International Trends and Strategic Direction of Management Systems

Presented by
Robert McEntyre, Director,
Robert McEntyre & Associates Pty Limited, Sydney, Australia
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1. Introduction

This paper presents perspectives and considerations to trends in the use of management systems. In particular, the paper addresses:

- Management system trends in global and local supply chains
- The integration of management systems
- The capabilities of auditors required in global supply chains
- The future of management systems.

2. The Global Environment

The beginning of the 21st century witnessed significant global events including the convergence of organisations and technologies.

As recently as 8 January 2003 at the Consumer Electronics Show in Las Vegas, Bill Gates presented a new Microsoft wrist-top that links a fashion accessory and time piece with information - *news, finance, sports results* and the *weather* - all readily available on the wrist.

At the end of the 20th century, global ***gross domestic product (GDP)*** was valued at around US$30 trillion (source - World Bank 2001 World Development Indicators and the US Department of Commerce).

The greater percentage (65%) of this amount came from the ***Services sector*** (Wholesale and Retail Trade; Hotels and Restaurants; Transport, Storage and Communications; Financial Services; Real Estate; Public Administration including Defence, Social Security, Education and Health). The ***Industry sector*** (Mining; Manufacturing; Electricity, Gas and Water; Construction) accounted for nearly 30%, whilst ***Agriculture*** (Agriculture, Hunting and Forestry; Fishing) accounted for nearly 5%.

Australia had a GDP value of US$404 billion, of which over 70% was associated with the Services sector.

One-third of the world's population of more than six billion people was found in two emerging economies - China and India. In a ***"Global Economic and Market Outlook"*** presentation (February 2002) by BT Funds Management, key points made included:

- Over the ten years 2002-2011, Australia is expected to record amongst the strongest growth (3.4% GDP average annual change) of any nation in the OECD. The United States is expected to record 2.9% real GDP growth, Spain 2.9% and New Zealand 2.8%. Inflation is expected to remain less than 3% in each of these countries.

- Japan is expected to have an annual GDP of 1.4% over this same ten-year period, with a near zero inflation rate.

- The greater Asia-Pacific region, forecast to be the fastest growing global economic region in the same ten year period, has projected fast-growing economies as measured by average annual % GDP change to be China (7.3%), India (6.2%), Malaysia (5.3%), Singapore (4.8%), South Korea (4.8%) and Indonesia (4.6%).

A Sustainable Future and the Triple Bottom Line

The *Sustainable Future* agenda has been long understood to address both economic prosperity and environmental quality, but was more complex than anticipated by some organisations that embraced it. The Sustainable Future agenda encompasses a third dimension, that is social responsibility, and hence the **"Triple Bottom Line"** (TBL) concept has emerged.

Some traditionalists have argued that a company should focus only on its responsibility to its shareholders in terms of ROI. Business on the whole has accepted, however, responsibility for environmental impacts of their organisation's operations.

While environmental, health and safety reports are common, reports that focus on the social performance of an organisation are less common and are perhaps more challenging. Some industry sectors such as mining, petroleum and chemicals are making significant headway with the application of the TBL.

In agriculture, the approach to sustainable land use requires a sound understanding of the risk profiles of key business elements. The impact of risk profile management will be on market acceptance and community endorsement.

The implementation of a TBL approach to organisation monitoring and reporting is premised on:

- A strategic approach to economic, environmental and social considerations
- The definition of values associated with economic, environmental and social matters
- Identifying and measuring performance areas of importance to key stakeholders
- Using 3rd parties to verify and validate performance.

Key outcomes and benefits from the TBL approach include:

- Reducing risk exposures and liabilities
- More efficient use of resources
- Enhanced marketplace and community perceptions.

At a Sustainability Forum held in Sydney in July 2001 and from the Head of Social Responsibility at the AMP: "Sustainability is a criterion for identifying the industries of the future, such as *renewable energy, information technology, education, health care, water and waste management".*

3. Trends in the use of Management Systems in Global and Local Supply Chains

For industries and organisations that utilise management systems, there are key drivers that include:

- International trade eg country-to-country trade arrangements
- Global supply chain management - value creation in supply chains and end user confidence in both products (services) and systems
- Regulatory environments
- Corporate social responsibility and sustainability
- Risk minimisation including product liability, environmental impact and people impact.

