



Montréal, Québec
May 29 to June 1, 2013 / 29 mai au 1 juin 2013

A Perspective on International Asset Management Standards and Canadian Initiatives

Steve W. Wyton, P.Eng, MBA
Manager, Corporate Project & Asset Management, The City of Calgary

Abstract: While asset management is an evolving business practice in Canada, there are a number of national and international initiatives that are helping to shape its future. These include: the current development of an international standard for asset management, tentatively labelled ISO 55000, the continued growth of the Canadian Network of Asset Managers, and the ongoing work to develop a Canadian infrastructure strategy for the municipal infrastructure sector, but to name a few. The paper will provide an update of international standards and initiatives that may influence asset and maintenance management practitioners.

Keywords: Municipal asset management, International Standards, PAS 55

1 Preamble

The practice of asset management is a complex, multi-disciplined approach that involves numerous well established practices and interest groups that have a common end goal yet may have divergent or competing business processes. It is also continuing to evolve itself, with emergent strategy being more the norm than the exception. As a result, it is difficult for an asset management practitioner to define what asset management is, let alone where the practice is going into the future.

In order for the municipal asset management practitioner to understand the future development of the practice, it may be helpful to understand where the practice has come from and who the key players are within various industries. Generally speaking, asset management started to gain momentum internationally in the past half century. The development and legitimization of the practice started in the early 1980's and then to accelerate in the early 1990's in New Zealand, Australia and the United Kingdom due to many drivers, including infrastructure failures, accounting regulations, and financial sustainability to say the least. Efforts have resulted in the establishment of legislation, regulations, policy, standards and good practices for adoption by private industry and municipalities alike.

Some of these standards and practices that evolved from the accounting regulations include the International Infrastructure Management Manual (IIMM) originally published by the New Zealand Asset Management Support (NAMS 2013) and the Institute of Public Works Engineering Australia (IPWEA 2013) in 1996 but most recently updated in 2011. In addition, the Asset Management Council (AMC 2013), with roots in the asset maintenance and reliability field, emerged in Australia in the late 2000's predicted on reports from the Australian National Audit Office (ANAO 1996). These organizations have established training, tools and support and communities of practice.

In the mid 1990's and early new millennium, asset management became a forefront issue in the United Kingdom. The Institute for Asset Management (IAM) was formed and developed an asset management framework named the Publically Available Specification (PAS 55 2013), most recently updated in 2008. Akin to the IPWEA and NAMS, the IAM is developing practices and tools to support PAS 55, including recent establishment of practice, competency and assessment frameworks (IAM 2013).

Facing similar pressures and about at the same time, North America started following suit. In the United States, the Government Standards Accounting Board (GASB 2001) required the annual reporting of infrastructure assets for State and local government bodies under GASB Statement 34. Public associations such as the American Public Works Association (APWA 2013) have also developed asset management practices for their member organizations. There have been numerous other initiatives in the United States to develop asset management standards and practices for public infrastructure, including those by the ASTM on property management (ASTM 2013), the US Environmental Protection Agency (USEPA 2013) and the US Department of Transportation (USDOT 2013) in the early and mid-2000's. There have been numerous state and local governments that established asset management practices during this period.

2 Canadian Landscape and Key Players

Asset Management in Canada came to the forefront in the late 1990 through to the mid 2000's via numerous initiatives. This included the development of InfraGuide (2013), which led to the development of over 50 practice guidelines, the creation of the National Roundtable of Sustainable Infrastructure (NRTSI 2013) and the National Asset Management Working Group (NAMWG 2013).

During the same time, numerous municipalities and government organizations also started establishing formal asset management programs. In addition to creating their own practices, they collaborated on numerous national asset management initiatives, including InfraGuide, the National Research Council's Municipal Infrastructure Investment Planning (MIIP 2013) project and most recently the establishment of the Canadian Network of Asset Managers (CNAM 2013) in 2007 with the mantra of "By municipalities, for municipalities".

Provincially-organized working groups started to emerge after 2006, based on the work of the NAMWG that spans multiple sectors and associations, including planners, finance and accounting, engineering, public works and construction industry. These "associations of associations" have been established in Ontario with the Ontario Coalition for Sustainable Infrastructure (OCSI 2013) and British Columbia with Asset Management British Columbia (AMBC 2013) with new groups being developed in Alberta (2013) and Saskatchewan (2013). Within Quebec, the Centre d'Expertise et de Recherche en Infrastructures Urbaines (CERIU 2013) created asset management practice and provides training, support and networking to its members.

