

FROM POTENTIAL
TO PROSPERITY:
HUMAN RESOURCES



IN THE CANADIAN
CONSULTING
ENGINEERING
INDUSTRY



From Potential to Prosperity: Human Resources in the Canadian Consulting Engineering Industry

Summary

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Introduction

The Canadian consulting engineering industry has played a prominent role in the development of the nation's infrastructure, resource and industrial base and has been a major force in international markets. According to estimates by the Association of Consulting Engineers of Canada (ACEC), the industry employs 50,000 people in approximately 3,500 firms, and generates billings in the order of \$6 billion. Canadian consulting engineering firms enjoy a strong reputation for their technical expertise and project management services world-wide. Through international projects, the industry generates significant economic benefits for many other sectors, such as equipment supply, computer services, transportation and training services.

However, despite its strong history, the industry has experienced large fluctuations in demand for its services tied to capital investment cycles. Firms heavily dependent on the resource sector have been most susceptible to these cycles. Domestic demand is not expected to rebound significantly following the recent economic downturn, and firms are increasingly looking to international markets to sustain growth.

These and other concerns about the industry's future competitiveness prompted the ACEC to initiate an analysis of its human resource problems. The Sector Studies Directorate of Human Resources Development Canada responded by agreeing to sponsor a comprehensive study to diagnose the human resource issues and challenges facing the industry and to develop consensus amongst the various stakeholders on strategies and action plans for the future. The study was carried out by a consortium of consulting firms, KPMG Management Consulting, Pacific Leadership Inc. and Revay and Associates, over a 12 month period ending September 1994. The work of the consulting team was guided by an industry-led steering committee, consisting of representatives from ACEC, professional associations and technical societies, educational institutions and government.

The complete results of this effort are contained in the companion report entitled *From Potential to Prosperity: Human Resources in the Canadian Consulting Engineering Industry - Main Report*. A copy can be obtained by returning the completed postcard attached to this report.



Broad Trends and Issues in the Business Environment

The study began with a two-round Delphi survey covering a large sample of consulting engineering firms, clients, educators, other related professional service firms, financial institutions and representatives of different levels of government. The aim of the survey was to identify and confirm the key strategic issues and business trends affecting the industry and their implications for human resource management. The survey revealed that the following features of the current and expected future business environment were regarded as the most significant for the industry:

- * The consulting engineering industry is undergoing continuing restructuring and re-definition, with similar changes also occurring among client organizations served by the industry.
- * There are significant and increased opportunities for innovation and value-added in services, which will be driven by new technologies, downsizing of in-house engineering groups, and cost-reduction pressures.
- * International markets are becoming increasingly important as domestic demand levels remain static. Canadian firms will be more dependent on the international market for growth. International success will be dependent on success in the Canadian market.
- * The role of consulting engineers as independent providers of advice to final clients is diminishing.
- * New organizational and ownership structures are emerging as firms attempt to better respond to client needs.
- * Changing demand structures in the industry are giving rise to needs for new services and service delivery structures.
- * There is a continuing conflict between the need to improve profitability while investing in continuing education and training, and responding to demand changes and increased competition.
- * The industry has varying abilities to respond to opportunities and pressures created by changes in demand structures. While the industry is able to respond to opportunities driven by new technical needs (e.g., environmental services), it is less effective in providing "total solutions."
- The use of contract employment arrangements to minimize costs and match staff requirements to work flows is increasing.



Human Resource Issues and Challenges

With the results of the Delphi survey providing a context and focus for further research, a comprehensive analysis of human resource issues in the industry was completed through a program of interviews, focus group discussions, case studies and a literature review. The output of this phase of the project was summarized in an interim report. The key findings of the human resource diagnosis were:

- **Human resource management in the industry is undervalued.** While there are some firms with a genuine and sincere commitment to human resources, the attention given by many firms to human resource matters is minimal. This is evident in the lack of budgets and dedicated resources and the fact that human resource management is regarded more as an administrative than a strategic function in many firms.
- **Industry employers have a tarnished image.** Lack of job security, a history of "hire and fire" in some sectors, the perceived absence of career progression opportunities, below average compensation, constant deadlines and work pressures, the absence of training and a predominantly traditional, conservative working environment are some of the main factors contributing to this image.
- **Inadequate provision exists for the future skill and knowledge needs of the industry.** Employers in the industry are unable or unwilling to make significant investments in human resource development. There is general agreement within the industry about the skills and knowledge needed to respond to the changing demands of the business environment. Interpersonal skills (the "soft skills") and a wide range of leadership, business management and project management skills are commonly identified as being critical to success. The industry does not appear to value human resource development, however, since few firms have taken action to address these critical needs. Significant concerns are also raised about the educational processes feeding the industry's needs. The chief concerns in this respect are that practical or experienced-based elements of education are insufficient, the lack of collaboration between the industry and educators and the absence of appropriate linkages between different segments of the educational sector. There is no consensus in the industry about who is responsible for taking leadership to ensure that its needs are met.
- **New leadership and management skills are called for, and existing industry leaders are not well prepared to face the challenges of the business environment.** As the characteristics of the business environment change, there is a corresponding need for new skills and different leadership and management approaches. While this is recognized and acknowledged by many in the industry, there are very few examples of significant leadership and management development activity to address these needs.



Few of the programs that are currently available meet the perceived needs. Many existing managers are finding themselves increasingly unprepared for the business and organizational challenges that they face.

- * **Compensation lags behind other sectors.** Salaries and benefits in the industry are generally below other sectors which compete for key employees. While employee ownership is common in the industry, employers have significant concerns about ownership succession and employees have significant concerns about the true value of ownership.
- * **The lack of adequate financial resources is a major roadblock,** especially with respect to human resource development activity. Static or declining domestic demand, changing client expectations and fierce competition are placing Canadian firms under increasing financial pressure. This has resulted in reduced emphasis on human resource programs in general and training and development in particular.
- * **The conservative nature of the industry tends to inhibit progress and needed change.** The industry has been slow to embrace change, particularly in the area of management and leadership approaches. The organizational culture of many firms (regardless of size) does not encourage innovation, learning or change. However, an increasing number of firms are beginning to explore quality and customer service programs and other approaches to organizational change.

Recommendations For Action

The interim report provided the basis for discussion at two large roundtables, at which participants developed strategies and action plans to address the highest priority issues. The output of the roundtables has been incorporated into a series of recommendations which are summarized below. Among other activities at the roundtables, small groups of participants worked together to develop a vision for the future of the industry from a human resource perspective. The following summary of the vision statements provides a useful context for the recommendations.

Roundtable participants' vision of the industry:

The industry will be a high value and a highly valued one. Canadian firms will be valued and recognized as world leaders in the provision of knowledge-based solutions and management services and will be strategic to the growth of commodity and resource based industries and supporting infrastructure.



The industry will be prosperous, pro-active, efficient and effective, professional, innovative, at the leading edge of technology, socially responsible, client focused and providing high quality work.

The industry will provide challenging and rewarding work opportunities, encouragement and acknowledgement of individual development and excellence, and support and recognition for individual career development and continuing growth.

⇒ Recommendation 1

Generate an industry-wide commitment to human resource development. Concerted action by all stakeholders is needed to make human resource development a priority within the industry. Collaboration between the industry, educators, government and professional associations will be needed, as will be strong leadership and commitment from individual firms. Employees in the industry must also take more responsibility for their own continuing education. Actions are urgently required by ACEC to (a) publicize this report and (b) bring the various groups together in a national initiative.

⇒ Recommendation 2

Establish closer and more effective linkages with educational institutions. There is an urgent need for closer industry liaison with educational institutions both at the regional and national levels. These improved linkages must address a number of specific, high priority issues emerging in the study including the content of existing educational programs, the design of new technical and non-technical continuing education programs, expansion of the practical or experience-based elements of educational programs, the creation of improved mutual knowledge and understanding among educators and industry representatives and the development of a comprehensive matrix of educational opportunities. Cooperative action by ACEC and the organizations representing technical and engineering educators is called for.

