

COMPARISON BETWEEN OEF, ISO 9000, LEAN, & SIX SIGMA

When striving for excellence, organizations use a variety of approaches. Some of the most popular approaches used today are Excellence Frameworks, ISO 9000, Lean Enterprise, and Six Sigma.

That said, most leaders are confused. Technical jargon aside, these professionals have some basic questions that need to be answered. *What are the key elements of each approach ? Which approach is best for our organization ?*

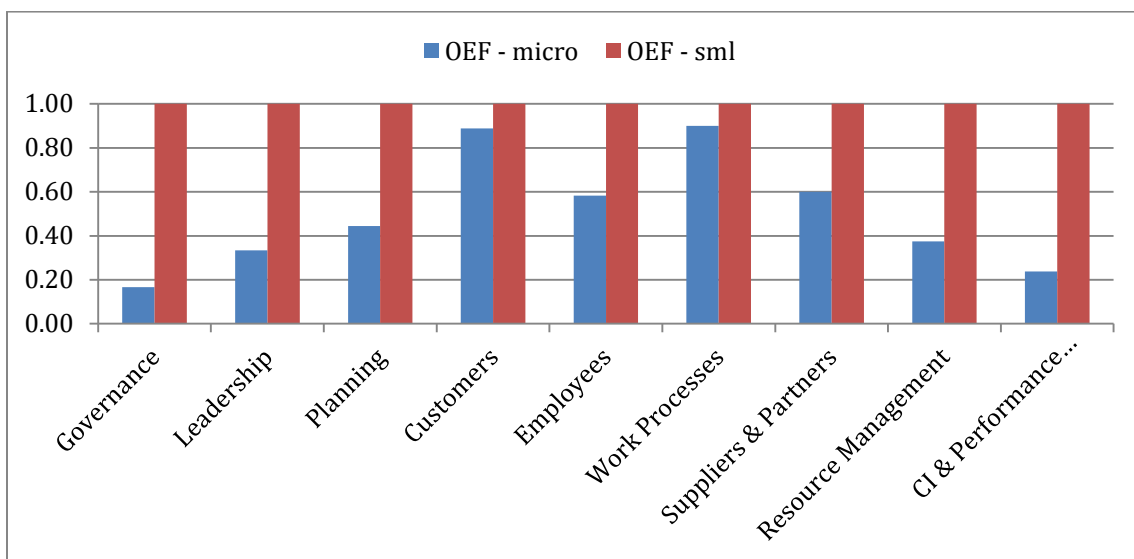
The intent of this article is to demystify the most popular approaches by highlighting the key similarities and differences that exist between the Organizational Excellence Framework (OEF), ISO 9000, Lean Enterprise and Six Sigma so that leaders can choose the best approach for their organization.

Organizational Excellence Framework

The OEF is a *quality management system* that is based on leading global excellence frameworks. It is comprised of principles and best management practices that are common to world class organizations. Over 20 years of research has validated the positive relationship between implementing an excellence framework and organizational performance.

The OEF is unique in that it ‘consolidates’ the leading frameworks and includes ‘implementation guidelines’ for the practitioner. It is comprised of 9 principles that describe the organizational culture and 9 key management areas that contain best management practices. While the best management practices in the entire framework (95 practices) are applicable to small, medium, and large (sml) organizations, an abbreviated subset of these practices (45 practices) are applicable to micro size organizations (Figure 1).

Figure 1. Comparison between the Micro and SML Versions of the OEF



Today, 86 countries have an organizational excellence (award) program that recognizes organizations for implementing an excellence framework and sustaining performance improvement. While only a small percentage of organizations pursue an award, the vast majority of organizations that implement an excellence framework are motivated to be world class or best in class with respect to efficiency, effectiveness, productivity, and continual improvement.

To monitor their performance, these organizations voluntarily conduct an annual assessment of their organization against the excellence framework. The assessment is accomplished by using internal and/or external assessors.