In 2006, the Government Finance Officers Association (GFOA) within Canada also adopted similar standards in Canada as was done in the United States (i.e. GASB Statement 34) with the establishment of the Public Sector Accounting Board (PSAB 2013) 3150 for asset accounting requirements for municipalities. The GFOA (2013) is currently developing practices regarding long term financial planning, which it is anticipated that will link infrastructure investment planning to budget process.

After the cancellation of the InfraGuide program in 2004, many member organizations continued with the development of national practices and initiatives. Most recently, the Federation of Canadian Municipalities (FCM), the Canadian Society of Civil Engineering (CSCE), the Canadian Public Works Association (CPWA) and the Canadian Construction Association, with support from members of CNAM and other key industry stakeholders, established the Canadian Infrastructure Report Card (FCM 2013), the nation's first coordinated effort to quantify the issues related to Canada's aging public infrastructure. One of its key findings was the need to establish national policy and standards for asset management.

As of August 2012, the Government of Ontario has been the first to legislate asset management practice as part of its Municipal Infrastructure Strategy (MIS 2013). Specifically, this program identifies the need for municipalities to create asset management plans in order to justify financial support for any given program or project. There are indicators that other provincial governments and potentially even the federal government will use a similar strategy for future capital grant programs.

3 Creating Common International Forums and Standards

Resulting from the groundswell of these previously noted asset management activities both within Canada and internationally, numerous international technical standards committees have been created since the late 2000's. This is currently still underway, with the International Standards Organization taking much of the lead. For example, the water and wastewater industries have been involved in establishing technical standards and guidance in numerous working groups including Project Committee (PC) 253 (*Treated wastewater re-use for irrigation*) and Technical Committee (TC) 224 (*Service activities relating to drinking water supply systems and wastewater systems - Quality criteria of the service and performance indicators*) and a software asset management standard is also under development by ISO/IEC 19770 (*Software Asset Management*).

Since 2010 to the present day, there been efforts to bring together many of these organizations and practice groups into a single global organization with the mandate to share practices and establish common standards and practices. For instance, in 2010, the Global Forum on Maintenance and Asset Management (GFMAM 2013) was established by organizations in Canada, the United States, Brazil, Australia and Europe that are rooted in the asset management, maintenance, and reliability engineering practices. Within Canada, the Plant Engineering and Maintenance Association of Canada (PEMAC) sits as a member of the GFMAM.

Arguably, though, the most significant global initiative is the creation of the international standard for asset management by the International Standards Organization, namely ISO 55000. The project was approved by the ISO Technical Management Board in 2009, which established Project Committee (PC) 251 (*Asset Management*) as part of a three year project to develop three documents related to asset management: ISO/DIS 55000 - *Overview, principles and terminology* which serves as the marketing document, ISO/DIS 55001 – *Asset management -- Requirements*, and ISO/DIS 55002 – *Guidelines on the application of ISO 55001*.

The development of the 55000 suite of documents has included approximately 28 countries to date, including Canada, and approximately 75 asset management experts from around the world. It is expected that the final working draft will be released for public consumption in March of 2014.

4 Primary Premises of ISO 55000

One of the primary premises behind the ISO 55000 standard was that it was to be a management systems standard. That is, given that there are many other ISO and industry initiatives that are developing technical and industry-specific requirements and practices for asset management (ex. software, water and wastewater asset management practices, ASTM property management, the International Infrastructure Management Manual, to name but a few), the scope of the project was kept to develop a "high level umbrella management system" that other technical asset management standards could readily fit beneath.

Second, the ISO 55000 standard is to be centralized on the concept of optimizing physical infrastructure across the lifecycle of the asset. The project has brought industry stakeholders, practitioners and experts from around the world and across multiple industries to define traditionally complex concepts within the asset management practice. The standard provides consistent definition on items such as lifecycle management, asset responsibility period, the definition of asset, asset systems, asset management and the requirements for the asset management system itself. It also defines asset and asset management value realization.

Third, as previously mentioned, ISO 55000 creates formal links between asset management and the asset management system for other critical aspects of business, including human resource, financial, risk and information management. For instance, the standard identifies the need for: (i) long range financial planning for assets, business planning, budgeting and financial reporting (aligned with International Financial Reporting Standards or IFRS 2013), (ii) linkage to other management systems such as safety and environmental and risk management, as well as (iii) practices such as the use of the Triple Bottom Line (TBL) and sustainability to support decision-making and prioritization.

Lastly, ISO 55000 stresses the need for a “line of sight” through all levels of the organization, from corporate and business level strategy, through asset policy, strategy, asset acquisition/delivery functions and business operations. This line of sight helps to ensure that service outputs are well understood and aligned with corporate policy and strategy, assisting the organization to realize benefits and to deliver value added outcomes. These four items are key additions when compared to other ISO standards.

