The Municipal Reference Model

Understanding the DNA of Government

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About Me

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Municipal Reference Model
Context
Within the past 2-3 years, Canadian municipalities have issued RFPs such as the following:

- City of Toronto, Ontario – Core Services Review
- City of Saint John, New Brunswick – Operational Review
- City of Windsor, Ontario – Service Delivery Review
- City of Vancouver, British Columbia – Review of the City’s Businesses, Service Delivery Practices And General Operations
- City of Ottawa, Ontario – Efficiency Savings Initiative
- City of Calgary, Alberta – Core Service Review
- City of Moncton, New Brunswick – Corporate Services Review
- City of Hamilton, Ontario – Strategic Services Operational Review
- City of Penticton, British Columbia – Review of the City’s General Operations, Service Delivery And Organizational Review

Similar requests are appearing at the provincial and federal levels

- Commission for Reform of Ontario’s Public Services (Path to Sustainability and Excellence) – Drummond Commission

… and the list goes on, and on!
Municipal, Provincial, State, Federal all have the same challenges...

• Common threads in almost every study:

  – **Defining our Services** – Do we know what services we provide? Are they core to our business? What value are they offering? Are we offering the right Services?
  – **Improving our Services** – What is the cost of our services? How do we compare with other governments? Can we improve our efficiency, effectiveness and quality?
  – **Service Levels** – What is our current Service Level? How was it determined? What are the cost and service implications if we raise or lower Service Levels?
  – **Service Accountability** – Who is accountable for which Services? Is the allocation correct or does it need to be adjusted?
  – **Alternate Service Delivery** – Can we outsource, in-source, privatize or contract out all or a portion of our Services?
  – **Service Operations** – How do we deliver a service? Are there better ways? What can we learn from others?
What are Reference Models?

**Definition (Wikipedia)**
An abstract framework … consisting of an interlinked set of clearly defined concepts produced by an expert or body of experts in order to encourage clear communication.

**Definition (OASIS)**
An abstract framework for understanding significant relationships among the entities of some environment, and for the development of consistent standards or specifications supporting that environment.

“Essentially all models are wrong, but some are useful.”
George E. P. Box

In short:
A reference model is a set of rules for how you describe things.
Coherent Government by design

If we really want:

- to move to a “whole of government” approach,
- seamless, citizen-centred services,
- legislation, regulations and policies designed rather than crafted,
- alignment, integration, interoperability, etc. in our business systems,
- to do more with less,
- etc.

We really need:

- a consistent and more formal business design capability based on a common language and set of rules for using it to create better descriptions of what we want (e.g. more coherent ones). A pan-Canadian standard along these lines will enable any conceivable government line-of-business (and inter-collaborations thereof) to better:
  - interpret and clarify their missions, strategies, outcomes, etc.
  - accurately depict or map how they work (and how they can work together),
  - discover opportunities for business improvements,
  - support their planning and successful implementation.

We really need:

a Governments Reference Model
Municipal Reference Model
Brief History
MRM Brief History

• 1990: 20+ Ontario municipalities create Joint Venture to develop Municipal Reference Model and Engineering Database – initially as “data models”
• 1992: JV Awards RFP to Chartwell IRM (acquired by KPMG in 2009)
• 1995-2000: MRM evolves from data to business model and is successfully marketed by Chartwell to other Canadian, US and overseas municipalities
• 2000-2008: MRM adopted and adapted by Province of Ontario (PSRM) and Government of Canada (GSRM)
• 2007-2011: MRMv2 Project undertaken by MISA/ASIM Canada to update and re-establish MRM at municipal level and align with PSRM/GSRM
• 2007: Joint Councils create SMSC to integrate and standardize service mapping approaches across Canadian governments
Municipal Reference Model Concepts
Your core business elements expressed in a standard language: SERVICE

Service Key Concepts:
- Client (external)
- Final output
- Contribute to program outcomes
- Complete/stand-alone
- Sub-service

Service:
provision of specific final outputs that satisfy client needs and contribute to program outcomes

The MRM Provides a Common Language and Structure for describing the business of Government from the outside-in, as our citizens see us.
Your core business elements expressed in a standard language: PROGRAM

Program Key Concepts:
- Target Group
- Need
- Delivered through services
- Outcome (a positive change in the level of need of the target group)
- Public and Internal Programs

Program: a mandate to achieve outcomes that address the needs of a target group. Programs are delivered through a collection of services that contribute to program goals.

