

"An extraordinary maintenance resource"

For asset resource management, look to BANAK Inc.

It's staffed by a team of analytical specialists and headed up by Dr. Andrew Jardine, regarded as one of world's leaders in equipment reliability and life-cycle management.

Depend on Banak for

- Consultation and guidance
- Reference materials
- In-house and public learning programs
- Software product and books



BANAK'S KEY PRINCIPLE

Evidence-Based Asset Management (EBAM)

Hunches, rules-of-thumb, intuition, years-of-experience. They used to mean a lot. But not any more. Dr. Jardine and his team are solidly committed to today's prevailing acceptance of decision-making based on evidence and on data collection.

Andrew says... *"Evidence-based medicine is considered the gold standard in modern medical practice. Why shouldn't it occupy the same rank in the costly, critical area of asset management? At Banak, we think it should, which is why we base all of our work on the solid foundation of EBAM"*.



Consultation & Direction

In-house & Public Learning Programs

Banak's professional team is equipped to take on a wide range of assignments. Its competencies include:

- Reliability: Repair and Replacement intervals
- Repair versus replacement
- Plant-wide maintenance assessments
- Maintenance optimization
- Cost-focused maintenance planning
- Total cost of ownership evaluations
- Stockholding policies for capital / emergency spares
- Availability maximization of protective devices
- Optimizing CBM decisions

Recent consulting assignments include:

- **Asset Management: Maintenance Optimization.** Undertaken for an oil and gas utility related to underground pipes in Canada.
- **OM&A Estimates for a 5 year planning horizon.** Undertaken for an electrical transmission and distribution utility in Canada.
- **Thorough Maintenance Assessment of 12 petrochemical plants.** Undertaken in the Persian Gulf region.
- **Maintenance Optimization Associated with Preventive Maintenance Intervals.** Undertaken for a global mining company for their underground equipment.

Banak has designed and presented learning programs the world over.

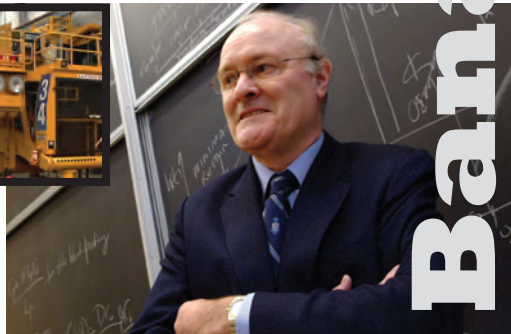
Banak's seminars and workshops have been acclaimed for their effectiveness, whether they're tailor-made to their clients' requirements or one of their standard offerings.

These programs provide different levels of detail and usually run from a half-day to ten days. They are offered through the University of Toronto's Centre for Maintenance Optimization and Reliability Engineering (C-MORE) but all are focused on the Optimization of Physical Asset Management Decisions, and rooted in evidence-based decision-making.

Typical titles include:

- Optimizing Equipment Life-Cycle Decisions
- Optimizing RCM Decisions
- Capital Equipment Replacement Decisions
- Fleet Maintenance & Replacement: Optimizing Life-Cycle Decisions
- Optimizing Maintenance Decisions to Achieve Excellence in Physical Asset Management
- Physical Asset Management
- Asset Life Cycle Optimization Training Program

A detailed brochure (pdf) may be obtained on the 2-day seminar Optimizing Maintenance Decisions to Achieve Excellence in Physical Asset Management by e-mailing Banak. Other detailed program outlines, durations, and instructor information will also be forwarded on request.



Banak delivers

Software & Books

Banak offers a number of products that are available to assist asset management practitioners.

Banak's software:

■ **AGE/CON and PERDEC**

These packages calculate optimal replacement times for physical assets — AGE/CON for vehicles, and PERDEC for plant equipment.

■ **OREST**

This program uses Weibull mathematics to determine optimal replacement intervals for machinery components.

