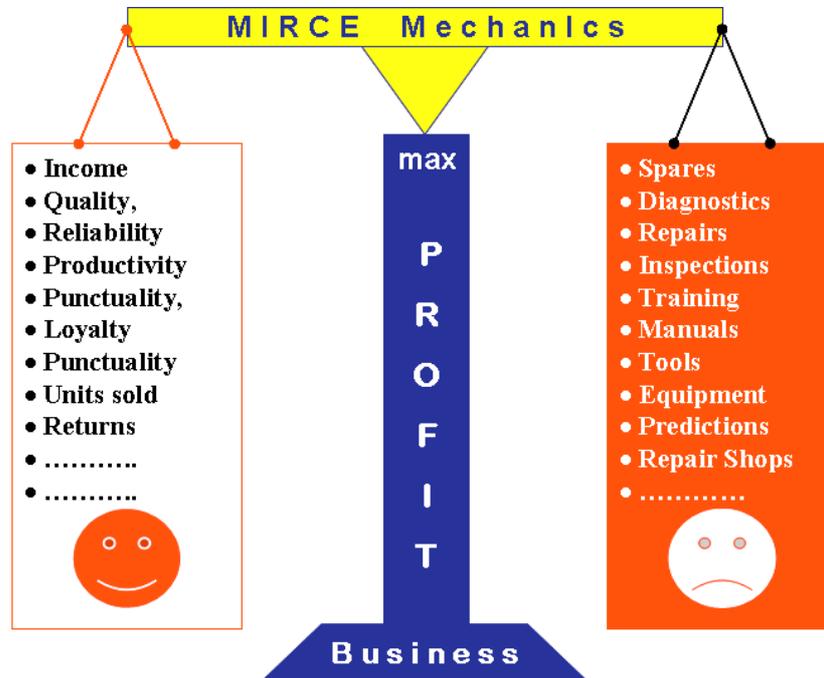


# Profit through Maintenance\*



The fundamental equation of business is: **Profit = Revenue - Cost**

Traditional Business practices consider maintenance resources like personnel, spares, tools, equipment, material, facilities and similar as a direct cost of doing business. Hence, the maximum possible reduction of maintenance cost will deliver maximum possible profit.

The sole objective of this year Summer School is to show you how the traditional way of thinking could be harming your business competitiveness and damaging the bottom line.

Our science based research has clearly shown that the fundamental equation of business has to be rewritten, if it is to reflect the observed physical reality and business profitability into following form:

$$\text{Profit} = \text{Revenue (maintenance)} - \text{Cost (maintenance)}$$

Thus, maintenance enables business function to delivers revenue and consumes resources. The winner is the company which understands both maintenance functions and establishes the optimal balance between the two, either through engineering business effectiveness or through managing business efficiency. Both approaches benefit from Mirce Mechanics, the scientific body of knowledge uniquely developed at the MIRCE Akademy for Managing, In-service Reliability, Cost and Effectiveness.

\***MAINTENANCE** is management of failures and provision of **PROFIT**

**Host: Dr Jezdimir Knezevic**



Researcher, educator and entrepreneur with over 300 publications disseminated world-wide through books, handbooks, papers, monographs and reports are attributed to his name. In addition, he has delivered hundreds of technical presentations, key note addresses and speeches; has been congress, conference, symposium chairman, track leader, workshop presenter, round table moderator on many hundreds international events which took part in all continents.

Dr Knezevic is the father of **Mirce Mechanics**, the science of the motion of system functionality through business process. He is the Founder and President of MIRCE Akademy, an independent research and educational institution based in UK.

His multi-disciplinary theoretical knowledge, considerable “hands-on” practical experience and endless passion for the subject have attracted over 6000 engineers, managers and students to his courses and educational programmes in over 40 countries in Europe, North and South America, Asia, Australia and Africa, at universities, professional institutions, industry and government.

Dr Knezevic has worked in the field of the system functionality theory and its applications to engineering and management for over 30 years.

