

DECISION SUPPORT SYSTEMS

for Integrated Manufacturing



BRITE/EURAM Project 3302

INTRODUCTION

For most of the 1980s manufacturing industry was exhorted to pursue a technological manufacturing response. Emphasis was placed on robots, automated systems, and computerised control. The human element was actively discouraged.

During the late 1980s some European manufacturing companies recognised that this technological manufacturing response was not delivering the sought after benefits. As a result they turned to more broadly based strategies founded on organisational change, improved worker motivation, etc. Production-island based Computer Integrated Manufacturing (CIM) is one of these broader strategies. It aims to achieve improved competitiveness and profitability through a balanced approach that addresses organisation, people and technology.

The concept is of importance to European Small to Medium Size Enterprises (SMEs) because potentially it involves less capital investment in complex computer systems and more emphasis on using technology to support organisational concepts and human resources.



BRITE / EURAM PROJECT 3302

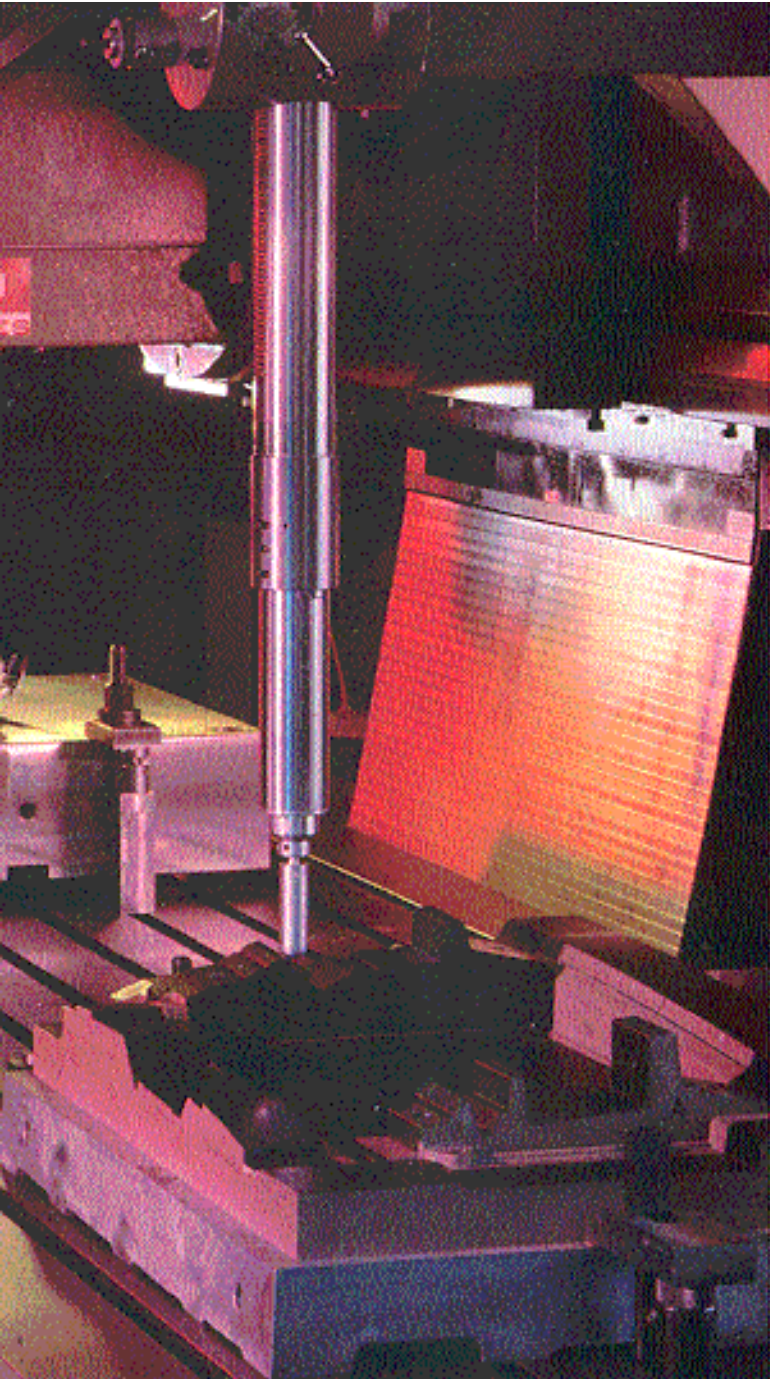
The major objective of BRITE / EURAM Project 3302 is to develop integrated Decision Support Systems (DSSs) and to implement a Production-island based CIM system in a small manufacturing company. This will be achieved by using the concept of Human and Computer Integrated Manufacturing (HCIM). This involves developing an integrated system based upon

three types of integration :

- People Integration
~ people communicating with people
- Human-computer Integration
~ humans interacting with computers
- Technological Integration
~ machine interfaced with machine



The project will develop an integrated set of Decision Support Systems that will improve and support co-operation between business, design, plan-



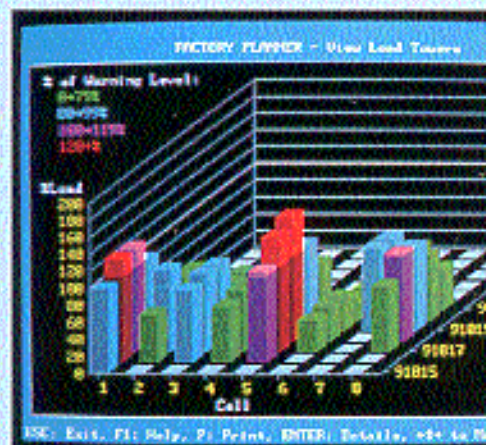
ning and manufacturing activities. The project will also address manufacturing systems design, and contribute to developing a better understanding of the software and hardware design and implementation requirements of SMEs using production islands, especially with respect to the impact of organisation and people issues on technology.

