

AIM Acceleration of Innovative Ideas to Market, AIM (IST-2001-52222)


Fostering Innovative Ideas and Accelerating them into the Market

Prague, 17th October 2002

Prague Czech Republic 16-18 October 2002

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INDEX



- INTRODUCTION TO AIM PROJECT
- STATE OF THE ART
- OVERALL SYSTEM CONCEPT
- CONCLUSSIONS

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INTRODUCTION TO AIM PROJECT

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AIM: IMS Project



- European Group: Started June 2002
- Inter-Regional Group: Under Endorsement Process

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AIM Consortium: European Group

- **LABEIN, Centro Tecnológico:**
Project Co-Ordinator and Research Partner
- **Institute for Applied Systems Technology Bremen GmbH (ATB):** Research Partner
- **Cutting Tools Ltd. (Ctools):** SME end-user
- **Schmalbac-Lubeca (S-L):** Large company end-user
- **Motherwell Bridge Engineering Services Ltd. (MBES):** Large company end-user
- **SchlumbergerSema Group, sae:** Software developer and exploitation manager

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AIM: Acceleration of Innovative Ideas to Market

Nowadays Situation

- Innovation and getting innovative products to the marketplace are critical factors in the success of industrial companies.
- Process innovation (flexible, agile production) is also very important to bring novel products quickly to market.
- For this:
 - all useful ideas/knowledge must be collected
 - this collective talent/knowledge should be processed and developed for best potential benefits in terms of innovation

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Business Cases Overview

Company	Business Line	Cases Proposed
Cutting Tools	Precision cutting Tools for cutting shapes of all kind of flexible materials	The cases proposed focus specially upon the innovation support for rapid introduction of products to market.
Schmalbach-Lubeca	One of the world biggest manufacturer for bagging beverages and food cans	Strategically interested to introduce the knowledge based approach in order to provide a highest production facilities availability and capture innovative ideas over different sites to improve its manufacturing processes.
Motherwell Bridge Engineering services	Engineering services and equipment provider to industry	Cases focused upon the improvement in customer's support and suppliers working relationship, specially gathering information from the supplier's sites.

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Key Concepts

- Knowledge Management
- Extended Enterprise
- Innovation

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Key Concepts (I)




- Knowledge Management:
 - > Storing, organising and delivering knowledge to make it "real" for people who need it.

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Key Concepts (II)




Extended Enterprise:

- > Concept covering all actors along the product life cycle:
 - customer,
 - after-sale services
 - field engineers
 - depts. Within the company
 - multiple sites of the same enterprise
 - sub-contractors
 - engineering companies
 -

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Key Concepts (III)



- Innovation:
 - > Final stage of a development process,
 - > Result achieved and implemented successfully,
 - > Well accepted into the Market.

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AIM: Project Objectives

To develop means for:

- Stimulating the creation and collection of innovative ideas from people involved in the EE.
- Processing these ideas and storing them into a structured knowledge repository.
- Analysing innovative knowledge to determine which is useful, and which is not.
- Delivering the innovative ideas to product and process designers for maximum effect.

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Main utilities to achieve


Ideas/knowledge collection


- **Catching knowledge and innovative solutions from:**
 - identified product/processes problems
 - improvements potentials.
- **Collecting ideas from all involved actors on the product value chain (Extended Enterprise).**

Innovation support

- **Employing innovative methodologies for the best use of ideas/knowledge.**
- **Using tools to support innovation along the process.**


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AIM Project Benefits 


- **Reduction of innovation cycle-time.**
- **Reduction of time and efforts for solving product/process problems.**
- **Improvement of process efficiency.**
- **Reduction of wastes.**

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STATE OF THE ART

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Selected tools based on the state of the Art (1)

Appropriate ontologies:

- *to reuse innovative ideas from different actors*
- *to apply them for different industrial domains*
- *to enable usage and enhancement of ontology concept by company staff*
- *easy and comprehensible tool to build new and to enhance existing ontologies by company staff*

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Selected Tools Based on the State of the Art (2)

Reasoning Methods

- *Rule Based Reasoning*
 - *tool which supports reasoning by forward and backward chaining of relations, as cause-effect.*
- *Case Based Reasoning*
 - *for supporting reasoning on already presented problems and identification of similar cases with the working one.*

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Selected Tools Based on the State of the Art (3)

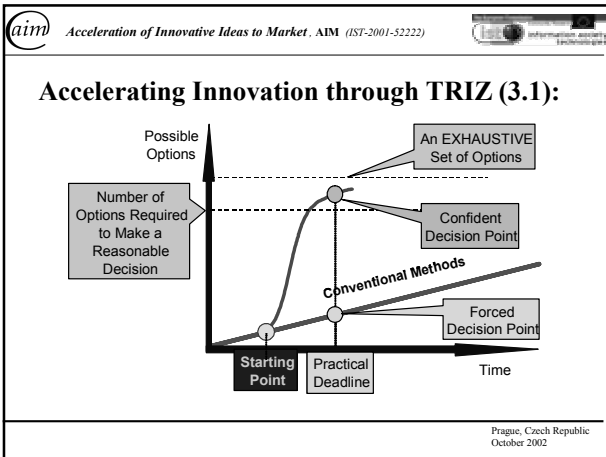
Oriented Innovative Thinking Tools:

