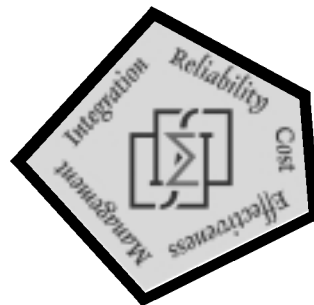


# MIRCE Akademy - Worldwide Partnerships

- AAR Aircraft Component Services,UK
- AEMS, UK
- Alenia Marconi Systems,UK
- Airbus,UK
- Archer Communication Systems,UK
- Avianca Airline,Columbia
- Australian Navy, Australia
- BAE Systems, UK
- Ben Gurion University, Israel
- BMT Reliability Consultants, UK
- Bromine, Israel
- British European Airways,UK
- British Army, UK
- Busilog, UK
- Centre for Software Reliability, City University, UK
- CALCE Electronic Products and System Center, University of Maryland,USA
- Claverham Ltd,UK
- Cogent Defence Systems
- Cooperation de la Andustria Aeronautica Colombiana,SA
- Daimler-Chrysler Aerospace,Germany
- Dassult Aviation,France
- Data Systems and Solutions, UK
- DBM Association, USA
- Defence Science and Technology Laboratories (DSTL), UK
- Defence Logistics Organisation (DLO), Ministry of Defence,UK
- Defence Procurement Agency (DPA), Ministry of Defence,UK
- Dunlop Aviation, UK
- EDS, UK
- Eurofighter Simulation Systems
- Finnish Air Force,Finland
- Genhan Systems, South Africa
- GKN Westland,UK
- Hagglands Vehicle,Sweden
- Hellenic Army, Greece
- Hellenic Navy, Greece

- Howmet Ltd,UK
- Hunting Engineering,UK
- Ikarbus, Yugoslavia
- Imperial College,UK
- Indian Institute of Management, Calcutta,India
- Indra Systems,Spain
- Intracom SA,Spain
- Institute of Aviation,Germany
- Institute of Technology Sepuluh, Indonesia
- JP PTT Saobracaja, Yugoslavia
- Jyväskylä Polytechnic, Finland
- King Fahd University, Saudi Arabia
- Kongsberg Defence and Aerospace,Norway
- Lockheed Martin Underwater Systems,USA
- Lockheed Martin,UK
- Logistics Networking, UK
- Logistics World,USA
- Lola Insitute, Yugoslavia
- LSC Group,UK
- Madison Research Corporation,USA
- Martin-Baker Aircraft Co Ltd, UK
- MLRS Project Office,USA
- NATO Maintenance and Supply Agency (NAMSA),Luxembourg
- nCode International,UK

- Norwegian Army Materiel Command,Norway
- PARC,UK
- Portuguese Navy, Portugal
- Qualmark Inc,USA
- RDM Submarines,Netherlands
- Rolls-Royce,UK
- Royal Air Force,UK
- Royal Air Force Logistics Support Services Agency (LSS), UK
- Royal Military College of Science, Shrivenham,UK
- SAAB AB,Sweden
- School of Telecommunication, Indonesia
- Sentient Systems, UK
- Ships Support Agency, Ministry of Defence,UK
- SOLE - The International Society of Logistics,USA
- Spanish Navy, Spain
- Southampton Institute,UK
- Syntell AB, Sweden
- Teldix GmbH, Germany
- Thales Optronics, UK
- Thales Training and Simulation,UK
- Thales,UK
- Thomson Marconi Sonar, UK
- Unified Industries,USA
- Universitas Surabaya,Indonesia
- University of Bristol,UK
- University of Belgrade, Yugoslavia
- University of Exeter, UK
- University College,Cork,Ireland
- University of Sheffield,UK
- US Army Aviation and Missile Command,USA
- US Marine Corps,USA
- Vickers Defence Systems, UK
- WS Atkins,UK