The MRM Provides a Common Language and Structure for describing the business of Government from the outside-in, as our citizens see us.
Your core business elements expressed in a standard language: PROCESS

Process: a linked sequence of activities or tasks that use resources to produce outputs. Processes participate in a chain to produce service final outputs.

Process Key Concepts:
- Interim outputs
- Resources
- Linked to deliver a service final output

The MRM Provides a Common Language and Structure for describing the business of Government from the outside-in, as our citizens see us.
## MRM Concepts Illustrated: Public Health

<table>
<thead>
<tr>
<th>Program</th>
<th>Public Health</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Group</strong></td>
<td>Municipal Residents and visitors</td>
</tr>
<tr>
<td><strong>Need</strong></td>
<td>Health</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Improved Health (Can we define this more precisely?)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service</th>
<th>Service 1</th>
<th>Service 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Output</td>
<td>Inspection Report (permission to continue operation)</td>
<td>Immunization</td>
</tr>
<tr>
<td>Direct Client</td>
<td>Food premise owner / operator</td>
<td>Resident (at-risk) receiving immunization</td>
</tr>
<tr>
<td>Indirect Client</td>
<td>Food premise patron</td>
<td>Others in the community (residents and visitors)</td>
</tr>
<tr>
<td>Service Value</td>
<td>Reduced illness resulting from improper food preparation</td>
<td>Reduced illness resulting from fewer residents contracting H1N1</td>
</tr>
<tr>
<td>Process</td>
<td>Schedule inspection, conduct inspection, produce report, schedule follow-up</td>
<td>Establish clinic, prepare public communication, operate clinic, decommission clinic</td>
</tr>
</tbody>
</table>
## MRM Concepts, Performance Measurement: Public Health

<table>
<thead>
<tr>
<th>Program</th>
<th>Service</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health</td>
<td>H1N1 Immunization</td>
<td>Clinic Operation</td>
</tr>
<tr>
<td><strong>Effectiveness</strong> (relates to outcome)</td>
<td>Change in level of public health</td>
<td>Reduction in incidence of Flu</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td>Public Health cost/capita</td>
<td>Cost per delivered immunization (cost/output)</td>
</tr>
<tr>
<td><strong>Quality (cf. to standard)</strong></td>
<td>n/a</td>
<td>Immunizations to standard</td>
</tr>
<tr>
<td><strong>Customer Satisfaction</strong></td>
<td>Customer Satisfaction (reputation)</td>
<td>Service Satisfaction (Specific experience)</td>
</tr>
</tbody>
</table>

*MRM Concepts, Performance Measurement: Public Health table*
### Classification of Reference Model Services based on need & output types

<table>
<thead>
<tr>
<th>Service Output Types</th>
<th>Supply capacity to act</th>
<th>Enhance capability to act</th>
<th>Facilitate &amp; influence action</th>
<th>Regulation action</th>
<th>Core</th>
</tr>
</thead>
</table>

#### MRMv2 Index Framework

<table>
<thead>
<tr>
<th>Program Fields</th>
<th>Public Program Fields</th>
<th>Provider Program Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Socio-)Economic Development</td>
<td>Science and Knowledge Development</td>
<td>Public Policy, Planning and Management Services</td>
</tr>
<tr>
<td>Natural Resources Development</td>
<td>Environmental Protection</td>
<td>Corporate Policy, Planning and Management Services</td>
</tr>
<tr>
<td>Public Health</td>
<td>Legal, Collective, Democratic &amp; Human Rights Protection</td>
<td>Integrated Delivery Services</td>
</tr>
<tr>
<td>Social Development</td>
<td>Cultural Development</td>
<td>Communications Management Services</td>
</tr>
<tr>
<td>Cultural Development</td>
<td></td>
<td>Human Resources Management Services</td>
</tr>
<tr>
<td>Public Safety</td>
<td></td>
<td>Financial Management Services</td>
</tr>
<tr>
<td>National Security &amp; Defense</td>
<td></td>
<td>Information Management &amp; Technology Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supply Chain Management Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Administrative Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Facilities and Assets Management Services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional Services</td>
</tr>
</tbody>
</table>

- Fire Permit Service
- Elevator Permit Service
- Ski Lift Permit Service
- Gas Line Permit Service
- Boiler Permit Service
- Etc.