ISO 9000

ISO 9001:2008 is a *quality assurance system or standard*. The standard was designed by the International Standards Organization to help organizations ensure they meet the needs of customers and other stakeholders. The standard includes a set of best management practices that cover:

- Quality management system - documentation requirements (policy, manual, documents and records)
- Management responsibility – management commitment, customer focus, quality policy, planning, responsibility, authority and communication, management representative, internal communication, management review
- Resource management – provision of resources, human resources, infrastructure, work environment
- Product realization – planning of product realization, customer related processes, design and development, purchasing, production and service provision, control of monitoring and measuring equipment
- Measurement, analysis and improvement – monitoring and measurement, control on non-conforming product, analysis of data, improvement

Third party registration bodies provide independent confirmation that organizations meet the requirements of ISO 9001. Most organizations become registered to ISO 9000 because their customer demands it.

The ISO 9001 standard is updated from time to time and each revision appears to add best management practices that are common to excellence frameworks.

Lean Enterprise

Lean enterprise is a *work process improvement methodology* that is based on a management philosophy derived mostly from the Toyota Production System (TPS). The TPS is renowned for its focus on reduction of the seven wastes to improve overall customer value. These wastes include:

- Transport - moving products that are not actually required to perform the processing
- Inventory - all components, work in process, finished product not being processed

- Motion - people or equipment moving or walking more than is required to perform the processing
- Waiting - waiting for the next production step
- Overproduction - production ahead of demand
- Over Processing - resulting from poor tool or product design creating activity
- Defects - the effort involved in inspecting for and fixing defects

In recent years, other practitioners have added wastes to lean enterprise such as 'goods or services that do not meet customer demand or specifications' and 'unused human talent'.

The three steps to achieve a lean system include: design a simple manufacturing system, recognize that there is always room for improvement, and continuously improve the lean manufacturing system design.

A fundamental principle of lean manufacturing is demand-based flow manufacturing that pulls inventory through the system when it is needed most. The benefits of working this way include: decreased cycle time, less inventory, increased productivity, and increased capital equipment utilization.

Six Sigma

Six Sigma is a *work process improvement methodology* that uses a set of tools and techniques/strategies originally developed by Motorola in 1985. It became well known after Jack Welch made it a central focus of his business strategy at General Electric in 1995.

Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in manufacturing and business processes. It uses a set of quality and statistical methods and creates a special infrastructure of people within the organization (Champions, Black Belts, Green Belts, Yellow Belts, etc.) who are experts in the methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps and has quantified value targets (e.g. process cycle time reduction, customer satisfaction, reduction in pollution, cost reduction and/or profit increase).

Two project methodologies are used:

DMAIC

- **D**efine the problem, the voice of the customer, and the project goals, specifically
- **M**easure key aspects of the current process and collect relevant data
- **A**nalyze the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation
- **I**mprove or optimize the current process based upon data analysis and set up pilot runs to establish process capability
- **C**ontrol the future state process to ensure that any deviations from target are corrected before they result in defects. Implement control systems such as statistical process control to continuously monitor the process

DMADV

- Define design goals that are consistent with customer demands and the enterprise strategy
- Measure and identify the characteristics that are critical to quality (product capabilities, production process capability, risks)
- Analyze to develop and design alternatives
- Design an improved alternative, best suited per analysis in the previous step
- Verify the design, set up pilot runs, implement the production process and hand it over to the process owner(s).

Six Sigma is most often applied in large organizations.

Synopsis

Figures 2 and 3 and Appendix 1 provide an overview of the principles and best management practices of the OEF and highlights where there are slight to significant overlaps with the practices used in ISO 9001, Lean Enterprise, and Six Sigma.

