

Developing a Common Didactical Offer for Teaching International Operations Management in China, Italy and Spain: Experiences and lessons learnt^{*}

FRANCO Darío Rubén, GASQUET GOMEZ Pedro, POLER Raúl, BAS ORTIZ Ángel, GÓMEZ Paula

(Research Centre on Production Management and Engineering
Technical University of Valencia Cam de Vera S/N, Spain)

Abstract: This paper is intended to describe an ongoing initiative that is being carried out among three Chinese and two European universities. The aim of the International Operations Management Project is to create and offer a common didactical offer for both Chinese and European students either at under and postgraduate level. According to the partners' beliefs, the internationalization of the Operations Management topic needs to be properly addressed at those levels. In this work, the authors outline a main managerial and technological decisions taken when they needed to harmonize such heterogeneous working teams. The proposed IOM Didactical Platform architecture, which is described here, is a result of a deep analysis of the described scenario which has allowed us to properly achieve both projects goals and partners expected flexibility. By means of a Model-based architecture, contents creation and accessibility is already available for all the partners who need them in order to arrange their specific didactical offer, according their particular environmental needs.

Key words: international cooperation among China and Europe; common didactical offer; IT platform architecture; Content Management System

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1 Motivation

The European Union (EU) is currently China's third biggest trade partner. EU exports to China rose in 2003 by around 40% compared with 2002^[1]. The EU now provides China with more than 16% of its total imports and it is gaining market share. European investment in China has also increased, and actual investment by European companies is now only marginally lower than that of US companies.

Not only the FDI has increased in China but also a lot of enterprises choose China for international sourcing. In fact there are a lot of retailing groups that conduct their international sourcing in China. In 2001, multinational retailers purchased Chinese goods worth US\$30 billion, representing 12% of China's total exports that year.

The increasing trend of international exchanges offers big opportunities but also new risks for enterprises and this necessarily requires a redefinition of the Operations Management competences orienting them to the internationalization topics.

This means that the need to understand interna-

tional operations management (OM) is becoming an important requisite for academicians as well as practitioners today. Although companies may not be able to prevent disruptions when they are involved in Supply Chains, they can reduce their impact by understanding how their operations may be affected and by preparing for the possibilities. The goal is to develop operational resilience, foster the ability to recover quickly and plot alternative courses to work around the disruption.

As concerns this outlook, it can be pointed out the fact that the West Region of China has already started accelerating its open-up and cooperation with EU. As an example, the EU-Sichuan SMEs Business Meeting, a project co-founded by European Commission, was successfully held in Chengdu, Sichuan on March 10th and 11th 2005. There, EU firms were looking for Chinese trading partners in order to outsource part of their operations.

To cope with these new challenges it is necessary to transfer new competences to the business managers through the channel of the academic courses and the masters, enabling to provide the enterprises with qualified personnel able to manage these new themes. In

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作者简介: Franco D R (born in 1970), male, Professor. E-mail: dfranco@cpp.upv.es

this sense, the topics related to “International Operations Management” will allow the students to obtain a deep and comprehensive knowledge on entrepreneurial dynamics at international level.

2 International Operations Management Asia-Link Project

2.1 The Asia-Link Program

The Asia-Link Programme's aim is “to promote regional and multilateral networking between higher education institutions of the European Union and the developing countries in Asia covered by the ALA Regulation (South Asia, South East China, China, Mongolia, North Korea). The programme serves as a framework aimed towards promoting mutual awareness and understanding, exchanges and economic cooperation in a perspective of mutual interest^[2].

In line with this EC objective the focus of our action is on an effective and enduring cooperation between two European (Italian and Spanish) and three Asian (Chinese) higher education institutions; in particular, this will be a mutual and two-way cooperation that will result in relevant benefits for both the European and the Asian partners.

In addition to this, our proposed action intends to address the fundamental goals not only reinforcing the existing EU-Asia partnership network (actually the partners have already collaborated in the past) but also fostering the development of new ones, creating a common basis for courses based on a coherent exchange of know-how on innovative topics. The final scope is to feed the formative offer of both European and Asian higher education institutions, in order to make them more in line with the global market evolution and to allow them to form students enabled to meet the requirements of labour market.

2.2 International Operations Management Project

The International Operations Management (IM) Project is an undergoing initiative which overall objective is to promote the theme of International Operations Management, by jointly developing a programme of broad and enduring cooperation among Asian and European higher education institutions.

This objective is pursued by fostering the cooperation in the field of higher education among three Chinese, an Italian and a Spanish university with the vision of creating a stable partnership network, based on a new didactical framework.

The consortium is formed by 5 higher education institutions that have already collaborated in the past in

other research and training activities:

- UPV— Polytechnic University of Valencia (Spain)
- UNIUD— University of Udine— Department of Electrical Management and Mechanical Engineering (Italy)
- SCUT— South China University of Technology — School of Business Administration (China)
- XJTU— Xi'an Jiaotong University — School of Management (China)
- SWJTU— Southwest Jiaotong University — School of Economics and Management (China)

On the basis of the needs already collected, it has been found of relevant interest to allow the target groups to improve their skills and deepen their awareness and knowledge on themes considered to be of huge interest such as International Operations Management.

