



## Operating Plant and Systems Professionals

Inc.

'Your Increased Profitability is Our Bottom Line'

### **HANS H. EDER SENIOR PROCESS INDUSTRY SPECIALIST**

#### **CAREER PROFILE**

Hans Heinz Eder is a senior specialist in operation optimization and automation with focus on manufacturing plants in the process industry. Basis of his work is his many years of experience gained directly in the plants as well in R&D and in engineering organizations, covering practically all aspects of plant design, operation and optimization. His expertise is not only in the technical disciplines but also very strongly in the economical and organizational aspects of manufacturing as well as. He has over thirty-three years experience, of which about 21 years in many different capacities for Exxon / Esso's refining and chemical organizations in Europe and the USA.

#### **EXXON**

In the plant environment, Hans started in 1971 as a process designer and after a few years moved into operations support and off-line optimization. Main work location at that time was Ingolstadt in Germany, interrupted by temporary assignments to Hamburg / Germany.

In the mid seventies he joined a project to establish a digital control system in the Ingolstadt refinery, one of the very first ones ever installed. For this he relocated to Exxon's Engineering Division in New Jersey. After returning, he worked for some years as Senior Application Engineer in Ingolstadt, designing and commissioning Advanced Process Control (APC) applications. At that time he set a landmark by developing a model based (LP) multivariable control application for a fluid catalytic cracker (FCC) – already in 1979.

In 1980 he took over the management of the APC activities and led the refinery to one of the top sites in this field. During this time he was also very heavily involved in studies and calculations concerning the economics of process control.

In 1983 he moved back to Exxon Research and Engineering to work on the development of plant-wide Real Time Optimization (RTO) platform. In addition, he was also coordinating and teaching Exxon's top training courses in advanced and model based control on a world wide scale. During this time he also develop a simulation package which was used for all Exxon's training courses for over 10 years.

Thereafter, in 1986, he transferred to EXXON Chemical International in Brussels as a Computer Integrated Manufacturing (CIM) Advisor responsible for Europe and Asia/Pacific. Duties included besides advanced control statistical activities (SPC / SQA, TQM), production planning and scheduling and technical computing.

In 1992 Hans set up his own company ACT GmbH in Austria (converted later into D.I. Hans H. Eder KEG) with the objective to provide operations improvement / optimization and process control related services and products to the manufacturing industry. The four pillars of ACT's offering are:

- Consulting and Engineering: On the technical side this includes investigating the performance of a plant, identifying operations improvement opportunities and development or suitable strategies to exploit them. On the management side, consulting aims at helping plants to organize and plan their process control activities for more effectiveness.

- Training: The offer includes four very well received training courses and seminars – on basic and advanced process control, specifically on PID control, on model based control and on the business impact of APC.
- Software: TOPAS is a unique aid for process control professionals at all levels. It helps in training and in the transfer of APC theory into industrial practice and has an unmatched wealth of features for daily work: Several methods for process parameters estimation, PID tuning calculation, decision aids (single loop / cascade / multivariable control), troubleshooting aids, performance measurement and analysis and many more.
- Technology: A compact but powerful model based controller that fits into every DCS. It is used so far in various systems from ABB, Foxboro, Honeywell and Siemens.

Concerning the consulting activities, Hans has developed a reputation for quickly recognizing and locating untapped improvement opportunities and also for developing powerful yet very compact and surprisingly simple solutions. He also was called several time by system vendors to act as independent expert in between the vendor and the customer for DCS system projects.

As part of his activities in his company he has developed the AMC controller also designed TOPAS which received the prestigious Editors' Choice Award from the Control Engineering International magazine.

Based on TOPAS he also has developed a series (currently 12 with 2 more under way) of process control tutorials which are marketed in the Benelux by Kluwer Wolters. They cover a wide range from simple flow control up to an entire batch reactor control system.

In 2005, he joined FIT to widen his consulting realm.

## **PROFESSIONAL EMPLOYMENT**

### **Independent Consulting.**

Since mid 1992 Hans acts as a specialist in operations optimization and automation and leads the development of his company's software and technology tools.

### **EXXON / ESSO**

Hans was with Exxon / Esso from 1971 till 1992.

## **RECENT MAJOR PROJECTS**

### **a) Controls:**

Oil refinery, Delayed Coker Unit: Development and implementation of various strategies for assuring and optimizing the product qualities

Chemical plant: Development and implementation of strategies to stabilize an extremely integrated unit (5 columns) and to maximize the throughput

Oil refinery: Maximization of middle distillate yield based on EVOP (model free optimization) approach

Chemical plant, polyether. Model Based Control of a batch-reactor. The entire development and tuning was done **in one single day!**

Chemical plant, polyethylene: Development of a Model Based Control scheme of a reactor with a gas recycle and extreme limitations in the cooling capacity

Chemical plant, dispersion paints. Improvement of the existing controls of a batch-reactor and development of a novel strategy for maximizing the capacity. Preparatory work for installation of the AMC-controller

Chemical plant: Development of control strategies for stabilization and optimization of several tightly integrated distillation towers

Chemical plant: Development of an adaptive model based controller for a batch reactor.

#### **b) Studies**

Chemical plant: Study for the upgrade of the existing DCS system and the feasibility and economics of consolidating several control rooms into one control center

Incentive Study for a DCS system in a power station, Czech republic.

Styrol plant, Advanced Control Study: Improvement of the existing controls and development of new Advanced Controls, Application Design Basis Memorandum

Glycol pant, Advanced Control Study: Improvement of the existing controls and development of new Advanced Controls, Application Design Basis Memorandum, calculation of the economics

Bid specification for a production planning system for an oil refinery, Malaysia

Amine plant, Advanced Control Study: Improvement of the existing controls and development of new Advanced Controls, Application Design Basis Memorandum, estimation of the economics

Oil refinery: On-site-evaluation of a very advanced APC environment for further profit improvement improvements.

## **EDUCATION**

BS in Mechanical Engineering, Vienna Technical University, Austria

EXXON training courses for managerial and professional advancement in Europe and US.

## **LANGUAGES**

German (mother tongue), English, Dutch and some French

## **PUBLICATIONS AND PRESENTATIONS**

### **Latest Publications:**

Key co-author of "Handboek Procesautomatie" published by Kluwer-Wolters in Dutch (about 40 chapters / articles)

Regular column in Control Engineering Europe magazine in Advanced Control

Articles in the Control magazine, Control Solutions International, Control Solutions China, the IEE magazine, Elektron, Industrial Automation Asia, Chemie Produktion, Sensors& Systems, Hydrocarbon Processing.

### **Presentations:**

Invited speaker at the

- IEEE Conference London
- University of Barcelona,
- European Commission IT conference
- European Control Conference ECC99

Keynote Speaker at FoodSim 2002

Presentation on benefits of APC at Honeywell User Group Meeting in Nice

Keynote speaker of the CIDIC symposium at the Cambridge University, England

## **OTHER PROFESSIONAL ACTIVITIES**

Member of IFAC Working Groups on Chem. Process Control and on Education in Process Control

Secretary General of the ESPRIT work group CIDIC, sponsored by the European Commission, on Model Based Predictive Control

Former Vice-Chairman and designated (however not filled due to job change) Chairman of the Honeywell TDC 3000 User Group

Former member of the User Committee of research projects at the T.U. Delft, Holland

Expert for the European Commission: Evaluator of project proposals and reviewer of numerous projects in manufacturing, e-commerce, knowledge management, e-learning and virtual enterprises.