Figure 2. Comparison to the Principles of the OEF

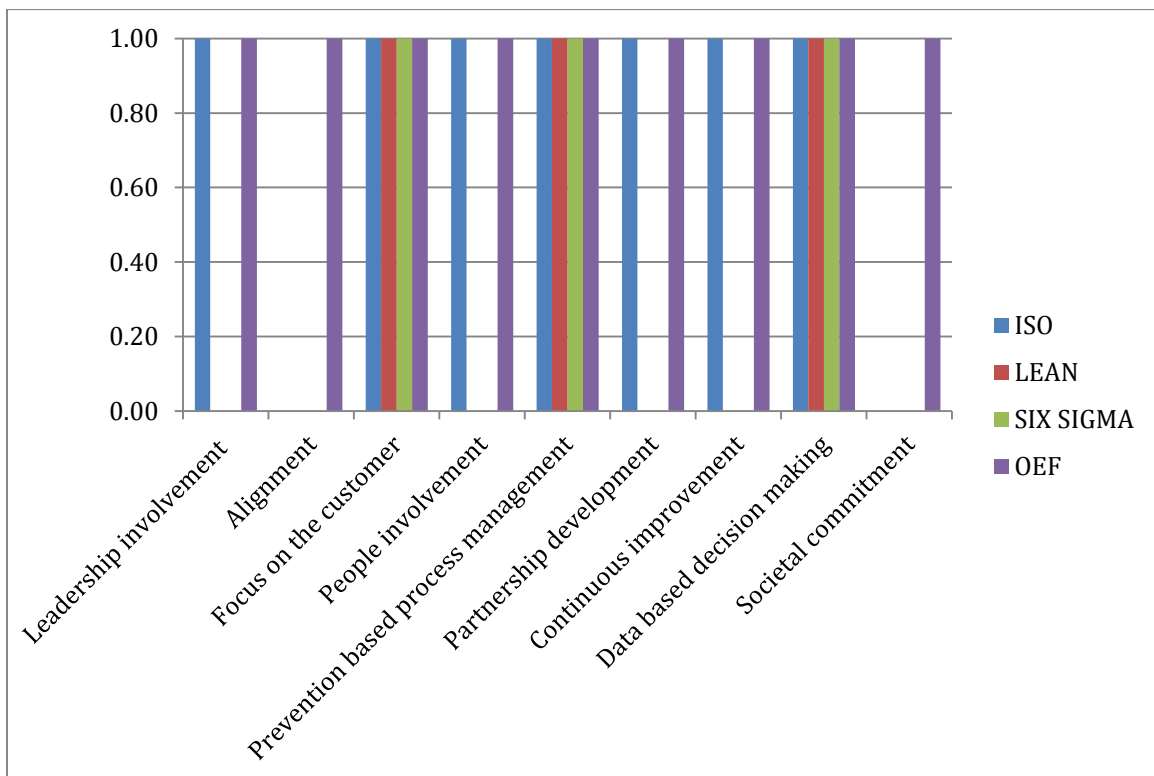
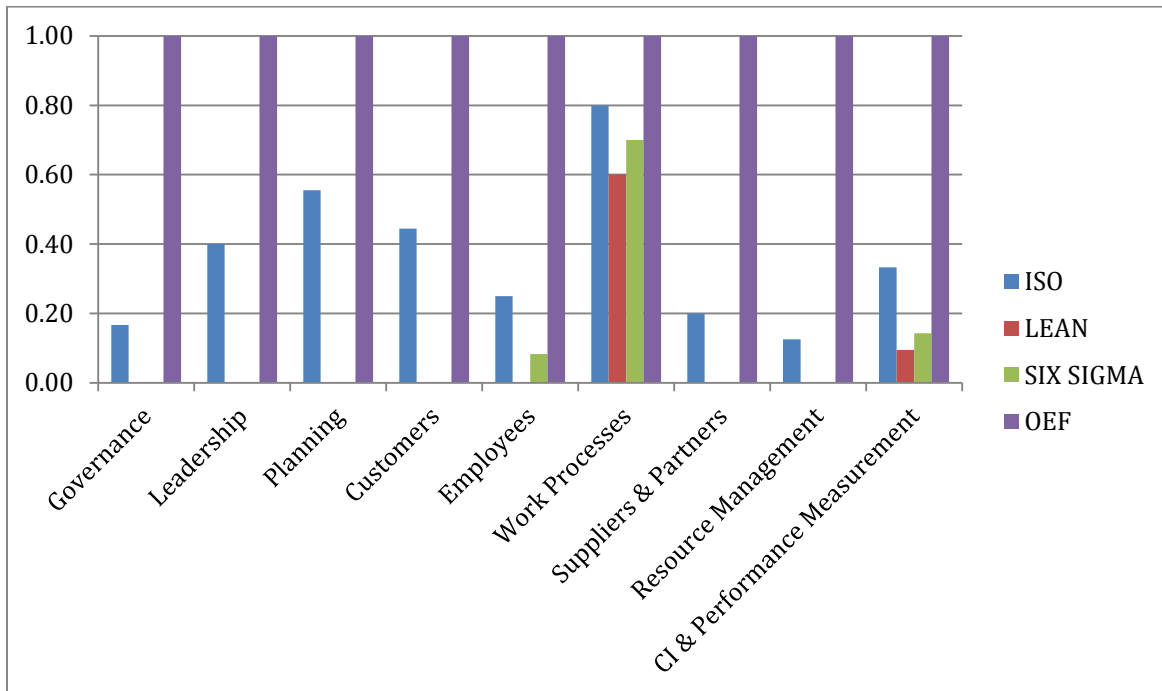