Source: GSRM Top Model
Municipal Reference Model Components
Key Components of the MRM

- **Metamodel** - specifies the contents of your business model, e.g. what information should you record about each service
- **Reference Model** - repository of business model content to get you started, e.g. well-defined examples of services
- **Toolkit** - applications for business users and business analysts to create, analyze and share business model content within the municipality, and with other municipalities
- **Use Cases** - instructions for using the MRM to support common management practices, e.g. strategic planning
- **Support** – an MRM community offering training and support, and a governance structure so you can influence continuing development and direction of the MRM
The complete Meta-model
MRM Metamodel
Implemented Subset
Service

Definition: A Service is a commitment to deliver Outputs that contribute to Outcomes

Naming:
- The name of a Service should be defined as a combination of “modifier” (optional), “noun” (mandatory) and “gerund” (mandatory). For example, a Service should be named ‘Solid Waste Collection’ rather than ‘Solid Waste’. Modifiers are not always required, e.g. Business Licensing. The Service’s name should make sense with and without the word “Service” following the name when required by context.

Valid Instances:
- The Service’s existence should not depend essentially on the existence of another Service; if that is the case, the activity is typically a feature or configuration of that other Service. (Independence Rule)
  - Example: traffic control and signage are not Services because they depend on the existence of the ‘Roads Service’. Traffic control and signage are features that increase the quality and effectiveness of the ‘Roads Service’ because they enable more, safer, and more convenient trips.
- Delivery of the Output defined for the Service should fully satisfy the Need(s) addressed by the Service, commensurate with the intentions of the government and the legitimate expectations of the client. (Closure Rule)
  - Example: fixing a pothole does not by itself satisfy a driver’s expectation of a trip, nor the government’s intent to enable it, and is therefore not a Service but a Process forming part of the ‘Roads Service’.
  - Example: processing an application form for a building permit does not by itself satisfy a client’s need for permission to build, nor the government’s intent to grant compliant requests, and is therefore not a Service but a Process forming part of the ‘Building Permit Service’.
- The Service’s Output cannot be mandatory for all members of its Target Group; otherwise the Service is an Enterprise Management Process or Program Management Process. (Non-Mandatory Rule)
  - Example: developing a strategic plan is not a service if each department must participate in it. If, on the other hand, an Organization Unit offers assistance with the preparation of individual strategic plans, e.g. departmental or program plans, then an Enabling Service is formed.
# Authoritative Reference Model of Municipal Programs and Services

