



INDUSTRY ENVIRONMENTAL SCAN

AUGUST 21ST, 2017
OTTAWA, ON

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Agenda

Monday August 21st, 2017

- ❑ **Breakfast** **7:30 – 8:00**

- ❑ **Introduction** **8:00 – 9:00**
Review Objectives, Ground rules, and Agenda
Ice Breaker (conducted in Table Groups)

- ❑ **Discuss Trends & Emerging Issues Worksheet Results** **9:00 – 10:00**
Table Group discussion
Review individual worksheet results
Collaborate and identify top six trends/issues per table group

- ❑ **Break** **10:00 – 10:20**

- ❑ **Table Group Reports** **10:20 – 11:30**
Each Table Group reports back to the room with their findings

- ❑ **Summarize Findings** **11:30 – 12:00**
Summarize the Table Group findings and identify trends & issues to explore

- ❑ **Lunch** **12:00 – 12:45**

- ❑ **Break Out Sessions by Trend/Issue** **12:45 – 1:30**
Suggest how the CCA can assist with these trends/issues

- ❑ **Close** **1:30 – 2:00**
Confirm Action Plan

Industry Trends and Emerging Issues

The tables groups were tasked with using the product of the pre-session worksheets to share, discuss, and agree upon their top trends and issues. The maximum requested was six per table group, and most groups had between four and six trends/issues they proposed to the room.

The following is a summary of their proposed trends/issues. The number in brackets indicates how many table groups proposed a certain trend/issue. The sequence of the trends/issues discussed is by number of common proposals, however this does not suggest that trends/issues with fewer votes are necessarily less important.

There is the potential to re-order or re-categorize this information, although the benefit may not out-weigh the time and effort required.

Labour Pool (10)

Suggested text: The main message communicated by participants is that the labour pool is shrinking due to aging demographics, and fewer new entrants into the industry. This is exacerbated by a number of factors such as poor or non-existent succession planning, ineffective education and certification (see issue below), technology trends (see issue below), and lack of diversity in the work force.

The following are the main points presented by the table groups.

- The labour pool is shrinking;
 - Aging demographics
 - Loss of experience and skills
- Middle management is not properly trained
- Need more entry level people
- Education is needed for trades and professions
- Need a work force trained in collaboration
- Mobility barriers that make people transfer difficult (immigration, inter-provincial mobility barriers)
- Need effective succession planning to deal with the upcoming glut of retirement
- What are the jobs of the future? (see technology)
- Need greater diversity, including women who are not as supported or encouraged as they should be
- Interest of young people in our industry is declining
- Lack of opportunities for those less experienced in our industry (lose the “pay your dues” attitudes)
- Barriers of entry due to the costs associated with getting trained and certified

Technology (9)

Suggested text: This topic impacts a number of the other trends/issues identified during the environmental scan. It is understood to have the potential to either positively or negatively influence the size of the labour pool, training and certification, productivity, collaboration and innovation.

The following are the main points presented by the table groups.

- Adoption, adaptation, and the impact on training – there may be a social challenge as people are displaced from one skill/role and have to transfer to another
- We should not become just button-pushers; we need people who understand the basics as well
- Technology should enhance constructability
- We need appropriate technology;
- Technology does not replace the need for experience and knowledge; technology should be just another tool
- Digitization of design and build
- How to pick the technologies that will ultimately pass the test of time
 - AI (artificial intelligence), unmanned vehicles, big data
- Technology that assists us with the increasing size and complexity of projects
- Enhances and encourages collaboration and innovation
- Help us deal effectively with the glut of information, yet don't replace F2F communication
- Democratizing technology

Training and Certification (7)

Suggested text: It was generally felt the level, approach, delivery and coordination of construction industry training and certification are not effective. This is especially true given the labour challenges outlined below.

The following are the main points presented by the table groups.

- Need better training to support collaboration
- Duplication between associations
- Gold Seal accreditation requires more support
- Better training with business cases / not just on-line
- Need to better support small firms
- Work with and leverage community colleges more
- Clarify owner responsibilities for training and certification
- Address the growing gap of the middle ranks
- Understand the perspective and needs of entry-level people

Procurement (6)

Suggested text: There were a number of passionate advocates for improvements in the procurement process/system, primarily focused on the negative impacts of a lowest-bidder approach, and the potential upside of a more collaborative & innovative approach. There is also an important connection with another topic regarding public perception and the need for transparency for bodies providing governance for public procurement.