Figure 2, Comparison to the Key Management Areas of the OEF



Overall, the OEF shares most principles with ISO with the exception of alignment and societal commitment and shares several principles with Lean Enterprise and Six Sigma such as focus on the customer, prevention based process management, and data-based decision making.

With respect to the key management areas, the OEF is a far more robust quality management system that includes the components of the ISO 9001 quality assurance system and can easily accommodate the more detailed documentation requirements of ISO.

Finally, the OEF sets the foundation for the work process improvement methodologies of Lean Enterprise and Six Sigma. Accordingly, there is considerable overlap in the Work Processes key management area and some overlap in the Performance Measurement area, particularly customer and work process measures.

It can be concluded the OEF serves as a solid foundation for any size or type of organization and provides an umbrella under which other standards, such as ISO 9001, and process improvement methodologies, such as Lean Enterprise and Six Sigma, can be easily accommodated.

Article written by Dawn Ringrose MBA, FCMC
info@dawnringrose.com
dawn@organizationalexcellencespecialists.ca

Dawn Ringrose is Principal of Organizational Excellence Specialists and Author of the Organizational Excellence Framework. Qualifications include: Certified Organizational

Excellence Specialist (OES, 2011), Certified Excellence Professional (NQP, 2004), Registered ISO 9000 Specialist (ICMCC, 1996), Assessor of Quality Systems (IQA IRCA, 1996),

The Organizational Excellence Framework is a unique publication that 'consolidates' the principles and best management practices from global excellence frameworks and provides 'implementation guidelines' and additional resources for the practitioner.

Organizational Excellence Specialists work with organizations to improve performance and make a positive contribution to productivity.

APPENDIX 1 – Comparison between the OEF and ISO 9000, Lean, & Six Sigma

OEF Principles

	ISO 9000	Lean	Six Sigma
1. Leadership involvement – ensuring senior management is actively involved in establishing and communicating direction.	x		
2. Alignment – understanding the organization is a system of interrelated and interconnected work processes and all activities need to be aligned with the established direction.			
3. Focus on the customer – ensuring the primary aim of everyone in the organization is to understand and meet the needs of the customer.	x	x	x
4. People involvement – nurturing and reinforcing cooperation and teamwork and giving employees the opportunity to develop their full potential.	x		
5. Prevention based process management – establishing consistency in work processes and developing a mindset of prevention.	x	x	x
6. Partnership development – developing and maintaining value-adding relationships with suppliers and partners.	x		
7. Continuous improvement – harnessing the collective knowledge, skills, and creativity of stakeholders to relentlessly pursue improvement.	x		
8. Data based decision making – basing decisions on performance measurement findings.	x	x	x
9. Societal commitment – striving to understand and demonstrate corporate commitment to society.			

