

Riskcore Ltd.

Company Profile and Introduction

Introduction

Riskcore Ltd. is registered in 2016 and headquartered in Calgary, Alberta specializing in construction project risk management and analytics which includes Quantitative Risk Analysis (QRA) on project cost estimates and project schedule. To date, Riskcore has facilitated over 200+ qualitative risk workshops from feasibility phase to Ready-for-Operations; performed QRA for worldwide projects worth \$75 Billion and conducted about 35+ External Construction Project Readiness Reviews (ECRR) since 2005.

John Zhao, the founder, and principal consultant of the Company conceptualized in 2004 and has since developed a Monte Carlo simulation based **Riscor® Model** to scientifically determine appropriate project contingency, escalation, and management risk reserve for capital investment project cost estimates by incorporating possible construction schedule delay and systemic risk impacts.

Riscor® Modelling process offers client an opportunity, prior to contractually committing to a project, of an investigative look at project schedule and cost estimate's risk profile, allowing adequate contingency funding and time to be considered for FID, AFE Sanction or Competitive but Profitable bidding.

Overview

Information: The following provides further information about the Riskcore and its current contact.

- Business Name: Riskcore Ltd. with GST#76999 1928 RT0001 (2016)
- Office Address: 113 Uplands Ridge, SW, Calgary, Alberta, T3Z 3N5
- Phone & Text: 587 352 6698 (voice call and text message)
- Emails: jzhao@riskcore.ca; john_zhao@shaw.ca;
- Websites: www.riskcore.ca; www.riscor.ca
- Business Type: Incorporated private company
- Insurance: WCB (Workers Compensation Board) & Commercial Liability
- Annual Revenue: CAD\$100K - CAD\$400K
- Consultants: Full-time Services responding to demands and requests
- Service Type: Professional Boutique Consulting and Risk Modelling
- Primary Clients: Owner Companies; EPC firms; Construction Contractors

History: The Company was incorporated in Alberta and registered for GST in 2016 to open its door for professional risk consulting services. Riscor® Model trademark registration is under the review by IPO (intellectual property office) of the Federal Government of Canada.

Since its inauguration, the Company has focused on specialized, niche and boutique QRA consulting services benefitting from its 2500+ risk library database, 50+ project QRAs, and its own proprietary Riscor® Model. Its Principal Consultant, John Zhao, has worked over **8** years (1986) for an international contractor in Middle East; **7** years (1996) for renowned EPC firms in Canada and past **15** years (2003) for owner operating companies in both Europe and North America.

Services Offering: Riskcore offers, at its most competitive rates and hours, following products and services to our clients for various types of construction projects in energy and infrastructure industries.

Product:	Proprietary intellectual Riscor® Model Suite <ul style="list-style-type: none">○ Project Schedule Delay Probability and Key Drivers○ Risk Register, 3D Risk Matrix, BEST and TEAM Approaches○ Risk-based Option Selection Analysis under risk condition○ Stochastic Cost Estimate and Forecast at Completion (FAC)
Services:	Quantitative Risk Analysis for Schedule & Cost Estimate & Forecast <ul style="list-style-type: none">○ Cost Estimate Risk Analysis for Contingency & Escalation○ Schedule Risk Analysis (SRA) for Completion & Drivers○ Facilitating Project Risk Workshops & Risk Registers○ External Construction Readiness Review (ECRR)○ Providing Public and In-house PRM Training Sessions
Pricing:	Hourly Rate with estimated hours and/or Lump-sum Price Free Project Consultation and QRA Proposal with pricing structure

Principal Consultant

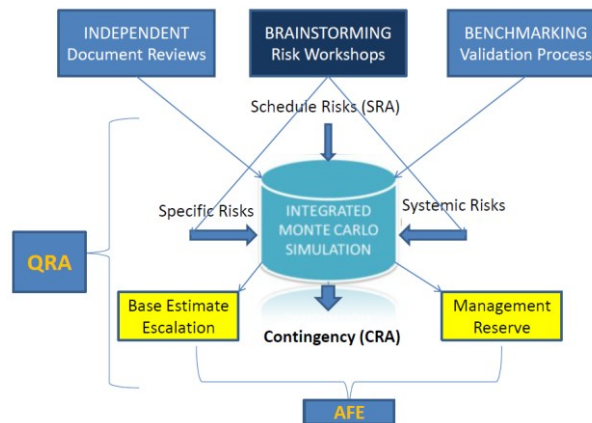
John G. Zhao is the Principal Consultant with 35 years experiences in construction industry, he holds a MSc. (distinction) and a BSc. (honours) from England in Construction Project Management & Engineering.