The following are the main points presented by the table groups.

- Should not be based on just lowest bid; should include a value factor
- QBS versus low bidder
- Lots of room for more collaboration and innovation – “break down the silos”
- Project bundling and P3 can have negative impacts, and drive a more specialized industry
- Governance bodies require transparency of process and an assurance collaboration is in the public interest (see Public Expectations & Social License below)

Risk Transference (6)

Suggested text: There was much concern voiced regarding the inappropriate transfer of risk from owner to contractor, and the negative consequences this has on the industry.

The following are the main points presented by the table groups.

- Owner to consultant to contractor; transfer of risk
- Contractors forced to accept unreasonable levels of risk
- Results in risk avoidance strategies for all parties which can be highly dysfunctional and ineffective for all parties

Industry Practices (5)

- LEAN opportunities
- More innovation
- Proper documentation and better quality of documentation is needed
- Fair payment and procurement practices need improvement
- Too many developers focused on \$\$\$ rather than quality
- Lack of understanding of practices, contracts, legislation, and enforcement
- Need a better selection process – QBS (quality based selection)
- Lack of time to execute practices properly
- Lack of consultation between all parties

Modular Construction (4)

- Speed of delivery

Consolidation of Contracts and Contractors (4)

- Contract and project bundling
- Increasing size of contractors in reaction to bundling (see consolidation)
- International competition
- Large contracts use up the majority of government budgets
- Small/medium businesses are being pushed out
- Fewer players in the industry. Erosion of the “middle class” contractor. “Too small to be big; too big to be small”

Collaborative Delivery (4)

No additional comments.

Prompt Payment (3)

No additional comments.

Climate Change (3)

- Zero waste, zero carbon emissions, environmental impact concerns
- Sustainability

International Trade Agreements (2)

- Encourages foreign/international competition

Increasing Bureaucratic Waste (2)

- Burden of environmental assessment process

Social Justice / Warrior Agenda (2)

- Not in the public interest

Field and Design Productivity (2)

- Innovation
- LEAN practices
- Does a sense of entitlement in certain roles limit innovation

Government Policy & Greater Investment in Relationship Development (2)

- Industry level coordination will result in higher levels of sophistication
- There are different regional approaches to addressing the needs of small/medium contractors
- We need better understanding & expertise of our industry by those who procure
- More effective approaches to implementing policy changes in the field

Practical Solutions to Disputes (2)

- Alternate dispute resolution methods (e.g. adjudication)

Infrastructure Deficit

- Not being addressed fast enough
- There is a lack of funding
- Social and economic pressures are influencing this deficit

Legalization of Marijuana

No additional comments.

Public Expectations / Social License

- Public opinion is growing in influence
- The view of companies/corporations by government and the public
- Transparency required for value based selection – governance issue
- Greater public acceptance of projects and alternative approaches

Other Topics/Comments

Rate of Change in the Construction Industry Is High

Consolidation = Fewer Association Members

Foreign Competition and Investment impairs our industry

Inadequate R&D

Adaptive Infrastructure

- Able to adapt to future needs

Health, Safety and Environment

- Increasing focus, investment and improvement

2nd Round Solution Topics

The table groups were tasked with tackling some of the earlier identified trends/issues, and asked to suggest industry-wide solutions to these challenges. The suggested solutions are captured as bullet points below each assigned topic.