OEF Management Areas and Best Management Practices

(note: all practices applicable to small, medium and large organizations, * denotes applicability to micro size organization)

1.0 Governance	ISO 9000	Lean	Six Sigma
1.1 Identify governance responsibility to stakeholders (e.g. core values, policies, regulations, process)			
1.2 Implement an effective system of leadership, authority, decision making, accountability, and control			
1.3 Ensure governance system meets legal, financial, ethical, and reporting obligations*			
1.4 Establish governance processes at all appropriate levels in the organization (i.e. roles, powers, responsibilities) and links to stakeholders			
1.5 Act as a model of good practice for employers and people in the community			
1.6 Communicate policy and strategy to stakeholders	x		
2.0 Leadership	ISO 9000	Lean	Six Sigma
2.1 Develop corporate statements (e.g. vision, mission, core values) *	x		
2.2 Communicate corporate statements to all levels in the organization *	x		
2.3 Identify factors that will contribute to organizational success			
2.4 Develop a strategic plan with goals and objectives that will guide the organization toward its vision			
2.5 Use risk management to assess strategic goals and objectives			
2.6 Monitor and review the strategic plan on a regular basis	x		
2.7 Ensure senior management demonstrates a commitment to continuous improvement *	x		
2.8 Ensure senior management participates in professional bodies, conferences, and seminars			
2.9 Remove barriers to organizational effectiveness			

2.10 Promote teamwork amongst employees *			
2.11 Communicate openly to employees about organizational performance	x		
2.12 Share responsibility, accountability, and leadership throughout the organization	x		
2.13 Link senior management rewards and recognition to organizational performance			
2.14 Demonstrate responsibility to society and the environment *			
2.15 Learn from ideas and good practices and share them internally and with other organizations			
3.0 Planning	ISO 9000	Lean	Six Sigma
3.1 Use factual information to provide input to the business planning process *	x		
3.2 Create a business plan that identifies, prioritizes, and incorporates a balanced set of objectives, measures, and initiatives that support the strategic direction *	x		
3.3 Develop contingency plans for unforeseen events			
3.4 Communicate and integrate the business plan internally and externally			
3.5 Allocate resources to ensure effective implementation of the business plan	x		
3.6 Conduct a capability gap analysis for resources (e.g. financial, assets, technology, knowledge, information)			
3.7 Reallocate resource requirements to adjust to changing circumstances			
3.8 Monitor and review the business plan on a regular basis *	x		
3.9 Make changes to the business plan aimed at continual improvement *	x		
4.0 Customers	ISO 9000	Lean	Six Sigma
4.1 Use research to define and segment customers *			
4.2 Determine customer needs and expectations *	x		

4.3 Communicate the value of products and services to the customer *			
4.4 Align employees on the importance of the customer *			
4.5 Train and empower employees to be advocates for the customer *			
4.6 Ensure positive customer experiences by identifying and managing customer contact points *	x		
4.7 Make it easy for the customer to do business and provide feedback *	x		
4.8 Respond successfully to customer feedback *	x		
4.9 Reaffirm presence in established markets or the requirement to change market approach			
5.0 Employees	ISO 9000	Lean	Six Sigma
5.1 Undertake human resource planning that supports organization goals and objectives *	x		
5.2 Recruit and select people for mutual success*			
5.3 Promote equal opportunity and diversity			
5.4 Ensure people understand and commit to the strategic direction and improvement goals			
5.5 Get people involved with improvement initiatives	x		
5.6 Encourage employees to share ideas and suggestions *			x
5.7 Encourage employees to be innovative and take risks			
5.8 Determine training needs of employees and provide the necessary training *	x		
5.9 Ensure employees have adequate compensation and benefits *			
5.10 Reward and recognize strong performance of both individuals and teams *			
5.11 Ensure a healthy workplace environment and involve people in addressing issues related to health and wellness *			
5.12 Remove barriers to employee effectiveness			

