

Excellence in the Alberta Road Building and Heavy Construction Industry



The object of top quality is to make use of the brain power, creativity, and work experience of the entire workforce to create an unbeatable organization in its marketplace - Johnny Mercer

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Introduction

In cooperation with the Alberta Roadbuilders & Heavy Construction Association, NQI Advisory Services Alberta recently conducted a survey on excellence with the membership.

The research was motivated by a desire to measure the level of excellence that exists in the industry and identify what the industry is doing well, where it needs to improve, and suggest some targeted improvement areas.

This report shares the methodology, findings, conclusions and recommendations of this preliminary research.

Methodology

Two survey instruments were created, small organizations < 100 employees and large organizations 100+ employees.

Both instruments were based on the Canadian Framework for Excellence (National Quality Institute), a management model that depicts the principles and practices characteristic of high performing organizations throughout the world (Related Sources: Malcolm Baldrige in the United States, European Foundation for Quality Management, Standards Australia International).

Participants were asked to self-assess their organization on the extent to which these excellence practices were in place using the following rating scale:

- Nothing Being Done – no systematic approach, limited deployment, few or poor results
- Good Start – beginning of systematic approach, deployed in some major areas, some good results
- Doing Well – sound systematic approach, deployed across areas, good results
- High Performance – sound systematic approach, deployed across areas, good to excellent results compared to leaders in the industry
- World Class – sound systematic approach, deployed across areas, outstanding results compared to leaders in other sectors and countries

For the purposes of reporting the results and interpreting the findings, percentages were allocated to the rating scale, 20%, 40%, 60%, 80%, and 100%, respectively.

Findings

In total, 11 small organizations and 4 large organizations participated in the survey. Respondent organization size ranged from 6 to 85 employees for small organizations and 130 to 500+ for large organizations.

A summary of the findings is provided below. The findings identify industry strengths and opportunities for improvement. To assist industry with capitalizing on opportunities for improvement, several examples from high performing organizations have been provided.

Figure 1 shows the respondent breakdown by sector and reveals that 73% of respondents were from road building and heavy construction and 27% were from companies that provided services

to these sectors. Due to the limited sample size, few conclusions can be drawn on a sectoral basis, however, the degree of participation does provide a good start in evaluating the extent to which excellence practices are being used by industry in general.

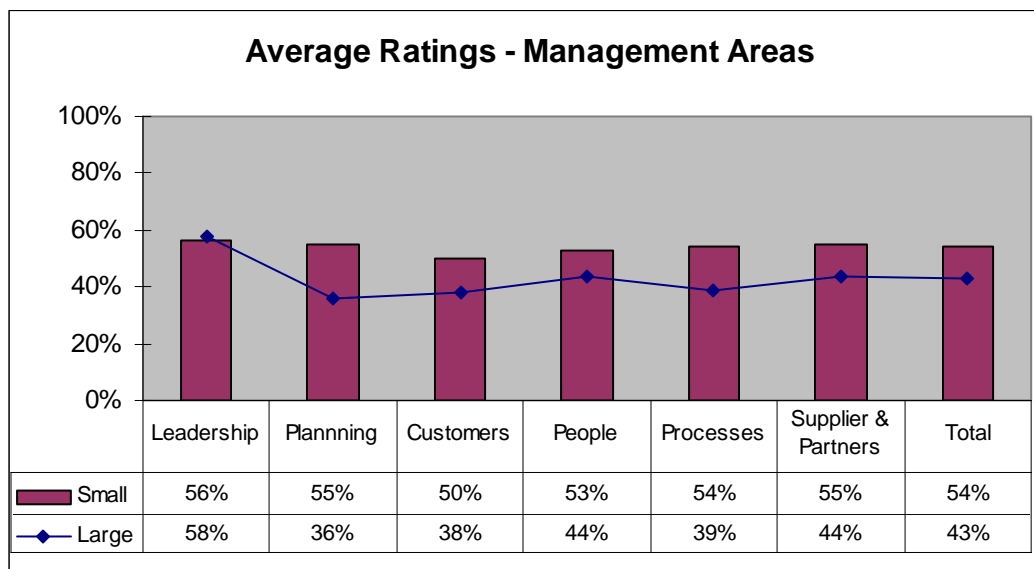
Figure 1. Survey Respondents By Industry Sector