The project also aims to develop technologies that support and enhance human skill and judgement. Rather than seeking to develop technologies that replace these human attributes, the project is aiming to develop technologies that will foster their development. It is believed that technologies developed to support human skills will be more effective, and also much easier to implement than technologies that are designed as a substitute for people.

SYSTEM DEFINITION

The Consortium is developing an integrated system which consists of a group of people and computer-based Decision Support and Information Tools. This system is focused on both improving decision making in, and fostering collaboration between, business, design, planning and manufacturing activities.

The objective is to process sales enquires and customer orders and to provide the customer with accurate and realistic information, thus improving the company's customer responsiveness and business performance in a dynamic market environment.



OBJECTIVES

Specific goals of the project are to develop Decision Support Systems that will:

- Enable improved decision making in the Sales Department by providing customers with accurate and realistic information.
- Assist people working within the Production-island to select appropriate algorithms to undertake the island and machine scheduling in a way that maximises the island throughput.
- Provide advice on process routes and existing part programs that can be edited to deal with current tasks in order to reduce manufacturing lead times
- Enable earlier consideration of manufacturing constraints during design, thus assisting people to bridge the gap between design and manufacturing activities, leading to shorter design lead time and improved design quality

CONSORTIUM DETAILS

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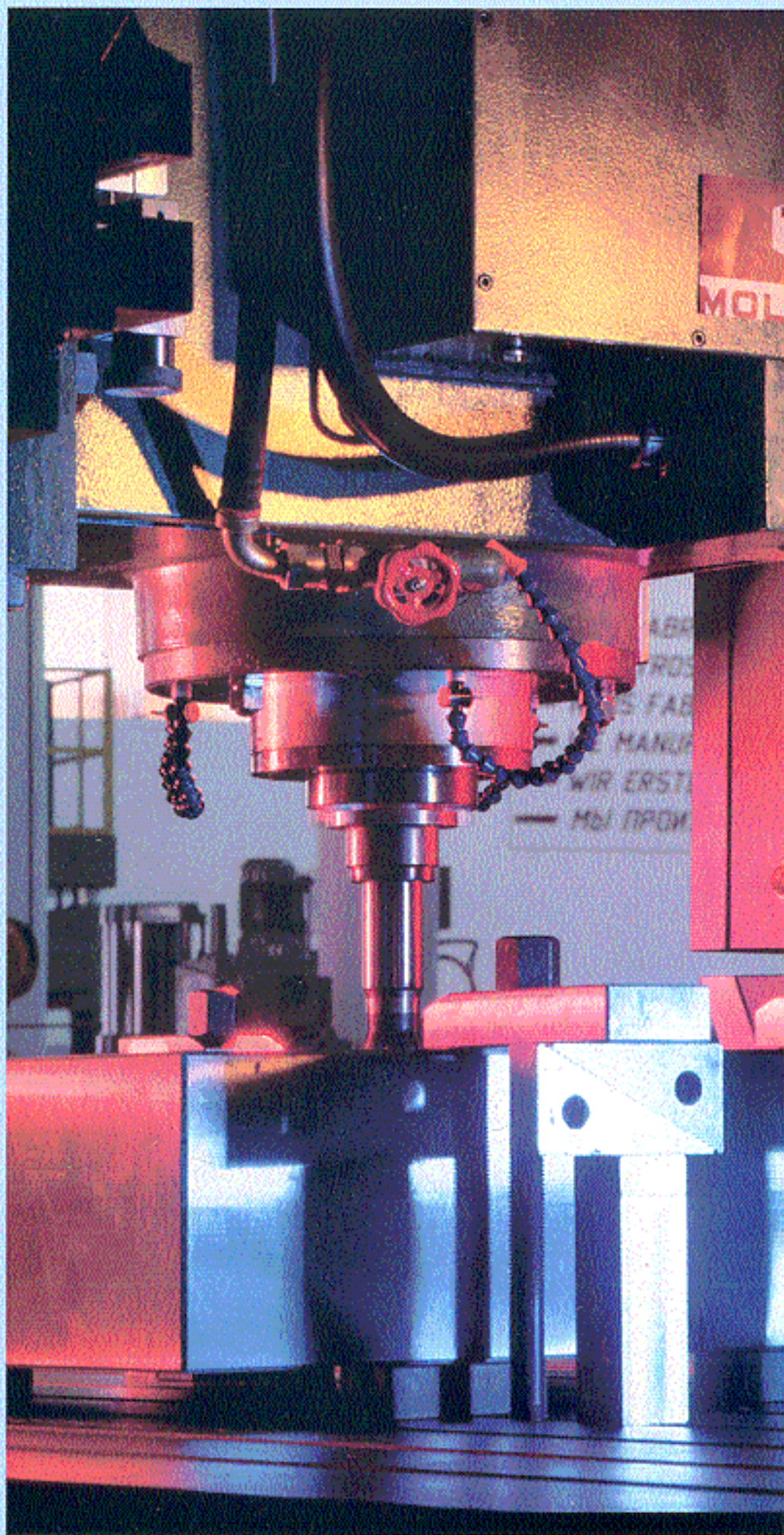
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