As consequence, in a long term perspective, this common training background will contribute to the future improvement of economic, industrial and business relations between Europe and Asia based on the common understanding of the business processes.

The specific objective of the action is to integrate the current didactic offer of academic undergraduate, postgraduate (Master) and Ph.D. courses with new didactic modules related to the theme of International Operations Management. The expected curricula will deal with five fundamental entrepreneurial processes: new product development, sourcing, manufacturing, distribution and networked business transactions. Each of these will be reviewed according to the increasing demand of skilled professionals oriented to a global perspective.

3 Design a common training plan

3.1 Identifying target groups

During the training plan design process, partners identified potential target groups. Thus, undergraduate and postgraduate students were identified as potential beneficiaries of the action, but demanding different skills:

- Academic undergraduate courses (Undergraduate Students);

Aim: Training will deal with problems related to planning and managing of productive and logistic systems, process modelling and the interactions with other enterprises sub-systems; thereby it is possible to identify and evaluate systems performances and to identify actions to improve them. These students will be provided with:

- System analysis and modelling skills

- Deep knowledge of different typologies of productive and logistics systems;

- Knowledge of ICT systems;

- Change management skills;

- Postgraduate degree (Master courses) (Students of the Post graduate Degrees);

Aim: Become highly qualified professionals specialized on focused subjects, meeting in this way the broad demand of the labour market for these professional profiles and addressing the typical connotation of a huge number of resident enterprises.

Sometimes these students are people who have already had a job experience (3—5 years) in enterprises and who want to systematize their experience in the field, consolidating further their professionalism.

- Ph D courses (Students of the Ph D courses);

Aim: These students aim at acquiring those competences which are necessary to perform highly qualified research activities at universities and at public or private institutes. Ph D students carry out studies and surveys about focused subjects, i. e.

- Project management;

- System engineering;

- Supply chain management;

- Management science and engineering;

- Industrial engineering;

- Logistic engineering;

The project involves more than 3.000 students coming from those European and Chinese universities.

3.2 Formative modules

The demand for skilled professionals to help the enterprises to be internationally competitive is increasing. In this sense, it is perceived the necessity, also at didactic level, to redirect the actual formative proposal on the basis of the changed training requirements related to the Operations Management and in particular with internationalization focus. Thus, five formative modules were created:

- International Operations Strategy

- International New Product Development

- International Sourcing and Manufacturing

- International Logistic Operations Management

- Networked Organizations

The identification and selection of these five areas of interest derives from a careful analysis of the evolutionary trends of the market and of the consequent requirements of the enterprises which are engaged in the global competition.

The importance of the International New Product Development is coming from the benefits that can be obtained from the creation of new products/services under a global perspective in terms of modularity and global design. Also it's important to work on the customization of those internationalised designed products. The International New Product Development is an important and complex business process, being considered as a major factor influencing the business excellence of any organisation.

The criticality of the International Sourcing and Manufacturing is given by the observation of the trends relating to the Foreign Direct Investments (FDI) in emergent countries, such as China. In fact, after the decrease recorded in 98—'99 and the stagnation of Year 2000, the foreign investments in China restarted to increase sensitively showing a growth rate of 15% and 34%, in 2002 and 2003 respectively. In the same years of reference the total value of the FDI amounted to 52.7 Mld \$ and 70.8 Mld \$ respectively.

Also the relevance of the International Logistic Operations Management theme can be understood taking into consideration the high economic growth of some countries that are considered strategic in the international scene. In this case, China can be chosen as reference parameter too. The present growth rates recorded by China have no equals: the commercial exchange showed an increase equal to 21.8% in 2002 to 37.1% in 2003. A record value of 851.2 Mld \$ was reached.

As well as these economic changes, an increasing interest towards themes such as strategy, safety and risk of international trade has arisen due to the geopolitical events happened during the last years. So, the present action will investigate the topic of International Operations Strategy too.

Networked Organizations are considered as new organizational models that may support global operations in a more affordable way³. Global operations environments require not only common goals, practices and procedures but also increase interoperability requirements in terms of information sharing, visibility or interoperability⁴.

3.3 Methodological approach

The project " International Operations Management " is structured in three macro Phases (shown in Tabhe 1).

Tab 1 Macro Phases of the IOM Project

Phase	Description
1. Design of training plan and development of training modules	At this stage, three main activities will be performed — Training Plan definition (jointly) — Teaching exchange programme planning (jointly) — Development of the material for the 5 new modules (each module will be prepared by a responsible partner) The training material that will be used during the implementation phase (theoretical handling, exercises, case studies, auto assessment tools, etc) is available in electronic format through CDs and downloadable through the project web site. It will include also a forum for the discussion on themes related to the modules.
2. Refinement of training modules and insertion in existing/new courses	At this stage, the five new modules and the related training material will be refined in order to deliver a consistent and relevant final version of the overall training framework. Once refined, the material will be used during the concrete implementation of the modules. Also the partners will be engaged in the selection of the most appropriate existing courses, where the five new developed modules could be inserted. Another possibility will be the creation of new courses based on the topics developed in the five new modules.
3. Dissemination and exploitation of project results	A web site will be developed to allow an efficient and effective dissemination of the project. Thus, all the interested parties, besides the projects participants, will be able to access to and to benefit from the provided material. By means of this tool the project will offer the participants the possibility to carry out a continuous learning, because they will be provided with a complete didactic support material. Another function of the web site will be the publication of each projects state and news related with the project performance. The projects dissemination will be enhanced also by means of events like public conferences and scientific publications which will be presented in the countries where the proposed courses will be performed.