At the 7th International Conference on ISO 9000 and TQM (ICIT) held in Melbourne in February 2002, Professor Alan Brown of Edith Cowan University WA commented that "the business sector in Australia was showing less interest in business excellence awards and ISO 9000 when compared with the 1990s. By the early 2000s, the attitude towards quality had changed, with the focus on:

- Integration with business rather than separate quality programs
- Integration with other management systems such as OHS
- Strong links between quality, organisational strategy and performance management systems
- Fewer quality only teams
- Much less reliance on quality departments and specialists, with increased responsibility for quality given to line managers
- Less enthusiasm for the adoption of business excellence frameworks
- Performance based indicators that are common in enterprise agreements
- Integration of ISO 9000 and TQM and
- Adoption of more specific standards such as environmental, health and safety and food standards.

There is a range of international and industry specific standards for use by organisations and their *supply chains*. These exist for *management systems and products*, and address quality, safety, environmental management and product performance.

The ISO standards are well known eg ISO 9000 and ISO 14000 for Quality and Environmental Management respectively and there is an increasing trend for industry specific standards to be developed that use these standards as a baseline.

Recent trends in the certification (certificates issued) of both ISO 9000 and ISO 14000 (taken from annual ISO Surveys) are:

	December 1995	December 2000	December 2001
ISO 9000	**127 349 (96)**	**408 631 (157)**	**510 616 (161)**
ISO 14000	**267 (19)**	**22 895 (98)**	**36 765 (112)**

( ) Figures in parenthesis are the number of countries

The overall percentage of organisations globally that are certified to ISO 9000 is very small (estimated at between 1%-3%). Many of these organisations are considered to be small-to-medium companies.

There has been a noticeable slowdown in the renewal of ISO 9000 in Australia, New Zealand and the UK.

The fastest uptake of ISO 9000 has been in China, Korea, Japan, Italy and Spain. The impact of the expanding European Union may explain the recent trends in both Italy and Spain.

Based on recent (2002) research into global industries and supply chains including the *aerospace, automotive, ITC, food and chemical* industries, organisations and industry associations, the following observations were made:

- Organisations use various tools and techniques as part of continuous improvement practices. They include the use of ***Business Excellence frameworks*** and associated awards processes eg US Malcolm Baldrige Award, the European Quality Award and the Australian Business Excellence Framework, as well as international standards such as ISO 9000.

  The business excellence frameworks have attracted "new sectors" since the late 1990s, that is, small business, health and education; the manufacturing sector appears to have taken less interest in the awards process in the same period. Organisations that have used the frameworks for some time have typically "internalised the framework" for improvement purposes rather than for formal award application.

- ***Six Sigma*** that commenced in the mid-1980s at Motorola, has had a major resurgence in the USA in recent years - another tool assisting with an organisation's ongoing business and process improvement. Many global companies appear to have enthusiastically embraced Six Sigma, for example GE, Ford, Whirlpool, Mitsubishi, Dow Chemicals, DuPont and GE Plastics. It is now possible to use real-time and web technology with Six Sigma, which has increased its usefulness.

  Six Sigma has successfully been applied in discrete and flow manufacturing commercial applications and service and software processes.

- Organisations and supply chains use voluntarily or otherwise (in regulated environment within country, or for country-to-country trade arrangements), standards and management systems to assist with organisation and systems improvement, or specifically, for product and operating equipment compliance.

- Criticisms by some industries (eg automotive, aerospace and health) and organisations levelled at international standards such as ISO 9000 is that the standards are *"too broad"* and are *"not product focussed".* Some value is attributed to them in bringing process rigour to organisations, and in the training of staff.

  The value of the generic management standards such as ISO 9000 appears greater in developing economies and organisations than in mature industries and organisations, as a means to participate in international trade and in some instances, to "catch up" with developed economies.

  In some global industry sectors eg the automotive industry, *tailored certification programs* and/or *self-declaration* are being developed and implemented. As the number of management system certifications continues to grow, certification will cease to become a ***competitive differentiator***.