⇒ Recommendation 3

Examine more closely the need for national industry standards, requirements for continuing education and a related system of professional credits. There is a need for further dialogue between educators and the professional associations to look at the establishment of national requirements for both technical and non-technical courses, and to define a system of professional credits for continuing education.



Summary

=>Recommendation 4

Develop "soft skills" training tailored specifically to the industry's needs. This is critical if firms are to increase their competencies in managing increasingly complex relationships with clients, business partners, associates and employees. A multi-level approach is recommended, responding to the needs of all employees from new graduates to senior managers. It is recommended that ACEC seek funding from Human Resource Development Canada to develop a range of programs to meet these needs.

=>Recommendation 5

Develop a range of leadership and management development programs that are specific to the needs of the industry. Existing leadership in the industry often lacks the additional skills and competencies needed and neither they, nor younger employees with the potential to assume leadership are receiving training or development in the critical areas. Both broadly-based programs and specific training on specialized topics are called for. The recommendation is that (a) ACEC seeks funding from Human Resource Development Canada to undertake a more thorough needs analysis, (b) ACEC and the provincial consulting engineering associations take an active role in coordinating or developing and delivering workshops and short duration training programs on specific subjects and (c) ACEC and the provincial consulting engineering associations also provide enhanced learning and information exchange opportunities for CEOs through informal sessions.

=>Recommendation 6

Foster and promote a more positive approach to contract and casual employment. Multi-level action is required to achieve this including the re-orientation of employment/hiring, training and compensation policies and procedures by employers, the acquisition of new knowledge and skills by employees in the industry and the inclusion of contract and casual employees in continuing education plans and activities.

=>Recommendation 7

Introduce specific programs to meet the HR needs of small and medium-sized firms for access to expertise in the human resources (HR) area. A range of programs is needed, including networking and referral services, peer support programs and, possibly, the direct provision of HR services by ACEC to member firms.



⇒ **Recommendation 8**

Emphasize the strategic value of compensation by developing and adopting alternative compensation models, such as competency-based pay, project team incentives and quality or service improvement incentives, to support firms' strategic goals and to enhance overall compensation competitiveness in the industry.

⇒ **Recommendation 9**

Educate managers and employees on ownership models and ownership succession.

There is also a need for educational seminars on ownership succession, enhanced, portable benefit options for contract and casual employees and improved dialogue among firms in the industry on compensation (and related billing/pricing issues) to support efforts to raise the value of consulting engineering.

⇒ **Recommendation 10**

Provide workshops or seminars on international business and project related issues to address skill and knowledge deficiencies in these areas. In addition, some participants in the project strongly recommended increased coordination of government efforts to assist Canadian firms in the international arena and the development of a national, coordinated effort to promote strategic alliances.

⇒ **Recommendation 11**

Develop a coordinated, cohesive, national effort to enhance the industry's image through effective communication processes, promotion of the industry's successes, contributions to the economy, impact and scope internationally, and career opportunities.

⇒ **Recommendation 12**

Ensure that there is an ongoing process for continuing dialogue between stakeholders and a forum to develop an industry-wide, collaborative approach to the issues and challenges. The dialogue and cross-fertilization of ideas occurring during the project on business trends and issues, shared concerns, and challenges for the future was widely regarded as an extremely valuable and productive process. Continuation of this dialogue will be essential to the development of the collaborative solutions and approaches now demanded. A national body is needed, perhaps under the auspices of ACEC, with a mandate to bring together all of the relevant interest groups in the industry to focus on the human resource priorities identified in the study.



The role and impact of government

The question of the role and impact of government in the industry repeatedly emerged throughout the study and is regarded by many as a major concern. Encroachment by government agencies into consulting engineering markets is perceived as a serious threat to some firms. Some aspects of government policy and procedures in awarding contracts are also regarded as being harmful to the industry -- the federal government being singled out for particular criticism in this respect. These concerns have a negative impact on the industry's long term survival and health and more specifically on its ability to respond to the human resource issues, such as the competitiveness of compensation, employment security and the ability to fund human resource development. Overall, there is agreement on the need for government to be more supportive and helpful to the industry than is currently the case.

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