<table>
<thead>
<tr>
<th>Service Level</th>
<th>Service Name</th>
<th>Alias Service Name(s)</th>
<th>Service Description</th>
<th>Output</th>
<th>Output Type</th>
<th>Direct Client</th>
<th>Direct Client Service Value</th>
<th>Direct Client Need Category</th>
<th>Beneficial Client</th>
<th>Beneficial Client Service Value</th>
<th>Beneficial Client Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Garbage Disposal</td>
<td></td>
<td>Disposal of garbage (residual solid waste) at transfer stations and/or landfill sites.</td>
<td>Garbage Disposal (tonne)</td>
<td>Unit of Resource</td>
<td>Waste Hauler</td>
<td>Convenient, affordable disposal of garbage</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Composting</td>
<td></td>
<td>Composting of yard and organic waste for resale or reuse.</td>
<td>Compost (tonne)</td>
<td>Unit of Resource</td>
<td>Compost User</td>
<td>Convenient, affordable composting of yard and organic waste</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Building Permit and Enforcement</td>
<td>Building Permit</td>
<td>Approval to construct, demolish and/or alter a building in compliance with Building Code standards and regulations.</td>
<td>Building Permit Issued</td>
<td>Period of Permission</td>
<td>Property Owner Developer / Agent</td>
<td>Compliance with Building Code Regulations</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Building Demolition Permit and Enforcement</td>
<td>Building Demolition Permit</td>
<td>Approval to demolish a building in compliance with Building Code standards and regulations.</td>
<td>Building Demolition Permit Issued</td>
<td>Period of Permission</td>
<td>Property Owner Developer / Agent</td>
<td>Compliance with Building Code Regulations</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Building Alteration Permit and Enforcement</td>
<td>Building Alteration Permit</td>
<td>Approval to alter a building in compliance with Building Code standards and regulations.</td>
<td>Building Alteration Permit Issued</td>
<td>Period of Permission</td>
<td>Property Owner Developer / Agent</td>
<td>Compliance with Building Code Regulations</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Sign Permit and Enforcement</td>
<td>Sign Permit</td>
<td>Approval to install / maintain a sign in compliance with Building Code standards and regulations.</td>
<td>Sign Permit Issued</td>
<td>Period of Permission</td>
<td>Property Owner Developer / Agent</td>
<td>Compliance with Building Code Regulations</td>
<td>Building Occupant / User</td>
<td>Safe sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Property Standards By-Law Enforcement</td>
<td>By-Law Enforcement</td>
<td>Compliance with applicable property standards by laws and/or regulations.</td>
<td>Property Standards By-Law Enforced (Compliance)</td>
<td>Period of Sanction</td>
<td>Property Owner</td>
<td>Compliance with Property Standards By-Law / Regulations</td>
<td>Building Occupant / User</td>
<td>Safe building to use / occupy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Noise By-Law Enforcement</td>
<td></td>
<td>Compliance with the Noise By-Law.</td>
<td>Noise By-Law Enforced (Compliance)</td>
<td>Period of Sanction</td>
<td>Property Owner</td>
<td>Compliance with Noise By-Law</td>
<td>Adjacent Property Owner</td>
<td>Linear-us</td>
<td>Quietness and tranquility</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Fence By-Law Enforcement</td>
<td></td>
<td>Compliance with the Fence By-Law.</td>
<td>Fence By-Law Enforced (Compliance)</td>
<td>Period of Sanction</td>
<td>Property Owner</td>
<td>Compliance with Fence By-Law</td>
<td>Adjacent Property Owner</td>
<td>Linear-us</td>
<td>Visual and physical boundary</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Feas Control By-Law Enforcement</td>
<td>Pest Control By-Law Enforcement</td>
<td>Compliance with the Pest Control By-Law.</td>
<td>Pest Control By-Law Enforced (Compliance)</td>
<td>Period of Sanction</td>
<td>Property Owner</td>
<td>Compliance with Pest Control By-Law</td>
<td>Adjacent Property Owner</td>
<td>Linear-us</td>
<td>Healthy and pest-free environment</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Development Approval</td>
<td>Development Approval</td>
<td>Approval of proposed development applications prior to submission of a building permit application.</td>
<td>Development Approved</td>
<td>Period of Permission</td>
<td>Property Owner Agent of Property Owner (i.e. Developer)</td>
<td>Compliance with applicable development regulations</td>
<td>Adjacent Property Owner</td>
<td>Community Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Site Plan Approval</td>
<td>Site Plan Application Approval</td>
<td>Approval of proposed site plan applications prior to submission of a building permit application.</td>
<td>Site Plan Approved</td>
<td>Period of Permission</td>
<td>Property Owner Agent of Property Owner (i.e. Developer)</td>
<td>Compliance with applicable site plan approval regulations</td>
<td>Adjacent Property Owner</td>
<td>Community Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Rezoning Plan Approval</td>
<td>Rezoning Application Approval</td>
<td>Approval of proposed rezoning applications prior to submission of a building permit application.</td>
<td>Rezoning Approved</td>
<td>Period of Permission</td>
<td>Property Owner Agent of Property Owner (i.e. Developer)</td>
<td>Compliance with applicable rezoning by-law regulations</td>
<td>Adjacent Property Owner</td>
<td>Community Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Official Plan Amendment Plan Approval</td>
<td>Official Plan Amendment Plan Approval</td>
<td>Approval of proposed official plan amendment applications prior to submission of a building permit application.</td>
<td>Official Plan Amendment Approved</td>
<td>Period of Permission</td>
<td>Property Owner Agent of Property Owner (i.e. Developer)</td>
<td>Compliance with applicable official plan policies</td>
<td>Adjacent Property Owner</td>
<td>Community Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Subdivision Plan Approval</td>
<td>Subdivision Application Approval</td>
<td>Approval of proposed official plan amendment applications prior to submission of a building permit application.</td>
<td>Subdivision Approved</td>
<td>Period of Permission</td>
<td>Property Owner Agent of Property Owner (i.e. Developer)</td>
<td>Compliance with applicable subdivision regulations</td>
<td>Adjacent Property Owner</td>
<td>Community Development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Service Profile: "MyTown" Emergency Care and Preventative Care