  Issues are already being addressed and standards drafted to illustrate some of the differentiators that may create the next wave in quality assurance and certification. *Some of these future directions include certification that takes standards beyond quality systems to encompass other business factors.* Industry-specific standards eg TS 16946 (replaced QS-9000) and AS 9000, for the automotive and aerospace industries respectively, have been created based on the ISO 9000 model and are already gaining strongholds in their industries.

  For example, the "Big Three" United States auto-makers may still wish to audit suppliers with TS 16946/QS-9000 certification, but with a quality system already in place, they can focus their time and efforts on specific areas rather than concerning themselves with an entire operation. In addition to industry standards, independent organisations are also working to establish new standards that will ensure quality beyond the traditional systems with which many manufacturers are familiar.

- ISO 14000 is gaining rapid prominence in some parts of the globe and specifically in the Forestry industry.

- ***Risk management*** in the broadest sense is a current and future key component of an organisation's ***supply chain management*** strategy and practices. Global industries and organisations are seeking:

  - Risk minimisation in the supply chain
  - Value in the use of and certification (1st, 2nd or 3rd party) to standards and/or systems
  - Confidence generation to "customers" in the supply chain and to the end consumer for the safety, conformance requirements and functionality of products and equipment.

  Within the risk management framework, the use of *industry or government specific standards* may be applied eg for food and food safety/security that require compliance checks using internal and/or external ie 2nd or 3rd party auditors.

  On a voluntary basis, business-to-business decisions in purchaser-provider arrangements may lead to the requirement of 2nd or 3rd party certification of a product and/or system, or *self-declaration* which is associated with a high degree of trust and consistent product performance. Some global industries now have a greater role in the certification and training of auditors.

- The use of non-financial audits on management systems varies widely; in a regulated environment there is more focus on 2nd and 3rd party audits; in a voluntary environment - there is a move away from audits to self declaration.

  With some organisations in the US food industry, and for topics such as GMOs, food safety and systems specifically, 2nd party audits are used on suppliers in some supply chains and 3rd party audits for HACCP.

  In the aerospace industry, 2nd and 3rd party audits are conducted in the supply chain on management systems and with product certification. A major aircraft manufacturer indicated that they get a lot of value in using 3rd party auditors for management systems, and use internal auditors for product safety and compliance audits.

In the chemical industry, 3rd parties are used on occasions to audit Risk Management programs. Several major electronics and food companies are moving to self-declaration mixed with 3rd party audits. One global food company is using *team-based audits* at one time, covering multiple facets of a supply chain including product, equipment, process, safety and environmental audits.

Agriculture and Food Industries

- Agriculture and the associated food industry are a key focus for several international organisations including FAO and WHO, and global retailers operating in global supply chains.

- The **Codex Alimentarius Commission** is a commission under the auspices of the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO) of the United Nations whose purpose is to establish a *codex alimentarius,* or food code, that will formulate and harmonise food standards across the world.

- The **HACCP program** as applied to the food industry, is a set of principles and guidelines that can be used in conjunction with management systems such as ISO 9000.

  Per se, HACCP is not a Certification program. HACCP is widely used in the Australian Food industry, and is growing in its application in Europe, SE Asia and Africa. It is considered that no International Standard is likely for Food Safety, but countries such as Australia will continue to develop programs for sectors within the Agricultural industry such as the meat, seafood, horticulture and egg sectors.

- **Global retailers** through the **CIES Food Safety Program,** a global food industry forum, are connecting to develop and implement Food Safety programs. The program addresses the growing need for the harmonisation of the international food safety criteria and provides the opportunity to influence the overall direction of food safety within the global food business in the 21st Century.

  The purpose of the CIES program is to provide a unique opportunity to learn about the progress of the Global Food Safety Initiative and the new tools this initiative has developed in order to help position a company at the forefront of food safety. The benefits of the CIES Food Safety Program are threefold:

  - Learning about the developments of the Global Food Safety Initiative
  - Exposure to the latest trends and developments in the global food business within the context of food safety
  - The opportunity to influence the overall direction of food safety and to explore the challenges of ensuring food safety within the retail industry, in the 21st Century.

- The **Australian food industry supply chain** suffers from a plethora of standards being applied to suppliers by the major retailers eg Woolworths and Coles, and by fast food chains such as McDonald's and Burger King. The impact to food processors/suppliers is one of both time and cost in compliance and auditing requirements.