Industry Sector	Small Organizations	Large Organizations
	#	#
Road Building	4	1
Heavy Construction	4	2
Other	3	1
Total	11	4

**Other – association, professional services, other services (testing, installation)*

Figure 2 depicts the average ratings for small and large organizations across practices in each of the management areas and for the total framework. The average ratings indicate **small and large organizations self-assessed leadership practices quite positively**. However, it was interesting that **small organizations had a tendency to provide much higher ratings across the remaining management areas as compared to large organizations**.

Figure 2. Average Ratings For Small vs Large Organizations



Appendices 1 and 2 provide more detailed self-assessment results across practices in the key management areas for both small and large organizations.

Small Organizations

The greatest opportunities for improvement for small organizations included **using research to define and segment customers** and **measuring performance across the key management areas**.

Gathering information on customer characteristics and requirements helps the organization serve the customer better. High performing organizations communicate to employees what the customer wants, needs, and expects. These requirements are further reinforced through clear, concise, and measurable 'standards' (statements of attitude, knowledge, skills, and behavior) necessary for each point of contact with the customer and 'work process maps' (work activities, decision points, performance data) that describe the flow of work. Employees are trained to deliver the standards and follow the work processes so that performance across the organization consistently meets customer requirements. To ensure customer requirements continue to be met, these organizations engage in ongoing performance measurement and monitoring results so that changes can be made to continually improve performance.

Although many organizations measure performance, there is a tendency to emphasize financial measures. Using a balanced set of measures across key management areas is the preferred route as it provides a more comprehensive picture of what is going well and what needs to improve in the organization. An example of performance measures across key management areas include the following:

- Leadership – degree of management effectiveness and involvement, level of understanding throughout the organization about the strategic plan, degree of shared leadership
- Planning – level of understanding across the organization about improvement plans, improvement plan deployment, findings on internal quality assessments
- Customers – number of complaints or refunds, level of customer satisfaction, degree of customer loyalty or retention
- People – effectiveness of training, degree of involvement, number of suggestions and ideas, employee turnover, number of grievances, level of employee satisfaction
- Processes – efficiency, consistency, level of service / product quality
- Suppliers and Partners – number of qualified suppliers, quality and value of purchases, extent of supplier / partner involvement in new product / service developments

These measures not only help monitor organizational performance over time but can be used to benchmark or compare performance to others. Some organizations take measurement to the next level, exploring the relationship that exists between measures.

An interesting example of a company that has explored the relationship between measures is Sears. One of the first companies to document the relationship between customer loyalty, employee satisfaction, and revenue, Sears demonstrated when employee satisfaction increased 5%, customer loyalty increased 1.3%, and revenue increased 0.5%. In 1997, this increase in revenue represented \$200 million in incremental revenue.

Large Organizations

Although large organizations showed strength in leadership practices, there were opportunities for improvement across the remaining **key management areas – planning, customers, people, processes, suppliers and partners.**

If you think capitalizing on these opportunities for improvement sounds like a big undertaking, you are absolutely right. Many organizations take three years to implement the Canadian Framework for Excellence. There are rewards along the way though. Most organizations notice tangible results in the second year which contributes to maintaining the momentum to full implementation and inspiring a culture of excellence focused on continual improvement.

A good example of a large organization in the construction industry that made a commitment to excellence and realized the benefits is Granite Rock Company. Lets take a closer look at this company's excellence journey and business practices across key management areas.



A California producer of construction materials, Granite Rock commenced their excellence journey in 1985. By 1992, the Company was recognized for implementing a quality management system with the coveted Malcolm Baldrige award (the US equivalent of the Canadian Framework for Excellence). At this point, their productivity was much higher than their industry counterparts with revenue earned per employee at 30% above the national industry average!

Today, the Company operates four quarries in Northern California and provides the basic material for construction including rock, sand, gravel, concrete, asphalt, road oils, and asphalt coatings, and masonry and wall-system projects. The company has a fleet of more than 500 railroad cars to transport rock, sand, gravel, and concrete, and also operates a fleet of delivery trucks. Its Pavex Construction unit builds roads and airports, as well as commercial and residential projects.