The Riscor® Model is built based on Monte Carlo simulation technique following AACEi RP 41R-08 (titled "RISK ANALYSIS AND CONTINGENCY DETERMINATION USING RANGE ESTIMATING") and AACEi RP 44R-08 (titled "RISK ANALYSIS AND CONTINGENCY DETERMINATION USING EXPECTED VALUE") to which John Zhao is one of the early contributors.

Work Process

QRA methodology focuses on a team approach (1) to collectively identify key project risk drivers and assign appropriate "risk ranges" to the correlated "Specific" risky cost estimate line items; and (2) to quantify the singular, binary, and uncorrelated "Systemic" risks that have overall impacts on project objectives. The subjectivity and heuristics are normalized and optimized via Delphi Technique. The QRA process is based on stochastic multivariate linear regression model, whose multiple probabilistic inputs are provided by relevant SMEs. The outputs include escalation, management reserve and contingency that are associated with probabilities and sensitivity analysis for top risk drivers, a.k.a. the Tornado Chart.

The QRA relies on "range estimating method" for specific risks on selected cost estimate line items and "expected value method" on identified systemic risks impacting the overall project objectives. In addition, the results of schedule risk analysis (SRA) are used as input to Riscor® Model to capture the impact of construction schedule delay. Contingency is the function of the total impacts from systemic risks, specific risks, and schedule delay. Escalation and Risk Reserve are QRA's additional outcomes.



Value Proposition

Riskcore is your choice of QRA Consultant for your capital investment projects because of its credibility, scientific approach, and convincing results. Our Promise and Expertise provide value-added Services to your Project Delivery. Passion, knowledge sharing, and job satisfaction prevail over financial rewards.

Goals:	To our clients, for our clients and by our clients
Promise:	To provide value-added and satisfactory risk data analytics
Expertise:	To offer specialty and niche skills in quantitative risk analyses
Services:	To meet deadline and deliver the promised scope of work

To make project QRA work successful and credible, the following Key Success Factors are important elements for any risk specialist to have. It articulates the essential components to achieve the QRA objectives and the final deliverables.

Construction Background:	- Talk about the same language as a professional.
Probability Theory Knowledge:	- Interpret tedious & statistics to common numbers.
Software, Tools & Models:	- Scientific Methods with proven models & toolkit.
Workshop Facilitation Skills:	- Data mining overcoming psychological barriers.

Achievements

Riskcore has received numerous acknowledgements, accolades, praises, and constructive feedback from our clients. These comments and suggestions have encouraged the Riskcore to continue, do better and improve its process and modelling techniques. In addition to scientifically simulate project contingency, Riskcore has developed a prototype, innovative and integrated stochastic project cost forecasting model, with an intention to supplement or replace the outdated cost forecasting practices.

- John's QRA Work is Industry Leading for this pipeline mega-project."
 - Helen, Assurance Lead, KPMG
- "Riskcore's Analysis and the Final Report is the best one in my career."
 - Denis, Project Director, CKPC

- "John's qualitative and quantitative risk analyses are the best practices."
- George, Professor, University of Calgary
- "John is definitely qualified to do this complex work for our refinery."
- Al, Project Leader, Sinclair Oil Refinery, Utah
- "The analyses were very comprehensive and helped us better understand the project."
- Jeff, Vice President, EllisDon Inc., Alberta
- "The QRA done for the adequacy of remaining contingency made funding approval easier."
- Jim, Uranium Mining Project, SK
- "The Board will be interested in your perspective on the top risks and the impacts of tail risk."
- Mike, A Transit LRT Infrastructure Project, AB
- "Your extensive knowledge, your impact on risk management and the project is fueled by your courage and consistency in tabling difficult conversations."
- Adam, Director, Major Pipeline Project, BC
- "I thank you for your valuable support through the FID process. Your QRA work is always top notch and highly reliable."
- Ross, Project Controls Manager, F.LNG Major Project, BC

List of Presentations at Conferences:

John Zhao is one of sought-after and inspiring speakers at various international conferences since 2005 in Abu Dhabi, London, Oslo, Miami, Denver, Las Vegas, Beijing, Nashville, New Orleans, Toronto, Calgary, Vancouver, and online venues. He is also a guest-speaker at local universities and polytechnic as well as AACEi / PMI local chapters. His topics focused on project risk management and quantitative risk analysis process and techniques for project schedule and cost estimates.