Full details [www.mirceakademy.com](http://www.mirceakademy.com)

This year Summer School focuses on the challenge that daily is facing the business community, which is the necessity for simultaneous management of maintenance activities related to system failures, on one hand and the continuous provision of revenue generating functions, on the other.

For this to be achieved, a full understanding of the impact of maintenance on both functions is essential.

However, this is far from the current situation where the Boards of Directors, in every company in the world, are maximising efforts to minimise maintenance costs.

Hence, the main objective of this presentation is to show how the science based quantitative relationship between the £, \$, € paid for maintenance and the £, \$, € earned from the revenue generated function has been established to enable a trade-off that maximises the profit.

# Programme

## Day One

Focuses on the scientific understanding of the business processes and mechanisms that cause the occurrence of failure events, which in turn cause the loss of revenue. Occurrence of failure events results from complex interactions between the business systems physical properties, natural environment and human actions. Thus, failure phenomena that cause occurrence of failures and loss of revenue, according to MIRCE Mechanics, have to be analysed within physical scale between  $10^{-10}$  metre (to understand atom system based phenomena) and  $10^{+10}$  metre (to understand phenomena driven by the solar system).

Observed patterns of the motion of failure events through business process shows that a large number of "identical" systems "are failing" in accordance to a large number of different causes, while delivering "identical" functionality. Hence, the motion of system failures through business process is of statistical nature, which requires the use of statistical methods for the calculation of statistical measures of the observed physical characteristics and properties of business systems in time.

## Day Two

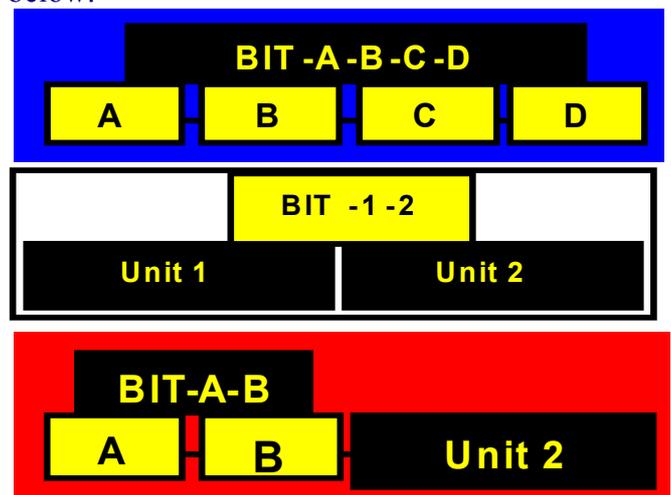
Focuses on the mathematical formulations of the physical processes of the motion of system failures through business processes. MIRCE Mechanics Formulas, developed by Dr J.ezdimir Knezevic at the MIRCE Akademy, define physical properties of system failures phenomena in the probabilistic terms. Although the laws of probability are just as rigorous as other mathematical laws they are not able to predict the failure occurrences for each individual system.

They can only predict the probability of each individual system being a given failure during a given interval of time or the collective probabilistic measures of the motion of a system failures through given business processes and Environment.

## Case Study 1: Engineering Business System

**Best Business System Alternative** is one that provides the best compromise among all competing business alternatives regarding the management of failures and provision of profit, against set business operational requirements and regulations. Some of them are directly related to the occurrence **failure events** as the main drivers of the system reliability, maintainability and supportability. Thus it is essential that failure **Mechanics, Causes, Modes, Diagnostics, Deferrals and Prognostics** issues are fully understood and incorporated into Best design Strategy.

However, as the majority of competing engineering issues are of numerical nature, all failure events related issue must be also expressed in quantitative manner. For that purpose the use of MIRCE Mechanics Formulas is essential. Hence, the participants will be actively engaged in the process of the selection of the Best Business System Engineering Alternative, among that tree shown below:



with the objective of addressing the following type of questions:

- **Which** is the best solution for the given design requirements and budget, **why** and by **how much**?
- Would you have chosen the same alternative, for example, for **Nigeria and Siberia**?
- Would you have chosen the same alternative, for example, for Siberia **in summer and winter**?