Leadership

Granite Rock has developed core values, a core purpose, and corporate objectives that clearly articulate the Company's focus and direction.

Five core values state the expectations for employees and the Company:

- Safety before all else
- Dedication to customer service excellence
- People growth and development
- Honesty and integrity
- Continuous improvement as a way of life

The core purpose is "to nurture exceptional creativity and innovation by supporting people's continuous and ambitious personal and professional growth in the pursuit of the highest quality products and services which advance global business standards and practices".

The corporate objectives are presented in a circle format because each objective is equally weighted in business performance assessments and receives prime consideration in business investment and other decisions made by personnel. In addition, the circle format helps to convey the supportive and synergistic relationship between the objectives.



The Executive Committee reviews and updates the objectives periodically as market conditions and opportunities change.

Committed to strengthening the communities in which they live and work, 700 employees volunteer personal talents and share financial support with more than 400 organizations in nearby Counties. A particularly popular fundraising event sponsored by the Company is "Pops and Rocks", where big name acts perform for those in attendance. Now embarking on its 15th year, "Pops and Rocks" has raised money for local symphonies, the United Way, and other local not-for-profit organizations.

Granite Rock has a policy of sharing its quality management system, approaches, and results with the business community. Each year, "Quality Day" consists of five hours of presentations in a classroom setting accompanied by meals and a tour of company facilities. To date, the Company has made presentations to over 8,000 people.

Planning

Annual baseline goals are developed by Senior Executives to focus company-wide improvement activities in support of the corporate objectives.

Charts for each product line help the Executives assess the Company's performance relative to competitors on key product and service attributes, ranked according to customer priorities. After annual improvement targets are set, the Executive Committee expects Branches and Divisions to develop their own implementation plans.

Coordination across Divisions is fostered by Corporate Quality Teams that oversee and help align improvement efforts across the entire organization. Although committees are chaired by Senior Executives, members include managers, salaried professional and technical workers, and hourly union employees. In addition to their direct responsibilities, the members of these teams carry out quality improvement projects. Most employees take part in at least one of the Company's quality teams.

Customer Focus

Granite Rock has identified two types of customers, the contractor who normally makes the purchasing decisions and the end point customer who ultimately pays for the buildings or roads made with Granite Rock materials. The Company makes a conscious effort to educate customers about the cost of compromising quality. By emphasizing the hidden costs associated with slow service and substandard construction materials, such as rework and premature deterioration, the company demonstrates the added value of working together.

To spread the quality message, the Company sponsors seminars for contractors, developers, architects, and suppliers. These seminars feature guest speakers who address issues, questions, and situations faced on the job.

As a result of investments in computer-controlled processing equipment and widespread use of statistical process control, Granite Rock has assured customers that materials exceed specifications and will be delivered on time. For example, the company's record for delivering concrete on time, a key determinant of customer satisfaction, rose from less than 70% in 1988 to 93.5% in 1991.

Granite Rock uses an annual survey that allows buyers to compare the Company to competitors, and conducts more detailed surveys on this topic every three to five years. Customer complaints are handled through product/service discrepancy reports that require analysis of the problem and identification of the root cause. Ultimate customer satisfaction is assured through a system where customers can choose not to pay for a project or service that does not meet expectations.

Dissatisfaction is rare. Costs incurred in resolving complaints were 0.2% of sales in 1991, as compared to the industry average of 2.0%.

People Focus

In 1987, the Company introduced the Individual Professional Development Plan where employees meet with their supervisors to define their job responsibilities, review accomplishments, assess skills, and set skill and career development goals. All employees are encouraged to continue learning and the company sponsors a series of classes with speakers on technical topics.

In 1991, employees averaged 37 hours of training at an average cost of \$1,697 per employee, three times more than the mining industry average and 13 times more than the construction industry average.

As part of the Company's effort to reduce process variability and increase product reliability, many employees are trained in statistical process control, root-cause analysis, and other quality assurance and problem-solving methods. Applying these practices has helped the Company reduce variable costs and produce materials that exceed customer specifications and industry and government set standards. For example, in 1991 Granite Rock's concrete products consistently exceeded industry performance specifications by 100 times.