- 2005 AACE International in Las Vegas titled "Marrying Risk Register with Trending"
- 2006 PertMaster International User Conference in Houston titled "Schedule Risk Analysis and Credibility"
- 2006 AACE International in New Orleans titled "Significance of WBS in Risk Modeling"
- 2006 Canadian Heavy Oil Conference in Calgary titled "Effective Mega Project Risk Controls"
- 2006 ARES Corporation PUG conference in Calgary titled "Contingency Simulation and Management"
- 2007 Palisade (@RISK) User Group in Miami USA titled "Stochastic Decision-making method"
- 2007 Energy IQ International conference in Abu Dhabi titled "Project Risk and Management"
- 2007 Best Practice Users' Group in London England titled "Strategic Decisions under Risk Conditions"
- 2008 Canadian Institute EPC Project Management conference in Calgary titled "Risks in EPC World"
- 2009 Palisade Energy Forum in Calgary titled "The Cost of Risk Quantification"
- 2010 Palisade @RISK conference in London England titled "Put More Science in Cost Risk Analysis"
- 2011 SPE Technical Conference in Denver USA titled "Understanding and Handling Residual Risks"
- 2012 Manuscript of 300-page fully indexed & referenced "Project Risk Management in Energy Industry"
- 2014 Canadian institute EPCM conference in Calgary titled "Managing Risks of Overseas Engineering"
- 2015 Palisade @RISK Conference in Calgary titled "Quantifying Management Reserves"
- 2016 AACE Chinook Section Dinner Meeting in Calgary titled "Projects, Risks and Contingency"
- 2017 Palisade Conference in Nashville titled "Contingency Determination using @RISK for capital projects"
- 2018 PMI Southern Alberta Chapter Dinner Meeting Calgary "Project Professionals and Project Failures"
- 2019 AACE & CIQS Joint Meeting Vancouver "Is it Important to scientifically derive Project Contingency?"
- 2019 Project Management Institute Conference "Managing Mega Capital Projects - Behind the Façade"
- 2020 Canadian Institute of Quantity Surveyors (CIQS) Webinar "Projects and Contingency: Science & Art"
- 2021 ASCE "TMEP Employs Risk Mitigation Measures for Trenchless Construction on their new Pipeline"
- 2022 AACEi Chinook Chapter "Stochastic Capital Project Cost Forecast - Beyond Cost Estimates"

List of Projects:

John Zhao has either worked in the project teams as an employee or conducted independent risk analysis as the principal consultant of Riskcore Ltd. for the following projects over past 33 years in Middle East, Europe, and North America across various industries, ranging from \$50Million to \$30Billion.

Oil Refinery

Irving Oil Refinery, St. John, New Brunswick (1997 - 1999) - Field Engineer
Shell Oil Refinery, Fort Saskatchewan, Alberta (2000 - 2002) - Senior Field Cost Engineer
Suncor Oil Refinery, Sarnia, Ontario (2006) – Risk Consultant (QRA)
ConocoPhillips Oil Refinery, Commerce City, Colorado, USA (2006) - Risk Consultant (QRA)
Rodeo Oil Refinery, California, USA (2002 - 2003) – Senior Cost Engineer
Sinclair Oil Refinery, Wyoming, USA (2017) – Senior Consultant (ECRR)
Suncor Voyage Bitumen Upgrader, Calgary, Alberta (2005) - Risk Consultant (QRA)
Statoil Edmonton Bitumen Upgrader, Calgary, Alberta (2009) – Risk Manager
Co-Op Oil Refinery T/A, Regina, Canada (2019/2022) – Risk Trainer and Consultant

Buildings / Infrastructure

Raylo Chemical Pharmaceutical Plant, Edmonton, Alberta (1996 - 1997) - Field Contract Manager
Federal Penitentiaries of Correction Services Canada, Edmonton, Alberta (2002) - Senior Project Officer
Al Jazerah Sports Club and Football Stadium, Abu Dhabi, UAE (1986 - 1991) – Field Engineer
City Water Pump Station & Seawater Desalination, Taweelah, UAE (1991 - 1994) – Project Manager
Regional Hospital Electrical Subcontract Work, Northern Saskatchewan (2016) – Cost Engineer
New Hospital Project, Vancouver Island (2022) – Risk Consultant (QRA)
BRT Infrastructure Project, Mississauga, ON (2022) – Risk Consultant [Proposal not accepted]
Scarborough Subway Extension – Stations, Rail, & System, ON - QRA [Proposal not accepted]
Light Rail Transit Project (Greenline), Calgary, Alberta (2021 - 2024) – Risk Consultant
Toronto Transit Commission (TTC) Project, Toronto, ON (2024 - 2027) – QRA Specialist