5 Future of Asset Management in Canada

Based on current trends, it is expected that asset management, and ISO 55000, will take a more predominant role in Canada. It is highly likely that the federal and provincial governments will start to take a more proactive role in determining that asset management planning will be required as part of future government programs. Canadian municipalities have echoed that asset management is an important part of their corporate strategy, but are struggling to understand where to start and finding the resources to implement and employ the practice. As such, all levels of government are encouraged to provide enabling funds to support the establishment of asset management programs and plans within municipalities and regions, as well as, to provide more sustainable funding programs that support lifecycle management of infrastructure, not just capital delivery.

There have been efforts to align asset management-related initiatives in Canada in recent years. Continued success relies on key industry stakeholder groups working even more closely together on developing and integrating asset management practices that have minimal impact to already financially challenged municipal operations.

It is expected that the general public will also start to play a more significant role as programs like the Canadian Infrastructure Report Card continue to build awareness. Municipalities have heard that the development of better practice does not necessarily resonate with the public and key stakeholders. It is expected that in coming years, asset managers will need to shift the key messaging towards that of better public engagement on service levels and infrastructure investment. As well, municipalities are looking at ways of increasing effectiveness and accountability and reducing bureaucracy. As such, the establishment of effective governance as per the proposed ISO 55000 asset management system should be leveraged to improve these aspects of business rather than stifle them.

There have been many Canadian advances in asset management within the past decade. Where past efforts to advance asset management practice, including InfraGuide, were very advantageous, perhaps this is an opportunity for Canada to adopt and build upon existing standards including ISO 55000, PAS 55 and the IIMM rather than “recreating the wheel”. Canadian effort could be well spent on building upon and innovating where others have left off.

6 Opportunities and Benefits of ISO 55000

In recent years, the importance of a standard, international approach to asset management has become more evident, given disasters related to asset failure and the associated impacts. Rightfully, senior management, regulators and government officials are looking for a common method that will signal better corporate asset stewardship in balance with the protection of public safety, risk management and even support of sustainability activities. In a similar vein, recent economic conditions are driving business executives to look at recognized methods of ensuring that their assets continue to provide value while

balancing business risk and cost effective service. ISO 55000 can be a key component of the successful solution.

On the international scale, ISO 55000 sets a common platform to better level the playing field for trade across nations and to assist to provide a common foundation for the practice. In this light, it also provides opportunity for resource portability across the various asset managing industries and nations where the availability of skilled resources is becoming a more prominent issue. This platform also establishes internationally recognized competency definitions for required asset management, allowing educational organizations to better focus efforts on research and training.

ISO 55000 can also be leveraged by regulators, national or provincial levels of government to establish policy and rules for the management of public infrastructure. As previously noted, the Canadian federal and provincial governments are looking towards establishing better asset management standards to ensure that the public purse is being used wisely and to enable public safety. ISO 55000 could play a key role in assisting government in directing what an effective and efficient asset management program includes without dictating “how an organization does asset management”.

Senior executives can establish ISO 55000 as a part of their management systems portfolio to define the necessary elements, checks and balances to support the alignment of their assets to service outcomes and outputs. It can provide a common approach for their organization to centralize its efforts around to establish an asset management system and program, rather than losing ground in defining their own approach and “re-inventing the wheel”.

There are many key benefits to adopting ISO 55000 in Canadian municipalities. Currently, there is a lack of standardization of the approach to asset management resulting in duplicate effort on researching asset management practice or the implementation of ineffective process. Many municipalities in Canada are looking for direction and advice on asset management policy, practice and procedures and where to start their implementation. As a first step, the adoption, or even at a minimum alignment to, ISO 55000 will provide municipalities the necessary elements of an asset management program rather than having them taking a trial and error approach. Adopting ISO 55000 can also provide a municipality with the necessary program definitions, roles and responsibilities, and interdependencies with other business systems while still allowing the organization to develop their own tools or to adopt other technical practices (like InfraGuide, IIMM, PAS 55, etc.) to support the overarching standard. Adopting ISO 55000 can provide asset management practitioners and senior management alike with the common set of expectations for which they need to align. ISO 55000 can also set the ground rules for accountability to the public and can be a strong key message that the municipality is adopting a rigorous approach to managing critical infrastructure risk based on sound industry practice.

7 Challenges

It is important to note that municipal infrastructure asset management is a complex, multi-disciplinary approach that is ultimately focussed on the optimization of public infrastructure. As such, there are multiple industry practice and interest groups that have established asset management centres of excellence, each with their own objectives, standards, and practices that they advocate for. This may result in a fractured approach to the optimization of public infrastructure. While current attempts are to start to bring these various industry shareholders and stakeholders together, certain challenges may plague the effort, including political posturing, opposing practice views and a lack of common asset management nomenclature.