## MIRCE Akademy

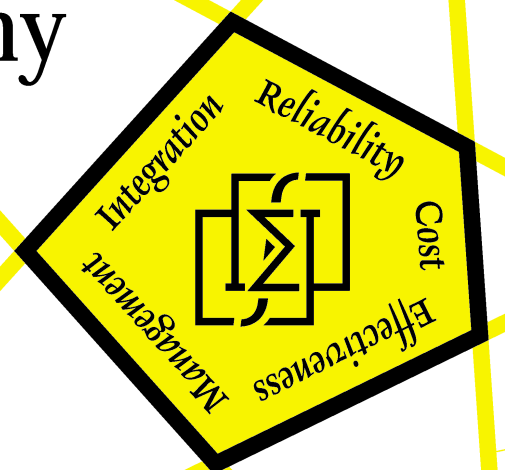
P.O.Box 198, Exeter, EX2 7YX, United Kingdom  
 Tel:+44(0) 1395 233856 • Fax:+44(0) 1395 233899  
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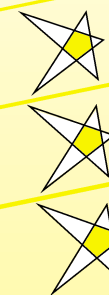
**Woodbury Park:** The MIRCE Akademy is located at Woodbury Park, a magnificent 500 acre complex tucked into the rolling hills above the South West English coastline,only a few miles from Exeter. The facilities at Woodbury Park include excellent teaching and meeting rooms together with a major conference suite.State of the art audio/visual equipment is available to support the learning process. Woodbury Park also offers outstanding leisure facilities including golf courses, tennis courts, a swimming pool,spa & sauna and fully equipped gymnasium.

# The MIRCE Akademy



## The 11th MIRCE International Symposium

in conjunction with



SOLE - The International Society of Logistics

PARC - Product Assurance and Reliability Centre

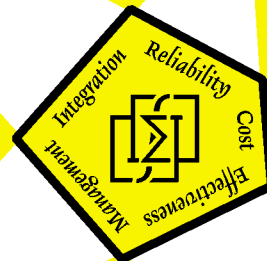
DBM - Distribution Business and Management Association

4-6 December 2001

Woodbury Park, Exeter, UK

# Data, Information and Knowledge Management

# The MIRCE Akademy enthusiastically welcomes all of those who wish to benefit from the dynamic new science through participation in the following activities:



## MIRCE Akademy

### President:

Jezdimir Knezevic, BEng, MSc, PhD, FRSS

### Director of Operations:

Clive Nicholas, BA, PGCE, MPhil

### Director of Research and Testing:

Professor Christopher Brookes, PhD, FIM, CEng

### Director of Education and Training:

Anthony Vallis, Eur Ing, BSc, PhD

The MIRCE Akademy is a private and independent institution, established to expand, apply, share, recognise and certify the knowledge of System Operational Science.

System Operational Science studies the behaviour of Systems in time and space. Its objective is to understand processes, factors and resources that drive a system's operational success, to analytically describe their relationships and, ultimately, to predict System Operational Success, under specified circumstances.

Consequently, the goal of designing and operating reliable, available and effective systems at affordable cost can become a reality when, through the study and application of System Operational Science, knowledge-based management replaces opinion-based management.

## F1-RE Centre

The Formula 1 Reliability and Effectiveness Centre was established to facilitate the application of System Operational Science to the Formula 1 Grand Prix racing process. To further promote the sport to the general public the Centre organises a variety of public events and hosts a dynamic educational display of F1 reliability and effectiveness studies together with appropriate F1 exhibits, courtesy of the adjacent Nigel Mansell's World of Racing at Woodbury Park.



## Research

The Akademy provides a focus for research demanded and driven by our industrial and government clients. The unique MIRCE Laboratory brings together engineers, economists, planners, pilots, logisticians, mathematicians, analysts, material scientists, maintainers, operational researchers, IT experts, racing drivers, managers, environmentalists and others to continuously expand the frontiers of System Operational Science. The ultimate aim of research is the creation of tools, techniques and methods that enable engineers and managers to quantitatively assess and predict the behaviour of systems in time and space, at the stage when the best alternative can be identified at least cost, time and risk.

## Testing

Demands for greater system reliability, effectiveness and value for money from owners and users, and compliance with requirements imposed on producers by national and international regulatory bodies, can be time and resource consuming activities. In co-operation with a range of specialist laboratories worldwide, with which we have established strategic alliances, the Akademy offers the capability for real time and/or accelerated testing for functions, performance, attributes and environmental aspects of systems (hardware, software and humanware).

## Consultancy

The Akademy engages in extensive consultancy that covers all aspects of System Operational Science. This enables the unique knowledge possessed by the members of staff and fellows of the Akademy to address the specific needs of its Industrial and Government clients within aerospace, defence, transport, automotive, distribution, construction and other industries for which operational success is a business imperative.

## Corporate Training

The Akademy offers bespoke short courses, which enable corporations to obtain training for their personnel in any aspect of System Operational Science. Careful selection and integration of the Akademy's courses into your own corporate training programme provides the possibility of creating an overall training package which fully meets your corporate needs. The Akademy courses are available at any location of your choice including our facilities at Woodbury Park and they can be tailored for both small and large groups.

