Bill Tubbs

Operational Performance Improvement

Home address: 5212 Radcliffe Rd, Sechelt, BC V7Z 0C1 Canada
Telephone: +1 (778) 378-6539 (mobile)
E-mail: bill.tubbs@me.com

LONG TERM GOAL

To lead sustainable, results-focussed, process performance improvement in critical industrial manufacturing operations through stakeholder engagement, data analysis, root-cause analysis, fact-based decision-making, and implementation of advanced process control and real-time optimization techniques.

KEY SKILLS

Stakeholder engagement – building relationships across the organisation to identify key issues, understand perspectives, develop a shared vision, clarify responsibilities and agree a path forward.

Production optimization – implementing overall equipment effectiveness (OEE) measures, short interval controls and production loss accounting to drive root cause analysis and unite the production, maintenance and engineering functions in the common goal of maximising asset performance (availability, rate, quality, safety).

Process control and optimization – data-driven analysis of process behaviour and performance to identify the causes of variability and sub-optimal performance, and the design and implementation of process control systems (automated or 'human-in-the-loop') and advanced dynamic optimization techniques (e.g. model predictive control) to continuously increase productivity and reduce operating costs.

Maintenance effectiveness – developing and implementing a maintenance strategy that focuses on the reliability of critical machines, establishes critical preventive maintenance routines, implements an effective maintenance planning process to prioritise effectively, and the implementation of a maintenance productivity management system and root cause analysis to drive efficient maintenance execution.

Operations excellence – (i) the implementation of key performance indicators (KPIs) and effective forecasting, planning, control, and reporting systems to ensure all levels of the organisation understand their role in controlling and continuously improving operational performance, and (ii) defining the skills and behaviours essential for high performing teams and developing a tailored training and coaching program to deliver measurable and sustainable performance improvement.

Asset management – implementing an asset management strategy based on the manufacturing strategy to identifying and evaluate capital investment opportunities and make investment decisions that maximise return on net assets and capital over the long term.

Data science & machine learning – comprehensive understanding of the wide range of methods and tools from statistics, computer science, and operational research and the practical experience to guide and manage the processes of exploration, formulation, testing, mobilisation, implementation, improvement, and embedding within an agile development framework.

Program design and implementation – translating business analysis findings and strategic goals into a structured implementation program with milestones, results-plans, a program control system, stakeholder/steering groups, training and communication plans and the tracking of measurable results.

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QUALIFICATIONS

Master's in Electrical Engineering (in progress) **Started May 2020**

Laboratoire d'Observation et d'Optimisation des Procédés (LOOP), Université Laval, Québec, Canada.
Specialisations: Industrial process control, system identification, model predictive control, process observers, multi-variable control.
Research project: Dynamic observers and model predictive control for mineral processing operations.

Master's in Resource Management **August 2008**

School of Resource and Environmental Management, Simon Fraser University, Vancouver, Canada.
Specialisation: Climate policy, environmental economics, energy and materials management, risk and decision analysis, industrial ecology, energy system modelling.
Research: A simulation model for Canada-US climate policy analysis.

General Engineering Honours (BSc) **June 1994**

University of Durham, UK.
Specialisation: Mechanics, thermodynamics, fluid mechanics, turbomachinery.

EMPLOYMENT

Independent Management Consultant **March 2018 to present**

B. Tubbs & Associates Consulting, Vancouver, BC.

- Determined the end-use power consumption by process and equipment type at five potash mines in Saskatchewan, identified opportunities, and estimated total energy-saving potential.

Energy Optimization and Management Lead **December 2016 to February 2018**

Hatch, Vancouver, BC, www.hatch.com

Leading the identification and delivery of advisory services to mining, energy, and chemicals sectors in Western North America.

- Lead a project to analyse large data set on mine haul truck fleet to determine fuel-saving potential of an overland conveyor at an open-pit mining operation
- Quantified the current and full potential overall equipment effectiveness (OEE) of three facilities in a precious metals mining and processing operation
- Designed a corporate energy management, control and reporting system for a global mining client with 14 mines in Australia, Africa and South America
- Project managed energy-efficiency development studies for various mineral processing, iron and steel facilities.

Independent Management Consultant **May 2016 to May 2017**

B. Tubbs & Associates Consulting, Vancouver, BC.

- Identified and quantified technical energy-saving potential at a uranium ore processing plant
- Designed an energy management information system for a large potash mine and quantified the potential savings based on regression analysis of historical data
- Developed a novel technique to analyse large set of reported methane emissions data from Canadian oil and gas operations in support of industry-government negotiations on regulation.

Senior Manager, Climate and Energy **May 2014 to Mar 2016**

ICF International, Regina, SK, www.icfi.com

Clients: SaskPower, Erdos Chemical Group, Ontario Ministry of Northern Development and Mines, Canadian Manufacturers and Exporters Association, University of Regina.