6.0 Work Processes	ISO 9000	Lean	Six Sigma
6.1 Design and document key processes *	x	x	x
6.2 Monitor and control processes to ensure service standards are met consistently *	x	x	x
6.3 Monitor and control processes to ensure system standards are met consistently (e.g. quality, environment, health & safety) *	x	x	x
6.4 Ensure processes are in place to anticipate or adjust for change (e.g. legislation, new venture, innovation)	x		
6.5 Take corrective action when problems occur *	x		x
6.6 Prevent recurrence of problems by making changes to processes *	x	x	x
6.7 Analyze processes on a regular basis and make changes aimed at continual improvement *	x	x	x
6.8 Communicate changes in process to all employees that touch the process *	x	x	x
6.9 Involve customers, suppliers, and/or partners in designing and analyzing processes *			
6.10 Use external data to compare performance to other organizations (e.g. benchmarks)			
7.0 Suppliers & Partners	ISO 9000	Lean	Six Sigma
7.1 Select suppliers and partners on the basis of criteria *	x		
7.2 Develop win-win partnering arrangements *			
7.3 Share information with suppliers and partners that links to strategic and business plans *			
7.4 Involve suppliers and partners in the development of new products and services			
7.5 Involve suppliers and partners in the development of social and environmental standards			
8.0 Resource Management	ISO 9000	Lean	Six Sigma
8.1 Define resource requirements (e.g. financial, asset, technology, knowledge, transportation) *	x		
8.2 Develop a strategy to manage resources effectively *			

8.3 Manage the security of resources			
8.4 Minimize the adverse impact of products and services on the environment and community *			
8.5 Manage the maintenance and utilization of assets to improve total life cycle performance			
8.6 Identify alternative and emerging technology and related cost-benefit to the organization and society			
8.7 Provide appropriate access for stakeholders to relevant knowledge and information			
8.8 Prepare for resource interruptions			
9.0 Continuous Improvement and Performance Measurement	ISO 9000	Lean	Six Sigma
<u>Continuous Improvement:</u>			
9.1 Evaluate and improve the approach to each management area *			
<u>Management area measures:</u>			
9.2 Governance measures - stakeholder understanding of governance, community perception of organizational governance			
9.3 Leadership measures - management effectiveness & involvement, understanding about strategic plan, shared leadership, senior management sharing ideas and quality practices			
9.4 Planning measures - understanding about business plan, effective implementation of improvement plans, quality assessment findings			
9.5 Customer measures – perceived image of organization in the marketplace, customer awareness of the organization, perceived value of products and services, customer complaints, customer satisfaction, loyalty, confidence, and retention, market share	x	x	x
9.6 Employee measures - employee motivation, degree of employee involvement, satisfaction, morale, effectiveness of training, suggestions & ideas submitted and used, dissatisfaction (turnover, grievances, absenteeism)			
9.7 Work process measures - cycle times, process design changes, process capability, level of service / product quality, performance of products and services (e.g. refunds, warranty claims, repairs, replacements)	x	x	x

9.8 Supplier and partner measures – number of qualified suppliers / partners, quality & value of purchases, extent of supplier / partner involvement in new product/service development, extent of supplier / partner involvement in social and environmental standards	x		
9.9 Resource management measures – profitability, adherence to budgets, expenditure management, cost reduction / control, return on investment, return on assets, value of assets, effects of products and services throughout their life cycle, innovation rates, value of intellectual property, accessibility to knowledge and information, optimization of transportation			
<u>Organization measures:</u>			
9.10 Organizational relevance to the marketplace			
9.11 Organizational capability to manage change			
9.12 Meeting stakeholder objectives			
9.13 Community perception of organization as model of excellence or employer of choice			
9.14 Quality of products or services *	x		
9.15 Performance accomplishments and program outcomes			
9.16 Customer satisfaction *	x		
9.17 Customer loyalty	x		
9.18 Customer confidence	x		
9.19 Employee satisfaction *			
9.20 Employee morale			
9.21 Financial performance *			x

Sources:

Organizational Excellence Framework based on global quality management systems:

- Excellence Canada, www.excellence.ca
- Malcolm Baldrige, www.quality.nist.gov

- European Foundation for Quality Management, www.efqm.org
- SAI Global, www.sai-global.com

Quality assurance system (ISO):

- International Standard, ISO 9001:2008(E)
- <http://en.wikipedia.org/wiki/ISO9000>

Quality tools and techniques:

- Lean Enterprise Research Centre, www.leanenterprise.org.uk
- http://en.wikipedia.org/wiki/Lean_Enterprise
- http://en.wikipedia.org/wiki/Six_sigma