Other Organisations

Social Accountability International

Social Accountability International (SAI), founded in 1997 as the Council on Economic Priorities Accreditation Agency (CEPAA), is working to address the growing concern among consumers about labor conditions around the world.

Since the early 1990s, a growing number of companies from the US and Western Europe have responded by publishing workplace codes of conduct, which they seek to enforce in their own factories and their suppliers' factories.

Industry Cooperation on Standards & Conformity Assessment

In 1996, an informal organisation was formed - *Industry Cooperation on Standards & Conformity Assessment - ICSCA*. It is a group of corporate standards professionals and business executives from 12 countries, 44 globally acting companies and 13 industry associations.

ICSCA's **vision** is *"to have the ICSCA perceived as a valuable resource for both the public and private sectors in the development of global trade initiatives that:*

- Advance the well-being of the people of the world by eliminating non-tariff barriers to trade and commerce
- Foster implementation of a globally accepted system that will promote global trade
- Enhance the value of products by supporting common global activities and prevent the misuse of standards development practices
- Reduce the transition time to move from paper to electronic communication systems".

4. The Integration of Management Systems

At a simple level, the ISO 19011:2002 standard provides guidance on the principles of auditing, managing audit programs, conducting quality management system audits and environmental management system audits, as well as guidance on the competence of quality and environmental management system auditors.

It is applicable to all organisations needing to conduct internal or external audits of quality and/or environmental management systems or to manage an audit program. The application of ISO 19011 to other types of audits is possible in principle provided that special consideration is paid to identifying the competence needed by the audit team members in such cases.

The development of ISO 19011 is a document that bridges the gap between the ISO 9000 and ISO 14000 families of standards, allowing a single audit of both systems.

The recent industry research indicated that in developed economies integrated management systems and associated audits were being considered, and some progress, albeit slow, was being made.

5. Auditor Capability in Industries and Supply Chains

There are primarily two broad groups of management system auditors:

- Those providing base level, generic services ie auditing against ISO 9000 and ISO 14000
- Those providing tailored and industry specific auditing services (with associated industry and product knowledge).

The types of auditor (non-financial) characteristics required varies from industry to industry, subject to the level and types of industry and technical knowledge required. Auditor competency and requirements will be very broad to very specific depending on the industry and the type of audit eg regulatory compliance, management system, product, process, equipment and supply chain.

Industries that are using industry developed/tailored standards with internal and specifically with 2nd and 3rd party audits, are seeking more than general auditing skills - they are seeking persons with:

- Industry knowledge
- Sound auditing skills
- And in many cases, very specific technical knowledge.

The technical knowledge requires experience in the process (or product, equipment) that is being audited; an understanding the processes and systems of the business which some believe takes five years experience to understand.

The competencies vary widely and depend on the type of audit (for internal, 2nd and 3rd party) and whether the audit is of a process, system or product compliance, where industry, equipment and product knowledge are critical for the auditor, as well as auditing skills and knowledge of a supply chain, types of facilities (eg processing plant), standards, regulations and/or laws.

The base level skill is an understanding of ISO 9000. For some of the major industries researched, *industry specific standards* that require internal, 2nd and 3rd party audits by competent auditors; the auditor competency may be evaluated by a 3rd party certification organisation and/or by the industry itself. Team audits and self-declaration (in place of audits) are attracting the attention of some large organisations in several industries.

The advent of "knowledge management" in developed economies needs to be considered and translated into the audit process. Some organisations commented that those auditors undertaking "risk assessments" add real value.

Inconsistency, ethics and fraud were referenced by major industries as concerns when using 3rd party auditors. A clear message emerging from major industries and industry associations that use 3rd party auditors is that "one cap does not fit all".

6. The Future of Management Systems

- An ***integrated approach*** to ***business risk management*** is emerging that will encompass, at the very least, the elements of the triple bottom line and health and safety.

  For larger corporations, this will mean the use of computer modelling to simulate, monitor and evaluate risks in the context of supply chains. Developed economies will move in this direction, with both the **voluntary** and **regulated** use and assessment of product standards and management systems in place.