- Managed the delivery of SaskPower's Industrial Energy Optimization Program to large industrial customers (mining, oil and gas, fertilizers, steel, pulp and paper)
- Helped customers identify, develop and implement energy saving projects
- Developed and implemented energy management information systems (EMIS) and best practices to help operators control and continuously improve the energy performance of their facilities
- Delivered training on energy performance analysis, project identification and development, and savings measurement and verification (M&V).

Manager, Environmental Permitting & Regulation **December 2008 to April 2014**

Spectra Energy, Vancouver and Calgary, www.spectraenergy.com

- Participated in government, industry and stakeholder working groups to evaluate federal and provincial air and climate policy proposals and regulations
- Lead a team of environmental specialists to manage environmental and regulatory risks across Western Canada Operations and maintain license to operate
- Ensure regulatory requirements for expansion projects to achieve on-time permit approvals
- Managed air and greenhouse gas emissions compliance and reporting
- Assessed risks and impacts of federal and provincial climate, energy and environmental policy
- Project management of carbon offset generation and emission reduction projects
- Project investment decision-analysis for Fort Nelson carbon capture and storage project (CCS).

Business Consultant **May 2002 to September 2003**

Electronic Data Systems (EDS), London, UK.

Clients: UK Government, British Petroleum PLC.

- Analysis and redesign of executive IT support, customer contact centres, payment processes
- Design and implementation of project planning, control and reporting for government agency.

Assistant Project Manager **January 1998 to April 2002**

Celerant Consulting Limited, London, UK.

Clients: Norsk Hydro Exploration & Production, ICI Chlorchemicals, BP Exploration & Production, Scottish Water, Hepworth Heating, FMC Corporation.

- Lead implementation team in implementing production optimization and effective maintenance management systems to increase oil production, reliability and maintenance effectiveness of offshore oil and gas production platform (£10m savings)
- Implementation of manufacturing improvement (uptime, rate and reliability), cost control and risk-based fixed cost reductions for large bulk chemical manufacturing complex (£25m savings)
- Implemented new product introduction process and lean manufacturing improvements for international manufacturer of domestic heating systems at three facilities in Europe (savings £21m)
- Implemented customer service processes and management systems for large public water utility
- Implemented management control and reporting system for commodity chemical sales team.

Mechanical Engineer **October 1994 to December 1997**

ICI Chemicals & Polymers Limited, Middlesbrough, UK.

- Increased critical machine availability from 50% to 85%
- Managed plant overhauls with no accidents/injuries
- Assured integrity of pressure systems to meet regulatory requirements
- Delivered £500k of annual maintenance projects
- Developed asset strategy aligned with manufacturing goals.

PROFESSIONAL TRAINING

- Asset Management, Lean Manufacturing, Six Sigma, Critical Machine Reliability, Hazard & Reliability Studies, Pressure Systems, Small Projects Methodology, Control of Modifications.
- Analysis and Project Definition, Management Systems, Interpersonal Skills, Coaching, Effective Meetings, Leadership and Teambuilding, Facilitation and Group Problem Solving, Presentation Skills, Train the Trainer, Foundations of Learning, Foundations of Management, Making the Most of Media Interviews, Business Development Excellence.
- Dynamic Optimization, Process Integration, Energy Monitoring Targeting and Reporting, GHG Audit Verification and Reporting.
- Deep Learning Specialization (deeplearning.ai), Data Science Intensive (Springboard), Machine Learning (coursera.org), Systems Thinking, Machine Learning for Finance (coursera.org).

KEY SKILLS

Dynamic Optimization	The identification dynamic process models from operating data and the design of process observers, model-predictive control (MPC), and other advanced optimization techniques to dynamically optimize continuous processes with non-linear or time-varying dynamics, multiple input-output variables, unmeasured states and disturbances, delays, constraints, and measurement errors.
Simulation Modelling	Selection, design and development of simulation models to facilitate better understanding of complex hybrid engineering/economic/behavioural systems in support of decision-making, forecasting, strategic planning and policy making.
Data Science & Machine Learning	Application of statistical methods and machine learning algorithms to real-world problems to better understand the underlying cause-effect and find statistically significant explanatory variables and insights to support forecasting, decision-making, strategic planning, problem-solving and operational performance improvement (e.g. linear and logistic regression, support vector machines, deep neural networks, RNNs, reinforcement learning, dimensionality reduction, cluster analysis, anomaly detection, recommender systems, Bayesian inference).
IT skills	MS Office, Python, PyData, TensorFlow, PyTorch, MATLAB, SQL.
Languages	English, German (fluent), French (intermediate).
Other interests	Contributing to open-source software (e.g. Python Control Systems Library), teaching computer programming, robotics research, data science meetups, hackathons.

REFERENCES

Available on request.