



# Mathematics for Industry

## Thematic Line

**Coordinator:** Rui Borges Lopes

### Goal

The main goal of this thematic line is to promote the collaboration between CIDMA members and collaborators and society as a whole, industry in particular.

It is intended to develop several initiatives to:

- Increase the visibility to companies of the expertise of CIDMA members;
- Encourage the participation of CIDMA members in projects relevant to industries;
- Facilitate the development of joint-projects between both.

It is expected that this will further increase CIDMA's contribution to the national and regional economic development.

### Motivation

The main motivations for the creation of this thematic line are:

- To be able to respond to problems posed by companies, which often requires creating multidisciplinary teams;
- To enhance responsiveness of the research teams, by taking advantage of PT-MATHS-IN and its link to European technology transfer networks;
- Applications in business environments are catalysts of (scientific) employment opportunities
- To increase the competitiveness of the regional and national industrial fabric.

### Plan

Promote the cooperation among CIDMA members in various aspects:

- In applying for European and FCT projects (CoLABs);
- Organization of meetings such as European Study Groups with Industry (ESGI), (Iberian) Modelling Weeks, Industrial Days, etc.;
- Promotion and dissemination of mathematical applications by organizing dissemination events, visits to companies, etc.;
- Stimulating scientific (and qualified) employment;
- Participation in EU-MATHS-IN and ECMI events.

**The thematic line officially started its activity in 2019**

### CoLAB application

In April 2018 a CoLAB proposal was presented which consisted of a consortium of 5 companies and 8 research centres, which included CIDMA.

**Name:** Collaborative Laboratory for Mathematics in Industry and Innovation  
**Acronym:** CoM(IN)2

#### List of Participant Entities:

- Sociedade Portuguesa de Matemática (on behalf of PT-MATHS-IN)
- Centro de Matemática Aplicada à Previsão e Decisão Económica (CEMAPRE)
- Universidade de Aveiro (on behalf of CIDMA)
- Universidade da Beira Interior (on behalf of CMA-UBI)
- Universidade Nova de Lisboa (on behalf of CMA)
- Universidade do Minho (on behalf of CMAT)
- Universidade de Coimbra (on behalf of CMUC)
- Universidade do Porto (on behalf of CMUP)
- Instituto Superior de Engenharia do Porto (on behalf of LEMA)
- FREZITE – Ferramentas de Corte, S.A.
- DESFO - SGPS S.A
- Auto-Sueco Lda (on behalf of NORS)
- Lusitania Seguros SA
- PricewaterhouseCoopers & Associados - Sociedade de Revisores Oficiais de Contas Lda (PWC)

CIDMA members involved in the proposal (from different research groups):

**Functional Analysis and Applications**  
Eugénio Rocha

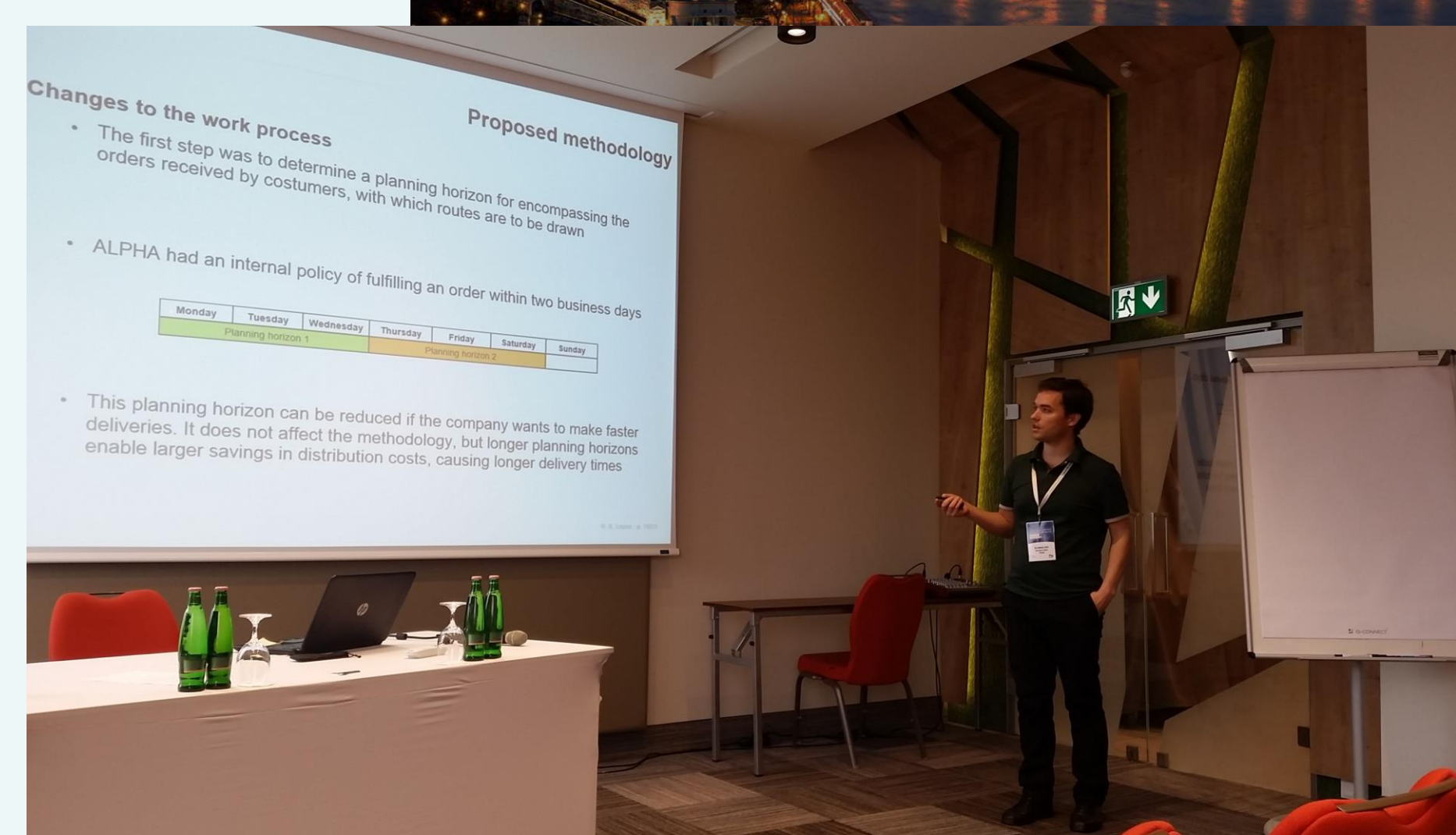
**Optimization, Graph Theory and Combinatorics**  
Agostinho Agra  
Ana Raquel Xambre  
Cristina Requejo  
Rui Borges Lopes

**Probability and Statistics**  
Helena Alvelos  
Magda Monteiro  
Marco André da Silva Costa  
Maria da Conceição Lopes Costa

The final decision of the evaluation panel was communicated in December 2018:

CoM(IN)2 was not considered eligible for funding

The evaluation panel concluded its assessment with the recommendation to re-submit the project in the next application phase



### Two works were presented:

- Cristina Lopes, Aldina Correia, Eliana Costa e Silva, Magda Monteiro and Rui Borges Lopes, “Reverse logistics modelling of assets acquisition in a liquefied propane gas company”
- Rui Borges Lopes, “Designing a logistics system using a location-routing approach”