## Diploma Programmes

The Akademy also provides individually tailored multi-modal education in System Operational Science. It has been specifically designed, in content and structure, to enable motivated professionals to personally select the most suitable mode of learning which can be a continuous period of study on a day-to-day basis; attendance for specific periods of days; studying at home or a combination of these modes. Regardless of the mode chosen, the Akademy offers Specialist, Master or Doctoral Programmes, normally involving 1 year full time or 2 years part time study.

The knowledge and skill acquired through the Akademy's programmes will remain with participants throughout their careers and will not diminish with changes in industrial or governmental standards or procedures.

## Knowledge Certification

The Akademy certifies the knowledge of System Operational Science demonstrated by individuals world-wide through its Certification scheme that is either Programme or Examination based.

Successful professionals are awarded Specialist, Master or Doctoral Diploma in System Operational Science.

## Professional Recognition

The Akademy recognises the skill and the knowledge of the most distinguished professionals in the field of System Operational Science by conferring the title of:

- **Fellow of the MIRCE Akademy, FMA**  
to recognise the personal skill or knowledge of professionals who have attained achievement of exceptional merit and distinction in a specific aspect of System Operational Science, or
- **Grand Fellow of the MIRCE Akademy, GFMA**  
to recognise of the unique contribution of individuals to the expansion of System Operational Science at a global level of significance. This award is the highest award that the MIRCE Akademy can bestow upon an individual.

The aim of the Professional recognition scheme is to integrate the enormous wealth of knowledge, skill and experience that Fellows possess into a globally recognised pool of experts available to satisfy the needs of motivated professionals and progressive corporations.

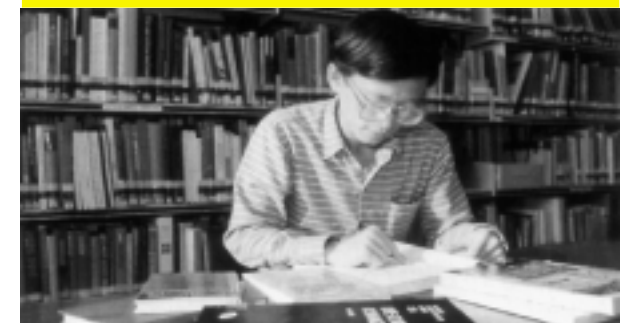
## Global Networking

One of the major strengths of the Akademy lies in its extensive global networks, which engage and connect Industry, Government, Academics and Professional Societies and Associations interested in System Operational Science. We have created a "working together" culture by integrating a wide range of experience in areas of research, education, training, consultancy, and technology application. Networking of professionals is achieved through conferences, symposia, technical visits, exhibitions, job referral services, technical publications, newsletters, public lectures and similar activities and events.

## MIRCE Resource Centre

The Akademy contains a comprehensive collection of texts and other media, with a fully computerised catalogue and lending service for Fellows, corporate/ individual members and students. The rapidly growing collection is housed in five sections:

- The Reference Collection, that consists of Handbooks, Directories, Standards, Bibliographies, Guides, Dictionaries, government and official publications
- The Main Collection with over 2500 titles in related disciplines
- The Ben Blanchard Collection that consists of Systems and Specialist Engineering and Management books, generously donated by Emeritus Professor Benjamin Blanchard of Virginia Tech, USA
- The Research Collection that consists of academic papers, technical reports, Masters dissertations and Doctoral theses, symposia and conference proceedings
- The Journals and Periodicals Collection, that consists of a large number of leading international publications, annals, periodicals, journals, and similar publications
- The Audio/Visual Collection that consists of professional and technical videotapes, CD Roms, DVD discs and other media.



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I wish to attend the Symposium and have read the Terms & Conditions

**Signature:**..... **Date:**.....

*(Full joining instructions will be forwarded to participants two weeks before the event)*

**Please Photocopy the Enrolment Form as necessary.**

Please complete the enrolment form and return to:

**Symposium Office, The MIRCE Akademy, PO Box 198, Exeter EX2 7YX, UK**

## Terms & Conditions

Fees will be refunded only if the Symposium is cancelled or if the cancellation of enrolment is received in writing at least 14 days before its start.

The organisers reserve the right to alter the schedule or cancel the event at its discretion. All places are offered subject to availability.

The organiser is unable to accept any liability for personal accident or the loss of, or damage to, the belongings of those attending this symposium.

Substitution of participants may be made at any time

## Accommodation:

Participants must make their own arrangements. Since the Symposium is being held at Woodbury Park, a block of rooms is available at the Woodbury Park Hotel at special rate.

Bookings should be made directly by ringing +44 (0) 1395 233 382 referring to the MIRCE Akademy rate. Rooms are retained for participants until two weeks before the Symposium.

A list of other accommodation in the area is available on request.