Technology Adoption & Transfer

- Education & communication are the key components for the adoption & transfer of technological advances and improvement;
 - Planned communication
 - Shared resources for small companies or first-time type of work i.e.: BIM, DB RFP
 - Outsourcing options to gain missing expertise
 - List or database of resources that can provide required expertise
 - Need to better explain that we use/need innovation because it improves the bottom line - Innovation is costing money, but it is the right thing to do.
 - Innovation portfolio website to share ideas and technology
 - Innovative ideas in a DB type of project. Innovative ideas are being 'shopped' from clients.
 - Understand the dangers of Technology; what is the major force that is going to disrupt? What are the different products that are eliminating workers?
 - How to get the industry going to be aware of the 'unknown' technologies.
 - How much resources do we need to invest into this?
 - The current procurement system is working against innovation.
- Symposiums and Awards;
 - An annual/bi-annual national symposium with trade booths, demonstrations and training to highlight new products & technology (each vetted first by CCA & or the LCAs) relevant to the construction industry.
 - A CCA award for new technology approved by CCA & promoted by them.
 - “The Newfoundland and Labrador Construction Association’s Ecovation Leaders Forum 2017 is an event for those in the industry who are interested in learning about & contributing to the discussion on what’s happening in environment and innovation in the commercial and industrial sector.”
 - <http://neia.org/ecovation2017/>
 - Where is technology going. . . such as the self-driven cars.
- BIM;
 - utilizing as a full package - needs to be dictated by the market / clients.
- Drones;
 - GPS Tracking
 - Data monitoring.
 - Drone operators rather than carpenters.

- Project management software
- Innovation funding;
 - The government is going to have their hands out to the construction industry for investment into innovation.
 - Dollars for smaller firms to invest.
 - Demonstration projects to be invested in by CCI....so they fund some of the innovation.
 - CCI organizations are supposed to help the industry.... but having trouble getting 'investors'.
- Process Improvement;
 - Taking steps out of installation....to reduce the labour component.
 - Changing productivity rates to reduce time.

Labour Supply and Training

- Education;
 - Educate owners as to the value of a transparent, predictable pipeline and coordination amongst public owners
 - Bring back trade schools – eliminate streaming
 - Emphasize transferrable skills, soft skills – business training for everyone!
 - We need to be able to do faster, more specialized, direct training (no need for a 5-year program for everything); current rules don't support this.
 - Ask members what their short-term labour needs are, feed that information to schools, and government
 - Need to get accurate and timely information to the government
- CCA pre-bid scan of pipeline
- Marketing (Image);
 - Benefits/features of career in construction
 - Reduce stigma – doctor, lawyer, sheet metal worker
 - Outreach to under-represented communities – women, minorities, LGBT, First Nations, youth at risk
- We need to achieve greater labour mobility than what current union practices allow.
- Unions need to change the way they operate to be more efficient and productive.
- We need a disruptor - an Uber app for labour pool.

Procurement & Quality of Documents

- Educate the Owner to understand that construction procurement decisions is a distinct specialty of overall procurement and that it requires industry knowledge, insight and experience which translates into having in place proper resources (people and financial) to make those decisions.
- Educate the Owner as to the critical initial decisions in selecting the architectural/engineering consultant team and once again the message is of having in place the proper level of resources (people and financial).
- CCA should review the US Brooks Act (1972) as to lessons of the US experience and possible application to Canada. The Brooks Act (also known as the Selection of Architects and Engineers statute) is about quality based consultant selection rather than price. Wikipedia LINK.
- In recognition that design fees is a dominate criteria for selecting the Architect & Engineers, the construction industry should:
 - 1) Educate Owners to recognize and understand that an ‘under-priced’ design-fee will not lead to a successful project. Related to this comment, our table felt that the design community is not being held accountable sufficiently for ‘under-priced’ design fee submissions as contractors are held accountable for their bid submission.
 - 2) Recommend to Owners that an INVITATION for architectural and engineering design services should include a scope of work for 3rd party independent design review included as part of A & E tender process. Any architect or engineer would be able to submit their fee for either primary design role or 3rd party oversight role. This action would therefore communicate right at the outset of the project that the selected Architect and specialty Consulting Engineers would be subject to ongoing 3rd party oversight and that the end goal is to bring greater accountability into the fee preparation by the Design professionals.
 - 3) Recommend to Owners a ‘best tendering practice’ having a 3rd party review of construction documents before tender stage.
- CCA should investigate developing a Best PRACTICES guide for successful project delivery by all construction options - i.e. DESIGN-BID-BUILD lump sum, DESIGN BUILD, Construction Management, CM at Risk, Integrated Project Delivery. Contents of Guide to include:
 - Overview of various delivery methods with summation of key attributes
 - Pros & cons as to risk, cost certainty, schedule, control. This could be accomplished in a flow-chart format possibly guiding a BUYER through a decision matrix
 - Guide should profile a number of case studies where wrong decisions were made as to delivery method and with respect to traditional DESIGN-BID-BUILD where majority of Canadian construction is completed, case studies where insufficient resources were put into the selection of the design team