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## Day Three

Focuses on the demonstration of practical application of developed methods and technologies for the application of MIRCE Mechanics Formulas to:

### Engineering Business

**Effectiveness** to enable the integrated design team to predict the motion of failure phenomena through each of feasible design alternatives at the conceptual stage of design, when changes are possible at least cost and time. Method of application is illustrated through the Case Study 1 (see previous page).

## Day Four

It focuses on the demonstration of practical application of developed methods and technologies for the application of MIRCE Mechanics Formulas to:

**Managing Business Efficiency** to enable integration of operation, maintenance and logistics support policies for managing day to day flow of failure phenomena, in respect to all feasible and mutually competing management alternatives, and predicting their impact on in-service reliability, cost and effectiveness, at the planning stages of system operational process. Method of application is illustrated through the Case Study 2

### Summer School - Special Feature

#### *MIRCE Mechanics Based Studies of Virgin Galactic In-service Support*

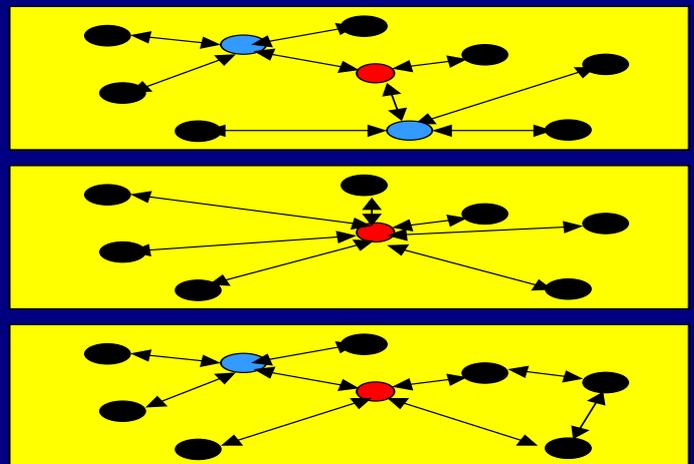
The objective of the Virgin Galactic company is to provide suborbital space flights to the paying public, sub orbital science missions and small satellite launches.

This Case Study presents the results of the theoretical analysis of the demand for the maintenance and support resources required to deliver continuous level of despatch reliability and safety, necessary to the generation of the profit expected defined in the Business Plan.

### Case Study 2: Managing Business Efficiency

**Best Operational Strategy** is a set of chosen rules that describe **when, where, who and how** operational resources are planned, obtained, located and used to enable delivery of the system functionality during its specified interval of time. As chosen rules are based on the quantitative information related to the **system reliability, maintainability and supportability** characteristics, as well as the monetary values of the resources required for the execution of **operation, maintenance and logistics support** tasks, the selection process of the Best Operational Strategy require quantitative treatment of information available.

Participants will have opportunity to take an active part in the process of determination of the Best Operational Strategy for the 7 operational sites among three alternatives shown below, by making



use of **MIRCE Mechanics Formulas** in order to determine which is the **best Operational Strategy** and explain why and by how much.



# Venue

Woodbury Park is a magnificent 500 acre leisure and sporting complex set among green rolling hills above the South West English coastline, only a few miles from the ancient city of Exeter.

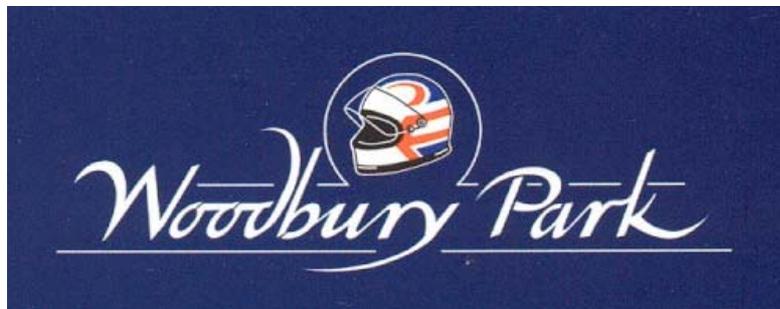
Communication between Exeter and other parts of the United Kingdom are excellent.