Evidence of the Company's commitment to the people side of the business was recognition as one of the "100 Best Companies to Work for in America" by Fortune Magazine five years running, from 1998 to 2002!



I am given lots of opportunity to grow, both as a professional engineer and as a person. I was attracted to this company because of the camaraderie. I've been here for years and love it.
Vicki Narciso

Process Management

Innovative applications of technology have helped the Company enhance its service offerings and significant investment has improved production efficiency, quality control, and customer service. For example, responding to customer concern over rising trucking costs, the Company developed GraniteXpress. GraniteXpress is an automated system for loading aggregate where the driver inserts a credit card into a terminal, keys in the type and amount of aggregate, and proceeds to the loading facility where the truck is accurately filled over an electronic scale. The service operates 24 hours a day, 7 days a week, and has reduced the time a trucker spends at the quarry to 9 minutes, as compared to 24 minutes before GraniteXpress was installed.

Supplier and Partner Focus

In addition to sponsoring seminars for suppliers, Granite Rock has partnered with surrounding area Counties on a number of environmental projects. Such projects have included creating wetland and wildlife habitats, creating conservation areas, and funding outreach programs.

Another commitment on the environmental front, Granite Rock is one of the few ready-mix companies in California to equip all ready-mix trucks with the EnviroGuard Chute Wash System, a completely contained wash-out system.

Conclusions

Global studies on organizations implementing excellence models have shown these organizations significantly outperform their industry counterparts on investment growth - Canada 3.0 to 1.0, United States 4.8 to 1.0, Australia 3.5 to 1.0 (Sources: National Quality Institute, Malcolm Baldrige, Standards Australia International).

Measurement results reported by organizations using the Canadian Framework for Excellence (Canada Award of Excellence recipients, National Quality Institute) are impressive. An analysis of data over the past ten years indicated these organizations have collectively experienced: 60% decrease in employee turnover, 215% in cost savings, 90% increase in customer satisfaction, 33% increase in employee satisfaction, 82% reduction in cycle time, and 57% decrease in injuries.

So how does an organization go about implementing the Canadian Framework for Excellence? Many organizations use a progressive approach. They start by answering two questions, What is our aim? Who are our customers? Then, they commit to training personnel on the Framework. Thereafter, everyone in the organization plays a part in deploying practices across the key management areas, working with Certified Excellence Professionals as required.

It is important to note that implementing the entire Framework is absolutely critical. Because the organization is an independent network of processes, optimizing performance depends on all parts of the organization working in cooperation and moving in the same direction. Any undertakings that take the organization off this course can be costly.

How costly? Recent NQI research with small and medium size organizations across Canada revealed that 32% of payroll is being spent on non-value adding activities (errors, rework, duplication, customer dissatisfaction, and employee dissatisfaction)! The good news is that successful implementation of the Canadian Framework for Excellence can reduce this cost to 2% of payroll, enabling the organization to reallocate the resulting cost savings to high priority, value adding activities.

In closing, the journey to excellence is not a quick fix. It is a never-ending climb up the ladder of continual improvement. The first rung on the ladder is becoming familiar with the Canadian Framework for Excellence. The second rung is arranging for training and implementation assistance.

To get started, download a copy of the Canadian Framework for Excellence from the National Quality Institute website (www.nqi.ca) and stay tuned for member training programs offered in cooperation with ARHCA. Should you have 20 or more employees that require training, you might want to consider an in-house presentation and training program for your organization.