- CCA should develop a National Buyers Forum bringing together the A/E and BUYER community with the builders focused on the keys to successful construction delivery.
 - Encourage local or regional or provincial BUYERS forums that build into a National Buyers Forum

- We would like to see CCA be instrumental in creating a bi-partisan dialogue/forum with all the stakeholders who would benefit from better outcomes in the design and construction industry. To wit, architects (RAIC), consulting engineers (ACEC), spec writers (CSC), buyer of design and construction services (BOMA, BILD, FCM etc), IPDA and LCI-C among others. The agenda would include but perhaps not be limited to:
 - The "appropriate" transfer of risk
 - Rationalizing the benefits of "value" based decisions
 - Understanding the benefits of shared outcome based methodologies (LEAN)
 - Tendering fairness and transparency
 - Foreign competition (creating a level playing field)
 - Evidence based awareness (celebrating our collective victories)
 - Embracing technology and innovation Breaking down the silos!
 - Better communication - eliminate contractual complexities
 - Shared aspiration for the Canadian D&C industry

- In addition to CCA getting this bi-partisan conversation started, CCA could also arrange a national bi-partisan summit that doesn't just target CCA members but targets the broader based stakeholder group, owners included.

Risk Transference versus Collaborative Delivery

- There needs to be an understanding of risk and it needs to be mitigated by the best party available; create a better general understanding of how we can reduce the cost of risk

- Identify what risks should rest with what party based on mitigation opportunity and mitigation costs

- There needs to be more multi-interest conversations, between municipal, provincial, construction stakeholders

- Provision of better information that companies are using to deliver the project. Additional information goes a long way to mitigating risk, such as pre-engineering.

- Attempting to find common grounds for risk sharing allows for those around the table to think of different ways of completing the project and minimizing risk
- A solution to dispute resolution would be to create a position of “referee” who would be a 3rd party individual agreed upon by both sides who could provide advice when called upon
 - The name “dispute resolution” could also be changed because it alludes to two sides going against each other. Rather both sides should be able to find common ground on issues rather than going to court.

- Comments;
 - Private sector puts the risk out there because it's more collaborative and there's a dialogue
 - The objectives between the private and public sides are the same
 - The private sector spends the money to mitigate the risk but public sector does not
 - The public sector needs to understand the risk better and have stronger risk management systems

Context: The client does not want to assume any risks when it comes to the design and delivery of a construction project. The client's position is to transfer the risk to the consultants who, in turn, transfer the risk to the designated general contractor, who then places the burden partially on the trade contractors. Ultimately, the general contractor still has the responsibility to the project owner.

Client's goal: A fixed price with no extras and no responsibility for project delivery or for any hidden defects.

Findings regarding the construction project delivery

The client has very little or no knowledge of his needs, or of construction rules and regulations and the tendering process.

Rarely is there any project planning and the project is often decided upon at the last minute.

The client knows he wants a "turnkey" project but without having first determined what his needs are, and he often has problems expressing and communicating his needs to the consultants and the designated general contractor.

The clients' way of working on their project is based on a budget rather than the needs.

The result is often mixed.

Solutions for public projects

All parties must sit down together to prepare a project.

The following steps are critical to project delivery:

- Knowing the client's needs, the building's life cycle and maintenance costs.
- Drawing up the project plans and having them validated by the client.
- Establishing the budgets (design of plans and specs and delivery). The budget is prepared based on the requirements, including maintenance and life cycle.
- Finally, issuing the call for tenders: Launch the bidding process for project consultants and general contractors. The risk transfer is what we know it to be in its current form.

Second solution:

- The IPD process is used for public tender projects whereby risk sharing is clearly defined in the contract. The collaboration of all stakeholders is mandatory with this method.