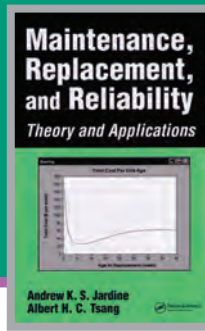
■ **EXAKT**

For anyone doing condition based maintenance, consider EXAKT. While Banak does not handle its distribution, Dr. Jardine initiated its development and Banak will be pleased to refer enquiries.

■ **SMS**

This Spares Management Software is a decision support tool for setting inventory levels for critical slow moving and high cost parts.

For complete details on these packages including free demo versions, go to banak-inc.com

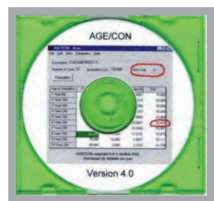
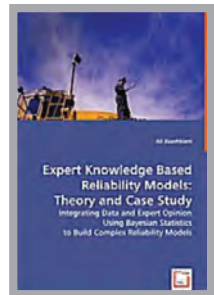


"In 1997, I purchased the sixth edition of Dr. Jardine's book: *Maintenance, Replacement and Reliability*, because I was trying to justify a large equipment purchase. Using material from the book, I put together an argument showing replacement, overhaul and repair considerations. And, the purchase order was accepted."

Mark C. Morrison, P. Eng
Operations and Maintenance Manager / Terasen Gas, Surrey BC

Banak's bookstore:

- The classic maintenance text by Dr. A.K.S. Jardine and Dr. Albert H.C. Tsang: *Maintenance, Replacement and Reliability: Theory and Application*
- A CD lecture presentation: *Advanced Methods in Making Optimal Decisions in Asset Maintenance, Replacement and Reliability*
- A new book by Dr. Ali Zuashkiana: *Expert Knowledge Based Reliability Models: Theory and Case Study*



For more information on these books including outlines of their contents, go to banak-inc.com

Banak's Principal Consultants



Andrew Jardine,
Ph.D., C.Eng.,
MIMechE, MIET,
P.Eng., Director
of C-MORE*.

Principal of Banak Inc.

Dr. Jardine is Professor Emeritus of Mechanical and Industrial Engineering at the University of Toronto. His work has included the authorship and co-authorship of numerous papers, textbooks. He has, for years, been in high demand as an independent consultant to corporations and governments the world over, in matters related to the optimum use of their physical assets.



Daming Lin,
Ph.D., BSc., MSc.

Senior Research Associate, C-MORE*, Associate consultant with Banak Inc.



Ali Zuashkiani,
Ph.D., BSc.

Director of Educational Programs and Postdoctoral Fellow at C-MORE*, Seminar instructor and associate consultant with Banak Inc.

**C-MORE is the Centre for Maintenance Optimization and Reliability Engineering, directed by Professor Andrew K. S. Jardine. Its focus is on real-world research in engineering asset management in the areas of condition-based maintenance, spares management, protective devices, maintenance and repair contracts, and failure-finding intervals.*

BANAK.EXTRAORDINARY.

Yes. BANAK truly is an extraordinary maintenance resource. Here's why.

It's a problem-solving organization that avoids "recipes". It doesn't have a kit-bag of ready answers. The Banak team goes at its assignments with an inventory of principles, scholarship, reflective learning, and intense curiosity. And this applies to its engagements on consulting projects, software development, seminar design and presentation, and the authorship of texts and articles.

Consider, for example, Banak's Evidence-based Asset Management initiative. (See front cover). But another is its exciting pioneering work — already with demonstrable results — with "knowledge

elicitation". It's founded on the belief, now proven, that a great deal of information can be gleaned from the tacit knowledge that resides across a range of sources in an organization — maintenance of course, but also finance, engineering, customer service and others. This knowledge can be extracted, and when it is, it can turn a questionable solution into a successful one. It's this kind of profound approach to it's work that sets Banak apart. The people at Banak like nothing better than hearing from people who feel their organization could do a better job of managing its assets. They would welcome a phone call to discuss it. No obligation, certainly.

Banak's number is +1 416 234 8558.



Contact Us

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Software and books may be ordered
by telephone.