**By road**, the M5 motorway links Exeter to London, the Midlands, Scotland and Wales. Regular rapid coaches run services to and from London and Heathrow Airport.

**By rail**, a regular fast service is available to and from Exeter (St David's Station) and London (Paddington Station).

**By air**, Exeter Airport, which offers regular flights to many British and Continental destinations is 5 miles from Woodbury Park.

Travel between Exeter and Woodbury requires a car or taxi and takes about thirty minutes. Among the outstanding leisure facilities at Woodbury Park are two golf courses including the magnificent Oaks Championship course, tennis courts, a swimming pool, spa, sauna and fully equipped keep fit centre.



Woodbury Park is also home to the **Nigel Mansell World of Racing** that celebrates the remarkable career of one of the world's great champions and Grand Fellow of the MIRCE Akademy. The exhibition includes Formula 1 racing cars, video coverage of many outstanding racing achievements, in addition to trophies and memorabilia, marking Nigel Mansell's world-wide successes in the '92 Formula 1 and '93 Indy World Championships.



# Key Information

## Price (GB Pounds £)

Package Type	Fee	VAT	Total
Participant	1150.00	230.00	<b>1380.00</b>
MIRCE Fellow	1050.00	210.00	<b>1260.00</b>
MIRCE Member	1000.00	200.00	<b>1200.00</b>
MIRCE Student	7500.00	1500.00	<b>9500.00</b>

## The Price includes:

- Tuition
- Study Materials
- Lunches
- Light Refreshments
- Summer School Dinner on 19<sup>th</sup> July
- Visit to the Nigel Mansell World of Racing

## Group Discounts for Standard Participants

Groups of 3 or more booking at the same time from the same organisation will receive a 15 % and for 5 or more there will be a 25% discount.

## Location and Accommodation

The Summer School will be held at **Woodbury Park Hotel, Golf and Country Club**, which is approximately eight miles from Exeter by road.

Participants are responsible for the arrangement and payment of their own travel and accommodation.

**Participants wishing to take advantage of preferential room rates should contact Woodbury Park Hotel Reservations quoting 'MIRCE'.**

The contact details are:

**Woodbury Park Hotel, Golf and Country Club,**  
Woodbury, Exeter, EX5 1JJ, United Kingdom

**Tel** +44 (0) 1395 233 382

**Fax** +44 (0) 1395 233 384

**Email** [enquiries@woodburypark.co.uk](mailto:enquiries@woodburypark.co.uk)

**Web** [www.woodburypark.co.uk](http://www.woodburypark.co.uk)

A list of alternative accommodation in other hotels and guesthouses in the vicinity is available from MIRCE Akademy on request.

## Travel

For travel details to Woodbury Park and a map visit our website at [www.mirceakademy.com](http://www.mirceakademy.com).

## Messages

During the Summer School participants may be contacted by telephone on +44 (0) 1395 233 856 or by fax on +44 (0) 1395 233 899. Messages will be passed to participants during breaks

## Language

The Summer School language will be English.

## Recommended Attire

Smart casual is recommended dress code for the Summer School and in the grounds of Woodbury Park.

No formal dress is required for the Summer School Dinner.

## Smoking

Woodbury Park does not permit smoking in any of the leisure and sport complex facilities and in the hotel.

## Mobile Phones

Out of consideration to speakers and the audience, mobile phones should be switched off during the formal sessions.

## Further Information

§ +44 (0) 1395 233 856

✉ [quest@mirceakademy.com](mailto:quest@mirceakademy.com)

🌐 [www.mirceakademy.com](http://www.mirceakademy.com)