  Industries and organisations will have a "social accountability" to assure their markets of product safety and quality, and effective people and environmental management. Regulated assurance will typically be government initiated, and voluntary will include **3rd party certification, self-declaration** and **peer reviews** in the context of industries and supply chains.

- For increased trade and commerce, there will be "an appropriate application of industry guided international standards, and a belief that such standards will *add value to products* that are produced in the industry's supply chains". Product liability considerations will be included with such standards.

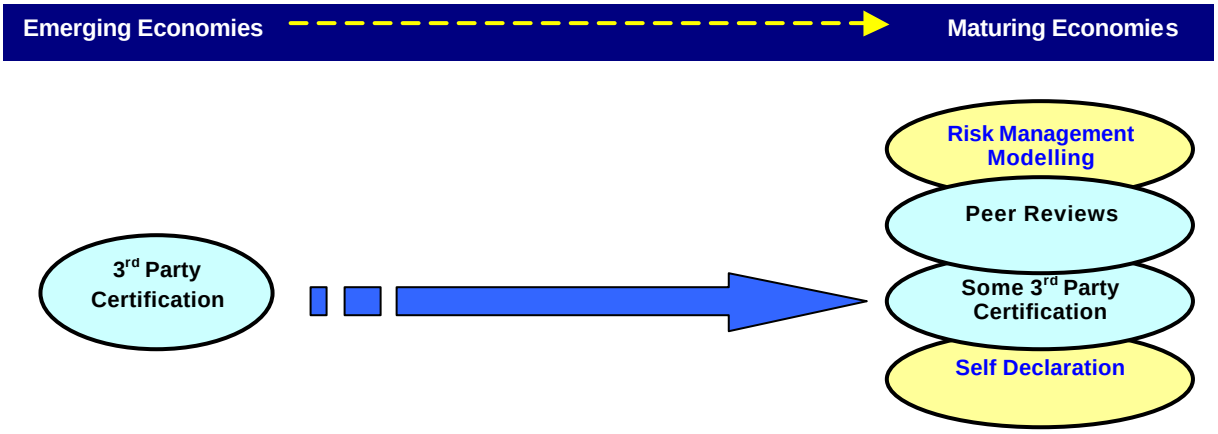
- Trends in developed economies for standards and/or management systems will include a focus on security of data, information, physical, product, food, and people, risk and environmental management, and getting back to basics in managing business processes. In the food industry in the US for example, product and environmental protection is a high focus - risk management with food inputs such as water supplies and food ingredients.

- There will be **increased regulation** by governments and some industries on a global basis. Product certification will remain in place for numerous product suppliers in some sectors (eg electronics, agriculture) due to national and international regulatory requirements. In some service sectors, peer reviews will replace 3rd party certification of management systems and standards.

- Major corporations in various industry sectors in developed countries such as the USA, parts of both Europe and Asia, will increasingly move to **self-declaration**. In some cases, this will be linked to the power of an organisation's **brand** eg IBM, Nike, Coca-Cola and Boeing, and the associated perceptions of product consistency, quality and safety, and sound environmental management practices.

- **Developing regions** and **countries** will continue to rapidly adopt international and/or industry standards and 3rd Party Certification - an impact of the WTO and trading arrangements. With "voluntary" assurance, the **emerging economies** will use Certification in a traditional form, while mature markets will move increasingly to **risk management modelling** and **self-declaration**.

  Global risk management, therefore, will be a continuum: moving from paper based audits/Certification, to computer modelling and electronic risk management evaluation. Mature economies, industries, supply chains and organisations will use modelling to simulate and evaluate risk.



- There will be growth in **integrated audits** (across several disciplines including quality, safety, security, operations, and environment) within the **risk management focus** in mature markets - financially and non-financially oriented.

- Certified Practising Accountants will undertake non-financial audits; consulting companies will move further into Risk Management modelling and Certification as service offerings. There will be an expectation of **"greater value and innovation to an organisation"** from these service providers eg the impact on the bottom line for private sector clients.

- In both developing and maturing economies, organisations will continue to look for **"business, organisation improvement and innovation" models**. The application of these models will be adapted to private to public sector organisations, and adapted to small-to-medium enterprises.

  Cost, business interest, understanding and perceived value by SMEs will remain critical for the implementation of such models and systems.