Productivity / Competitiveness

- Remove interprovincial trade boundaries
- Improved access to R&D credits
- Educate procurement officials
- Promotion of BIM from arch/consultants to owner -collaboration of all parties involved to communicate better to eliminate issues
- Small / medium businesses get overwhelmed with trying to wear "all hats" and lose all efficiencies / productivity /competitiveness

Prompt Payment

- Legislation
 - A legislative framework is essential to ensure that all stakeholders understand the importance of this issue in the industry.
- Making it happen:
 - Information campaign on the way the industry operates and on payment processes. (Many owner representatives and even consultants do not understand the problem – some think that simply submitting a claim to the surety is enough to obtain payment – others think that firms all have enough money and can wait to be paid, etc.).
 - Create a snapshot of the industry based on business revenues.
 - Undertake an impact study on the timeliness of payment using concrete examples. In Quebec, for instance, beyond the impact study already provided, the minister responsible for the prompt payment issue has requested concrete examples that involve public sector owners.
 - However, further measures also need to be considered in order to improve the timeliness of payments, in particular:
 - Adjudicator – Dispute resolution while work is in progress should be a priority.
 - Pay when paid clause – General contractors should be able to invoke this clause only if they can demonstrate that they have done everything possible to be paid, and non-payment should be for a limited time period.
 - Progress payments – Subcontractors who are slow to submit payment applications should not be able to delay submission of the main application.
 - Poor quality of documents – leads to extras, budget overruns, disputes and payment delays or non-payment.
 - Government budgets – Budgets no longer leave any room for extras and so they (governments) continue to refuse to pay and would rather be ordered to pay.

Construction Industry Image

What the problems are now:

- People assume contractors are corrupt crooks
- They view construction as obstructive to our lives
- Construction is not an attractive place to work, especially for women
- People assume contractors are wealthy and make huge amounts of money on every contract

- Perception that construction workers are poorly educated
- Construction is perceived as an “old boys club”
- No one in the supply chain trusts anyone else and not enough collaboration
- Others in the supply chain assume that contractors only recommend or suggest options if it makes more money – i.e. that we don’t consider other things such as schedule; constructability; innovation, etc.

What Industry needs to do:

- Better market itself with a focus on construction as an essential service
- Develop and support industry champions
- Be proactive in championing construction and also reactive to problems that emerge
- Look at a nationally-coordinated marketing effort to promote the construction industry
- Show up when it comes to public consultations and hearings that relate to controversial infrastructure projects
- Build better relationships with all levels of government so that they will defend and promote the construction industry

Is this issue a symptom of something else:

- Our image problems are a symptom of a consistent failure of government policy. Governments make bad decisions, don’t hesitate to throw the construction and design sector under the bus, and don’t understand our issues. We need to work hard to reverse these (misinformed) opinions. The construction industry can also use the government’s prominent media position as a means for boosting positive public awareness of the construction industry.

Regulatory Burden (including H, S, E)

- Myriad of regulations apply to the industry that increase the responsibilities of employers (eg. regulations regarding sustainability, marijuana, health and safety, environment, etc.)
- Regulatory red-tape reduces productivity and creates a stifling business environment. There is need for simplification, standardization, and quality (relevancy) in compliance policies and procedures.
- Certification requirements for things like working at heights are applied without regard for relevance to the worker’s position. For example, even though falls are generally more prevalent among workers working at heights (like roofers), workers not operating at heights such as sewer/watermain workers still must undertake this certification.
- The industry is largely ignorant of the real cost of compliance activities. Eg. half a person year for 25 years for COR. It drives up the cost of doing business. Education on the real costs of regulatory compliance would be helpful. These costs could be added to the bid price, perhaps as a fixed percentage. CCA’s job is to educate members of real costs and how to price it in.
- Going forward, big data will allow greater capability to draw more meaningful analyses and conclusions
- Template of costs should be created that shows the true cost of each compliance activity...this will foster transparency, and can be disclosed when talking to

procurement officials. Template should consider things like standardization of costing, impact on cost, etc. Perhaps third party validation of regulatory costs could be considered (eg. MCA unit rates are generally accepted in court, and are based on company overhead)

- Prospective topic for CCA Annual Conference: real costs of regulatory compliance (eg. training, safety, etc.).