# The 11th MIRCE International Symposium

## Chair

Dr. Jezdimir Knezevic, The MIRCE Akademy, UK

## SOLE Co-chair

J. Crocker, SOLE-The International Society of Logistics, UK District

## DBM Co-chair

J. Thorn, Distribution Business Management Association, USA

## Technical Committee Members

### Prof. S. O. Duffuaa

King Fahd University of Petroleum and Minerals, Saudi Arabia

### Dr P. Hinds

Defence Logistics Organisation, British Army, UK

### Prof. A.K.S. Jardine

University of Toronto, Canada

### Mr J. Kneepkens

NAMSA, Luxembourg.

### Prof. U.D. Kumar

Indian Institute of Management, Calcutta, India

### Ms. S Pantelic

LOLA Corporation, Yugoslavia

### Prof. D. Savic

University of Exeter, UK

### Mr. M. Salminen

Jyvaskyla Polytechnic, Finland

### Ms. U. Stromberg

SAAB, Sweden

## A Personal Invitation

Dear Participants

It is my great pleasure to invite you to join us at this annual International Event. Over thousand participants, from all continents, have previously come to share the knowledge with key note speakers, paper and course presenters, with software exhibitors, and above all with each other. All of us have always enjoyed the traditional MIRCE Christmas Dinner when emotions, friendship, honorary fellows, partners and celebrities mix with the traditional Christmas food and a drop of red wine.

I hope that you will find the Programme stimulating and that you will be in a position to attend this event and give us the opportunity to serve you with the same level of professionalism and motivation as we have done in the past.

Looking forward to seeing you at the Woodbury Conference Centre in December 2001, where the Systems Operational Success is clearly visible through the achievements of its owner, the great racing champion Nigel Mansell, and where System Operational Science originated under the banner of the MIRCE Akademy.

Yours sincerely

Dr J.Knezevic

## Objective

This Symposium is designed to provide participants with advanced methods, tools and techniques necessary to achieve expected levels of System Operational Success through appropriate data, information and knowledge management.

## Target Audience

Engineers, Managers, Researchers, Academics and all other decision makers whose professional responsibilities and expertise lie in creation and support of Operational Success of Systems within the aerospace, defence, utility, transport, distribution, motorsport, marine, automotive, railway, agriculture, telecommunication and similar industries.

## Symposium Features

- ♣ Key Note Addresses
- ♣ Technical Paper Presentations
- ♣ Conference Proceedings
- ♣ Workshop
- ♣ World-wide Networking
- ♣ Exhibitors
- ♣ Launch of the monograph "From B to B – Polly Vacher's round the World Solo Challenge"
- ♣ Visit to Nigel Mansell's World of Racing
- ♣ Traditional Christmas Dinner
- ♣ MIRCE Akademy Annual Lecture
- ♣ MIRCE Akademy Fellowship Awards for 2001
- ♣ Best Paper Award

## Fees:

Participant (full programme): £ 535 plus UK Value Added Tax (VAT), Total Fee: £ 628.62

Paper Presenter (full programme): £ 335 plus UK Value Added Tax (VA T), Total Fee: £ 393.62

Christmas Dinner Attendee Only: £ 45 plus UK Value Added Tax (VAT), Total Fee: £ 52.87

The MIRCE Akademy Annual Lecture on 4<sup>th</sup> December : All welcome Total Fee: Nil

**Payment:** All fees should be remitted in UK Pounds Sterling. Cheques must be made payable to the MIRCE Akademy.

# Symposium Programme

## Tuesday 4th December 2001

08.30 – 09.30	Registration
09.30 – 10.30	Opening Address: <b>“General Principles for Information Systems in Support of Asset Management”</b> Charlie Dibsdale, Director, Ideas in Vision, Data System & Solutions, UK
10.30 – 11.00	Coffee / Tea
11.00 – 11.40	<b>In-service Data Based Management of Operational Reliability</b> Dr Peter Hinds, DLO, British Army, Andover, UK
11.45 – 12.25	<b>Impact of Reliability-Centred Concepts on Maintenance and Stockholding</b> Commander Nigel Morris, Royal Navy, Head of Reliability Centred Maintenance, Warship Support Agency, Bath, UK
12.30– 14.00	Lunch
14.00 –14.40	<b>Opportunistic Maintenance in Aircraft using Relevant Condition Parameter based Approach</b> Dr Haritha Saranga, Indian Institute of Management, Calcutta, India
14.45 - 15.30	<b>Improvement Product Reliability through Highly Accelerated Life Testing</b> Neil Frazer, PARC, Bideford, UK
15.30 – 16.00	Coffee / Tea
16.00 – 16.40	<b>Multi-Echelon Multi-Indenture Spare Parts Provisioning – A Case Study on Airlines”</b> Professor Dinesh Kumar, Indian Institute of Management, Calcutta, India
16.45 – 17.15	<b>Testing Methods Used During Development Phase to Achieve Software High Reliability and Quality</b> – Snezana Pantelic, Vladimir Zeljkovic, Divna Simeunovic, LOLA Institute, Belgrade & Miodrag Conic, Lazar Lacimic, BAS Belgrade Bus Station, Yugoslavia
17.15 – 17.45	<b>Probabilistic Approach in Fatigue Life Analysis of Aircraft Structural Components</b> Stevan Maksimovic VTI, Aeronautical Institute, & Vladimir Zeljkovic LOLA Institute, Yugoslavia.