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountable Unit</td>
<td>EMS</td>
</tr>
<tr>
<td>Purpose Statement</td>
<td>Provide emergency and preventative care services to the people of MyTown through activities such as pre-hospital emergency care, community medicine and inter-facility patient transport services</td>
</tr>
<tr>
<td>Customer</td>
<td>EMS Patient, EMS Patient Family / Relatives</td>
</tr>
<tr>
<td>Service Types</td>
<td>Primary / Advanced, Critical, Stand By special event, Stand By Emergency</td>
</tr>
<tr>
<td>Output</td>
<td>EMS Emergency Care, Preventative Care, Facility Transport</td>
</tr>
<tr>
<td>Delivery Method</td>
<td>Upon Request</td>
</tr>
<tr>
<td>Service Level</td>
<td>24/7/365</td>
</tr>
<tr>
<td>Efficiency</td>
<td>$ / Emergency Care &amp; Preventative Care by type, reduced pain, reduced health care cost</td>
</tr>
<tr>
<td>Value Statement</td>
<td>Improved health, reduction in mortality, reduced health care cost</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Response Time to Incident (Road Response Time + Process Time), Correct Resource response time according to Call priority (90% of the time), Percentage of Unit Hour Utilization, Cost of Unit Hour Production, Mean Hospital Wait Time (Total Wait Time / # of Hospital Visit), # of Public Access Defibrillators</td>
</tr>
<tr>
<td>Service Objective</td>
<td>Improve the response time to life threatening calls (delta &amp; echo) from 70% to 90% within 8:59 minutes and stated targets for alpha, bravo and charlie category type calls, Reduce the in hospital time from 60 minutes to 45 minutes by 20012</td>
</tr>
<tr>
<td>Community Impact</td>
<td>Health Care, Public Safety</td>
</tr>
</tbody>
</table>

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Source: MISAASIM, Canada
What does the MRM mean to you today?

- You can create a standard **business model** of your municipality and apply it to produce better business **plans** and **results**!
  - Based on a proven common language, usable by all stakeholders
  - Can be tailored to your needs and capabilities
  - Backed by a community of your peers providing governance, support, comparisons and best practices
  - Includes tools, training and support
Municipal Reference Model
Software Implementation
MISA/ASIM Canada
Guiding Principles for the Future of the MRM

1. Enable MRM to become a widely adopted standard for municipal (government) services modeling
2. Ownership to remain with MISA/Canadian Public Sector (could be Joint Councils/ICCS in the future)
3. Core concepts to be freely available through Creative Commons type of licensing
4. Maintain alignment with other orders of government in Canada;
5. Not-for-profit. Any revenues would be applied to cover costs for support, further development
6. Admit and encourage private sector participation to develop complementary tools and services.
7. Vendor/technology neutral – MISA will partner with any vendors to provide technology implementations, training or support, based on mutually beneficial terms
1. **Finalize and publish MRM materials**

2. **Create MRM web/collaboration site**

3. **Promote and support collaboration among existing and future MRM users**

4. **Further develop MRM content, through expert working groups**

5. **Promote and integrate MRM concepts into national and international standards – e.g.**
   - ICCS Service Management and Certification
   - TOGAF and BMM

6. **Foster and promote private sector participation and related services (software implementations, consulting, training)**