- *TRIZ (Theory of Innovative Problem Solving)*
 - > *TRIZ is a useful tool helping to find innovative solutions*

Fundamentals of TRIZ:

1. LAW OF IDEALITY
2. CONTRADICTIONS
3. SYSTEM APPROACH
4. EVOLUTION OF TECHNICAL SYSTEMS

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Selected Tools Based on the State of the Art (4)

Innovation Management Tools

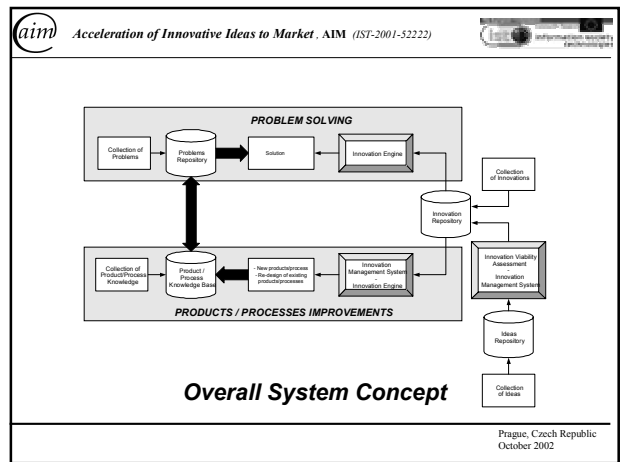
- Tools that allow to create, express, organize and communicate ideas in a simple, natural, intuitive way.
- LOGOVISUAL Technology
 - > based on the concept of Molecules of Meaning
 - > knowledge is treated like an object
 - > knowledge can be moved about in physical space
- MINDMAPS
 - > an efficient way of using the brain's ability for association

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OVERALL SYSTEM CONCEPT

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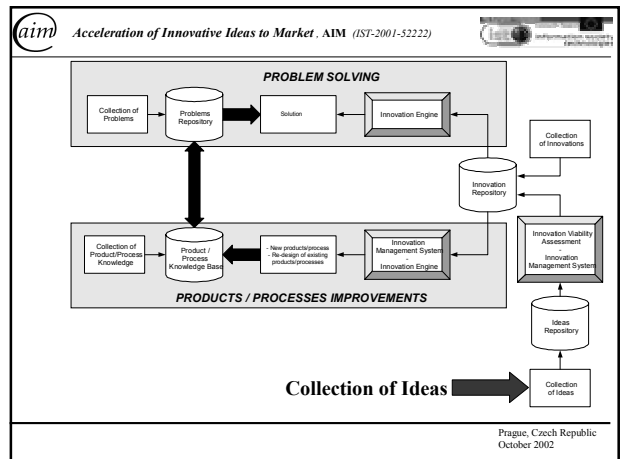


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AIM Methodology - Concept

- COLLECTION OF INNOVATIVE IDEAS AND PRODUCT/PROCESS KNOWLEDGE
- IDEA AND INNOVATION REPOSITORY:
 - Innovation Viability Assessment
 - Innovation Management
- INNOVATION REPOSITORY
- INNOVATION ENGINE

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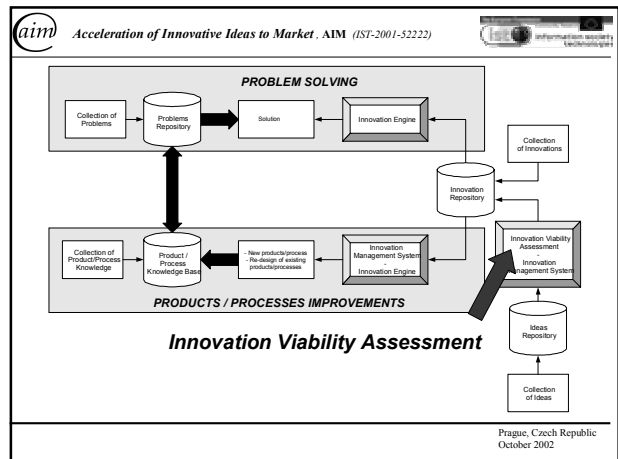
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Collection of Innovative Ideas:

- Rule Based Reasoning (RBR) and Case Based Reasoning (CBR) in combination with ontologies.
- Related to data bases including detail models of the products and processes.
- CBR is used to provide a list of "similar" problems and ideas already stored in the system.

RBR is applied for problem areas where rules can be defined.

