (Webdriver) Katalon Enterprise TestNG	App. Release Mngt Cloud Transformation OpenShift, Docker Flyway, Redis Artifactory Jenkins, Nexus Ansible

GC Capabilities
 (Not all available GC Capabilities are in use by the PSC)

Mobile Devices	GCFM – GC Financial Management System	Networking Infrastructure	Web Content Mngt	WTD Management	Shared Email System	Shared HR Systems	Server OS	GCTools
Android		IPv4, 7IPV6?	Canada.ca Adobe Analytics Hootsuite	DLP Measures Windows Provisioning	Your Email Service (ETI) GroupWise Infrastructure	Compensation Web App. Phoenix, MyGCPay MyGCHR Infrastructure TBS App. Portal (PSPM)	Windows Server (▼2008, 2012, 2016) RedHat, HPUX SLES (▼11, 12)	GCDirectory GCIntranet Gcpcia GCConnex GCCollab
Secure File Transfer Managed Secure File Transfer (MSFT)	GC Identity, Credential and Access Management Service Cyber Authentication	Writing Tools Termium	Shared ED RMS GC Docs (Infrastructure)	Data Centers Barrie	Remote Access GCSRA	Open Government	GC API Store	

Appendix B: Technology Bricks

- How to document standards, and keep in account the evolution of technology?
- Answer: Gartner's "Technology Bricks" concept, which tracks Emerging, Approved, Contained and Retired standards.
 - Links with TIME assessments and roadmap
 - Reviewed by Architectural Board, approved by Management.
 - Simple enough to share with business clients
- Some adaptation for small organizations: Defined thresholds, "single-solution standards"

Server Operating System

Description: A server operating system (OS), is an operating system specifically designed to run on servers, which are specialized computers that operate within a client/server architecture to serve the requests of client computers on the network.

Business capability: Operating Systems Software / Server Operating System Software
IT Capability: Application Platform / Operating System Services / Operating System and Virtualization / Server Operating System

Standards table

Status	Product	Comments
Emerging	Red Hat Linux	Emerging SSC standard
Approved (Strategic)	SLES 15	Current version of Server Linux
	Windows Server 2019	
Approved (Tactical)	Windows Server 2016	
Contained	SLES 12	Incompatible technology
	Windows Server 2012	Slightly older technology; still supported, but should be upgraded to newer version if possible. Will soon be actively decommissioned.
	HPUX	Still being used for Oracle – multiple obstacles to decommission. (licensing, technology, etc.)
Retired	Windows Server 2008	Currently being actively decommissioned (No Microsoft support)
	SLES 11	Still being used, but scheduled to be replaced

General comments:

- Server Operating Systems are controlled by SSC standards.

Last EA/SME revision: 2021-04-28

ARC Review: 2021-05-10

Authority: Infrastructure manager

Appendix C: The New Technology Intake (NTI) Process

1. Initial Analysis

- The NTI process aims to provide enough information to understand the introduction of new technology and its consequences
- The process begins if a valid business requirement can best be resolved using a specific new technology
- Enterprise Architects work with requestors to detail the proposed solution and build the initial draft of the document

2. SME Consultation

- Based on risks assessed in the Initial Analysis phase, Subject Matter Experts (SME) are consulted in specific areas of concern
- High-risk areas are discussed prior to presentation to the ARC

3. ARC Recommendation

The ITSD Architectural Review Committee (ARC), composed of ITSD managers, meets weekly

- ARC members examine and discuss the NTI proposal based on their areas of technical expertise
- Recommendation to DMC is made if consensus is met; objections are noted and may lead to a re-work of the document
- The ARC chair sends the recommendation to the Corporate IM/IT Management director for DMC presentation

4. DMC Approval

The ITSD Directorate Management Committee (DMC), composed of the CIO and division directors, meets weekly

- DMC members discuss the NTI proposal from a perspective of resource allocation and management decisions
- Approval by DMC is granted if consensus is met; questions may lead to a revised presentation of the document
- Implementation conditions can be specified
- DMC designates an OPI for the implementation of the approved New Technology