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Appendix 1 – Small Organizations

Leadership	%
Establish a clear purpose and direction for the business that reflects a commitment to service	56
Communicate the direction to employees and support changes necessary for continual improvement	56
Act in a socially and environmentally responsible manner	62
Measure performance on leadership	47
Average	56
Planning	
Identify important issues that must be addressed by the organization in order to meet customer needs	60
Establish improvement goals to help meet customer needs	62
Measure performance on planning	42
Average	55
Customers	
Use research to define and segment customers	38
Determine customer needs and expectations	56
Align employees on the importance of the customer	52
Make it easy for the customer to do business and provide feedback	54
Respond successfully to customer feedback	56
Measure performance with customers	42
Average	50
People	
Recruit and select people for mutual success	52
Promote teamwork amongst employees	58
Determine training needs of employees and provide the necessary training	52
Measure performance with people	48
Average	53
Processes	
Design and document work procedures and map key processes	64
Identify and correct root causes of problems and implement actions to prevent problems from recurring	56
Evaluate the effectiveness of improvements and changes made to work procedures to ensure a positive impact on the work environment	50
Measure performance on processes	46
Average	54
Suppliers & Partners	
Work with dependable suppliers and partners	64
Develop win-win partnering arrangements	56
Meet with suppliers and partners to discuss direction of the business	54
Provide feedback to suppliers and partners about the quality of products and/or services provided	58
Involve suppliers and partners in improvement initiatives	50
Measure performance with suppliers and partners	50
Average	55

Appendix 2 – Large Organizations

Leadership	%
Develop corporate statements that describe the desired future of the organization and the mandate of the organization	60
Communicate corporate statements to all levels in the organization	65
Identify factors that will contribute to organizational success eg. training	65
Develop a strategic plan with goals and objectives that will guide the organization toward it's vision	60
Monitor and review the strategic plan on a regular basis	45
Ensure senior management demonstrates a commitment to continuous improvement	65
Remove barriers to organizational effectiveness	50
Promote teamwork amongst employees	50
Communicate openly to employees about organizational performance	60
Share responsibility accountability and leadership throughout the organization	50
Link senior management rewards and recognition to organizational performance	55
Demonstrate responsibility to society and the environment	75
Learn from ideas and good practices and share them internally and with other organizations	50
Evaluate and improve the approach to leadership	45
Measure performance on leadership	50
Average	56
Planning	
Use factual information to provide input to the business planning process	47
Create a business plan that identifies prioritizes and incorporates a balanced set of objectives measures and initiatives that support the strategic direction	33
Communicate and integrate the business plan internally and externally	40
Allocate resources to ensure effective implementation of the business plan	40
Monitor and review the business plan on a regular basis	33
Make changes to the business plan aimed at continual improvement	33
Evaluate and improve the approach to business planning	33
Measure performance on planning	27
Average	36
Customers	
Use research to define and segment customers	33
Determine customer needs and expectations	47
Align employees on the importance of the customer	40
Train and empower employees to be advocates for the customer	33
Ensure positive customer experiences by identifying and managing customer contact points	40
Make it easy for the customer to do business and provide feedback	33
Respond successfully to customer feedback	40
Evaluate and improve the approach to customers	33
Measure performance with customers	40
Average	38

People

Undertake human resource planning that supports organization goals and objectives	60
Recruit and select people for mutual success	60
Ensure people understand and commit to the strategic direction and improvement goals	40
Get people involved with improvement initiatives	20
Encourage employees to share ideas and suggestions	40
Encourage employees to be innovative and take risks	20
Determine training needs of employees and provide the necessary training	60
Reward and recognize strong performance of both individuals and teams	40
Ensure a healthy workplace environment and involve people in addressing issues related to wellness and well-being	80
Remove barriers to employee effectiveness	20
Evaluate and improve the approach with people	20
Measure performance with people	40
Average	44

Processes

Design and document key processes	80
Monitor and control processes to ensure service standards are met consistently	40
Take corrective action when problems occur	60
Prevent recurrence of problems by making changes to processes	40
Analyze processes on a regular basis and make changes aimed at continual improvement	40
Communicate changes in process to all employees that touch the process	60
Involve customers suppliers and/or partners in designing or analyzing processes	60
Use external data to compare performance to other organizations eg. benchmarks	20
Evaluate and improve the approach to processes	40
Measure performance on processes	40
Average	39

Suppliers & Partners

Select suppliers and partners on the basis of criteria	60
Develop win-win partnering arrangements	60
Share information with suppliers and partners that links to strategic and business plans	60
Involve suppliers and partners in the development of new products and services	60
Evaluate and improve the approach to working with suppliers and partners	40
Measure performance with suppliers and partners	60
Average	44