### 19.00 The MIRCE Akademy Annual Lecture

**Hybrid Monte Carlo-Analytic Methods for Resources Optimisation**  
Professor Arie Dubi, Tel Aviv and Ben Gurion University, Israel

## Wednesday 5th December 2001

09.00 – 09.40	Keynote Address: <b>Aviation Information Solutions: E-business for the Aviation Industry</b> Ian Jackson, SPIRENT Systems Aerospace Solutions, UK
09.45 – 10.30	<b>Managing the New Logistics Environment – Revolution or Evolution?</b> David Moore, Defence Management Group, RMCS, University of Cranfield, UK
10.30 – 11.00	Coffee / Tea
11.00 – 11.40	<b>Systems Operation and Support Processes – Methods of Appraisal and Improvement</b> Kevin McCann, QinetiQ, Malvern, UK

11.45 – 12.30	<b>System Goal Function Orientated Maintenance</b> Dr Predrag Oskovic Waterworks, Belgrade & Prof Branko Vasic, Faculty of Mechanical Engineering, Belgrade University
12.30 13.45	Lunch
14.00 – 14.40	<b>Global Challenge &amp; Global Operational Success</b> Polly Vacher, Grand Fellow of MIRCE Akademy
14.45 – 15.25	<b>System Operational Success: Luck or Knowledge?</b> Dr Jezdimir Knezevic, President, MIRCE Akademy, Woodbury, UK.
15.30 – 16.00	Coffee / Tea
16.00 – 16.30	<b>Methodology for Reliability Design of Mechanical Systems</b> Dr Predrag Popovic, Institute VINCA, Centre for Motor Vehicles, Belgrade, & Professor Gradimir Ivanovic, Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Yugoslavia
16.30 – 17.00	<b>The Use of ILS Techniques in the Construction Industry</b> Dr Mohammed El Haram, University of Dundee, UK
17.00 – 17.30	<b>GIS Based Information Management System: A Tool for Disaster Management</b> Dr Jobair Bin Alam, Department of Civil Engineering, BUET, Dhaka, Bangladesh
18.00 – 19.30	<b>MIRCE Akademy Fellows Annual Reception</b>
19.30	<b>Sherry Reception</b>

### 12<sup>th</sup> MIRCE Traditional Christmas Dinner

The MIRCE Akademy Fellowship awards to be presented by  
**Nigel Mansell OBE, Grand Fellow of the MIRCE Akademy**

Launch of the MIRCE Akademy Monograph  
**From B to B, Polly Vacher’s Solo Round the World Challenge**

The MIRCE Akademy was one of the major sponsors of “Wings Around the World” which was a solo flight around the world in a Single Engined Piper Dakota, the smallest aircraft, flown solo by a woman, to circumnavigate the world.

## Thursday 6th December 2001

### 09.00 – 16.30 Workshop on Data, Information & Knowledge Management

**Presenters:** Prof. Dragan Savic, Exeter University and  
Prof. Dinesh Kumar, Indian Institute of Management, Calcutta

Data, Information and Knowledge Management have become instrumental for the operational success of any corporation. Knowledge Management is a collection of processes that govern the creation, dissemination and leveraging of knowledge to fulfil organisational objectives. In the future, successful organisations will be those which generate relevant knowledge and advantages from the knowledge to fulfil business objectives. Data forms the starting point of Knowledge Management. From data one can extract information that can be transferred to knowledge.

The Workshop objective is to provide participants with breath and depth of Data, Information and Knowledge Management. Concepts of data acquisition, data storage, data mining, information creation and knowledge management will be used to illustrate the importance of these activities to make a reliable system that is easy to maintain and support.

**Case studies:** Solving Reliability, Maintainability & Supportability Problems Through Knowledge Management and Theory of Invention Problem Solving with a specific reference to **The Challenger Space Shuttle** and **Single Crystal Turbine Blades**.