Mining

Suncor Oilsands Mine Expansion, Fort McMurray, Alberta (2007) – Risk Consultant (QRA)
Uranium Mine, Saskatoon, Saskatchewan (2013) – Risk Consultant (QRA)
Metallurgical steelmaking coal mine, Alberta (2020) – Risk Consultant (QRA)
Greenstone Open Gold-mine mine, Ontario (2021/2022) – Senior Consultant (ECRR/QRA)
Cote Open Gold-mine mine Project, Ontario (2022) – Risk Consultant (QRA)
Sarabina Gold-mine mine Project, Nunavut (2022) – Senior Consultant (ECRR)
Araguaia Nickel Project, Brazil (2024) – Senior Consultant (QRA)

Pipeline

Trans-mountain Oil Pipeline & Facilities, Alberta, and BC (2016 - 2023) – Risk Manager (QRA)
Major Trenchless Crossings (HDD, DPI, Micro-tunnelling and TBM) (2021 -2023) – Risk Consultant
Duvernay Gas Pipeline, Fox Creek, Alberta (2014 - 2016) – PMO Advisor
Oil Pipeline and Blending Stations, Cold Lake, Alberta (2023) – Senior Consultant (QRA)
Gas Pipeline for FLNG, Kitimat, BC (2023) - Senior Consultant (QRA)

New Technology & Clean Energy

Megaproject Floating LNG with Onshore Facilities, BC, (2023) – Risk Consultant (QRA)
Pilot New Tech Blue Hydrogen Project, Vancouver, BC (2023) – Risk Consultant
Clean Hydrogen Project, Edmonton, AB (2023) – Risk Consultant (PDRI/ECRR)
FCL/AGT Renewable Biofuel (Canola), Regina, Canada (2023 - 2024) – Risk Consultant (QRA)
Thermal Energy & Carbon Capture, New Zealand (2024) - QRA [Proposal pending]
Suncor Ethanol Plant (Corn), Sarnia, Ontario (2008) – Risk Manager

Petrochemical

Nova Ethylene and Polyethylene Plant, Red Deer, Alberta (1999 - 2000) – Field Cost Engineer
PDH / PPA Petrochemical Plant, Edmonton, Canada (2019/2020) – Risk Consultant (QRA)
Nutrient Conversion & Outage, Fort Saskatchewan, AB (2018) – Risk Consultant (QRA)
Nutrient Fertiliser Expansion Project, Lima, OH, USA (2024) – Risk Consultant (QRA) [deferred]

Oil and Gas

Devon SAGD Energy Development Project, Fort McMurray, Alberta (2017) – Risk Consultant (QRA)
Encana Water & Gas Separation Project, Northern BC (2017) – Risk Consultant (QRA)
Suncor Firebag Program SAGD, Fort McMurray, Alberta (2003 - 2004) – Estimating Manager
Statoil Corner Development SAGD, Fort McMurray, Alberta (2011 - 2014) – Quality & Risk Manager
Duvernay Gas Processing Plant, Fox Creek, Alberta (2014) – Risk Consultant (QRA)
Montenay Gas Processing Plant, Northern BC (2015) – Risk Consultant (QRA)
Underground Gas Storage Caverns, Emden, Germany (2010) – Quality & Risk Manager
Offshore Topside Oil Platform, Stavanger, Norway (2009) – Quality & Risk Manager
West Doe Gas Processing Project, Dawson Creek, BC (2022) – Risk Consultant (QRA)
IPL Cold Lake Blending Facilities, Fox Creek, AB (2023) – Risk Consultant (QRA)

Training

Corporate Training on Risk Management, RMWB Municipality, Alberta (2023-2024) – Risk Trainer
Corporate Training on Risk & QRA, FCL T/A, SK(2018) – Risk Trainer
Corporate Training on PRM & QRA, FCL & AGT, SK(2023) – Risk Trainer
Smart EPC Training on PRM & Cost Mgmt., AB & BC (2013 - 2019) – Risk Trainer
China-Canada Bridge Network Training on PRM, Beijing (2014) – Risk Trainer
Guest Speaker, Universities and Polytechnics, Alberta (2018 - 2024) – Risk Trainer

Public Training on QRA via PMI SAC, Calgary, Alberta (2019) – Risk Trainer
Project Risk Management Training, University of Calgary, AB (2012 - 2020) – Risk Trainer
Public Training on PRM via AACEi, Calgary, Alberta & BC (2007 - 2019) – Risk Trainer

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