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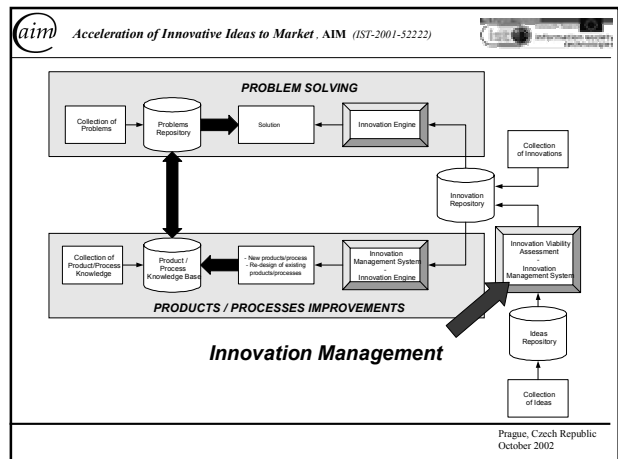
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Idea and Innovation Repository:
a) **Innovation Viability Assessment**

- This tool makes a first classification to provide valid innovative ideas to the development team conjugating several methods and techniques:

- Decision Trees.
- Reasoning tools, as RBR or CBR.
- TRIZ and its principles.

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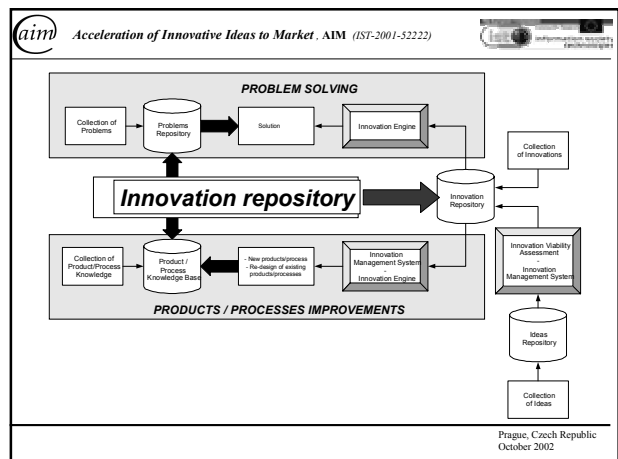
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Idea and Innovation Repository:
b) **Innovation Management**

- "LOGO VISUAL TECHNOLOGY" for the organisation and delivery of knowledge (based on the "humanisation" of thought):

- Knowledge is treated like an object.
- Knowledge can be moved about in physical space.

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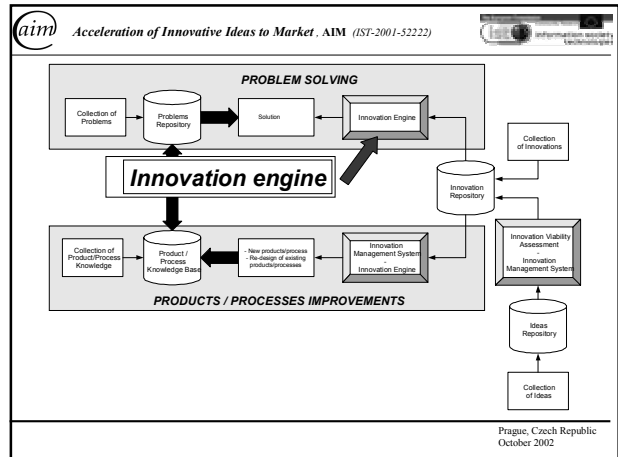


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Innovation repository:

- **Product process Knowledge base**
 > Experience-based knowledge of products and processes.
- **Problems Improvement Potential Repository**
 > Knowledge on problems and potential improvements regarding products/processes.
- **Innovative Ideas and Innovation**
 > All ideas and innovations stored using the meta classification.

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Innovation Engine:

- **Collection of methods for finding innovative solutions**
- **Following a systematic methodology for the development of ideas into innovation concepts.**
- **Combination of TRIZ, RBR and CBR.**

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CONCLUSIONS


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Conclusions

AIM OVERALL OBJECTIVES:

- **INCREASING INNOVATION**
- **ACCELERATING IT INTO THE MARKET**



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Conclusions

MEANS:

- **CAPTURING AND STRUCTURING INNOVATIVE IDEAS**
- **ON THE EXTENDED ENTERPRISE**
- **IN A WAY THAT THEY CAN BE BEST USED FOR PRODUCT/PROCESS INNOVATION.**

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Conclusions

- **NOT ANY METHODS & TOOLS AVAILABLE UNTIL NOW SIMILAR TO AIM**
- **AIM'S TOOL, WILL BE BASED ON A COMBINATION OF EXISTING ADVANCED TECHNOLOGIES APPLIED AT THE INDUSTRIAL MANUFACTURING LEVEL.**



**THANK YOU
FOR
YOUR ATTENTION**