A management system standard is often misunderstood as being the “silver bullet” for an organization’s business ineffectiveness. For instance, it is possible that an organization focuses its efforts on achieving compliance to the management system and loses sight of the real business objectives for adopting the standard in the first place. As well, line management ineffectiveness (which may be out of the scope of the asset management system) may impede achievement of the asset management system’s key results. It should be noted that compliance to the standard is not the end result, but that the standard is only a

means to the ends. As such, other management tools, including a system performance management program, change management program and benefits realization should also augment the implementation of any management system. ISO 55000 can address such challenges.

References

- Alberta (2013) Contact <joel.sanchez@lethbridge.ca> (Accessed 16 Feb 2013).
- AMBC (2013) Website. <www.assetmanagementbc.ca> (Accessed 16 Feb 2013).
- AMC (2013) Website. <www.amcouncil.com.au> (Accessed 16 Feb 2013).
- ANAO (1996) *Asset Management Handbook*, Australian National Audit Office, Canberra, Australia.
- APWA (2013) Website. <www.apwa.net/documents/resourcecenter/ampaper.rtf> (Accessed 16 Feb 2013).
- ASTM (2013) *ASTM Standards for Property Management Systems*. <www.astm.org/DEMO/pms.htm> (Accessed 16 Feb 2013).
- CERIU (2013) Website. <www.ceriu.qc.ca> (Accessed 16 Feb 2013).
- CNAM (2013) Website. <CNAM.ca> (Accessed 16 Feb 2013).
- FCM (2012) *Canadian Infrastructure Report Card*, <csce.ca/custom-content/uploads/2012/06/Infrastructure_Report_Card_ENG_Final1.pdf> (Accessed 16 Feb 2013).
- GASB (2001) *Basic Financial Statements—and Management’s Discussion and Analysis—for State and Local Governments*, Governmental Accounting Standards Board, Norwalk, CT.
- GFMAM (2013) Website. <gfmam.org> (Accessed 16 Feb 2013).
- IAM (2013) Website. <theiam.org> (Accessed 16 Feb 2013).
- InfraGuide (2013) Website. <www.fcm.ca/home/programs/past-programs/infraguide.htm> (Accessed 16 Feb 2013).
- IPWEA (2013) Website. <www.ipwea.org.au> (Accessed 16 Feb 2013).
- ISO/DIS 55000 (2013) *Asset management -- Overview, principles and terminology*. <www.iso.org/iso/catalogue_detail.htm?csnumber=55088> (Accessed 16 Feb 2013).
- ISO/DIS 55001 (2013) *Asset management -- Requirements*. <www.iso.org/iso/catalogue_detail.htm?csnumber=55089> (Accessed 16 Feb 2013).
- ISO/DIS 55002 (2013) *Guidelines on the application of ISO 55001*. <www.iso.org/iso/catalogue_detail.htm?csnumber=55090> (Accessed 16 Feb 2013).
- MIIP (2009) *Municipal Infrastructure Investment Planning (MIIP) Project*, <archive.nrc-cnrc.gc.ca/eng/projects/irc/municipal-infrastructure.html> (Accessed 16 Feb 2013).
- MIS (2013) Website. <www.moi.gov.on.ca/en/infrastructure/building_together_mis> (Accessed 16 Feb 2013).
- NAMS (2013) Website. <www.nams.org.nz> (Accessed 16 Feb 2013).
- NAMWG (2013) *National Asset Management*. <www.nrtsi.ca/documents/WGReportsNAM.pdf> (Accessed 16 Feb 2013).
- NRTSI (2013) Website. <nrtsi.ca> (Accessed 16 Feb 2013).
- OSCI (2013) Website. <www.on-csi.ca> (Accessed 16 Feb 2013).
- PAS 55 (2013) Website. <pas55.net> (Accessed 16 Feb 2013).
- PSAB 3150 (2009) *Guide to Accounting for and Reporting Tangible Capital Assets*, Public Sector Accounting Board (PSAB), <www.frascanada.ca/standards-for-public-sector-entities/resources/reference-materials/item14603.pdf> (Accessed 16 Feb 2013).
- Saskatchewan (2013) Website. <assetmanagementsk.ca> (Accessed 16 Feb 2013).
- USDOT (2013) Website. <www.fhwa.dot.gov/infrastructure/asstmgmt/amprimer.pdf> (Accessed 16 Feb 2013).
- USEPA (2009) Website, <water.epa.gov/infrastructure/sustain/asset_management.cfm> (Accessed 16 Feb 2013).