Transversally to these three macro phases a continuous and deep monitoring/assessment activity will be carried out.

The above mentioned methodology was designed and adopted in order to achieve a high level of flexibility

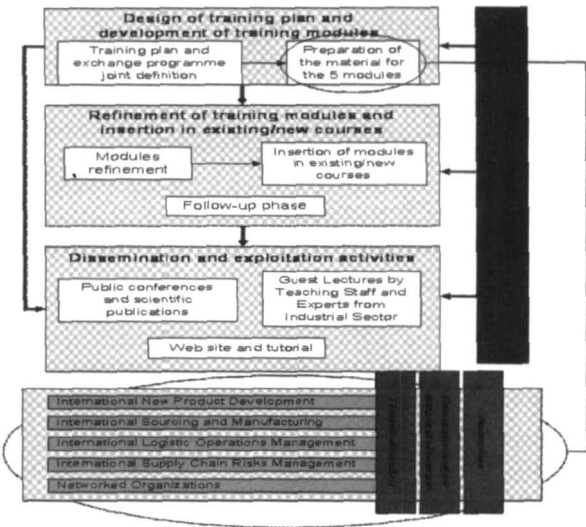


Fig 1 Proposed action plan for the IOM Project

ity and a constant and fruitful interaction and feedback loop with the “end users”. In particular, the subdivision of each module in sub-units was aimed to ensure a high level of flexibility.

Moreover, the selected topics are highly relevant to the specific needs of the target countries and the proposed methodology can provide a complete and coherent set of actions which address properly those requirements.

For monitoring the learning process effectiveness and for providing clear evidence about the practical uses of the concepts, a remarkable number of case studies and exercises will be presented to the students, in collaboration with local economical and industrial organizations.

Finally, it is very important to make the course quality assessment. To carry out it, the team use some criteria already used during successful past experiences.

4 Didactical offer implementation

4.1 Procedures implementation

In order to properly offer an international program as it has been described here, several issues needed to be previously aligned. Some of them would need to be explicitly mentioned:

- Common definition of objectives, targets groups and contents by considering each partners expectations
- Teaching materials preparation procedures, mainly considering attendants language skills
- Cultural and language differences
- Deadlines commitment and accomplishment
- Dissemination activities scope

All these issues required to define a collaborative space within which each topic was extensively discussed

and agreed among all the partners. By using internal forums of the projects website, most of consortiums internal activities were carried out there.

Additionally, once the final contents were available, it was decided to create a separated website in order to support current didactical activities.

Thus, designing a sound IT architecture supporting both internal and external procedures, involving such heterogeneity in terms of actors and policies, became a critical task.



Fig 2 IOM Project requires a sound IT architecture in supporting involved roles

4.2 Didactical Platform

The IOM's Didactical Platform is intended to support didactical activities of Pilot and official courses.

Pilot courses were intended to act as testing cases for developed contents. Each partner decided test its contents in small Pilot courses in order to get initial students feedback about them. All the collected information was used to improve and release the final version that is going to be used in official courses.

In adding more complexity to the problem, partners would decide to create partial views of the official modules in order to have some focused lectures. Additionally, also official courses would be created by combining contents coming from several modules.

The proposed architecture (see Figure 3) is based on four complementary roles:

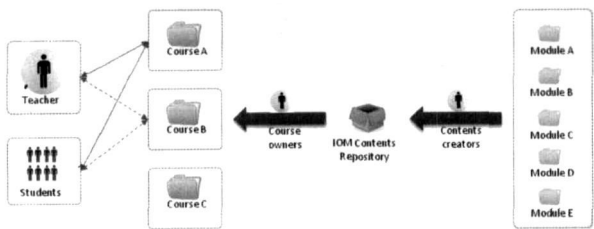


Fig 3 IOM Didactical Platform main roles and architecture

(1) Contents creators: they may be in charge of creating specific contents for each assigned module. The architecture includes a Contents Repository which is used to store all the slides, teaching notes and case studies belonging to each specific course.

(2) — Course owners: they are in charge of creating specific courses by using the contents previously made available through the IOM Contents Repository. Each course creator, depending on the thematic focus of the specific course would need to combine contents coming from several modules.

(3) Teachers: once specific courses were made available for teaching, probably other people than course owners would be in charge of it.

(4) Students: intended audience of the courses. They need to get enrolled in as many courses as required.

After an analysis of the operative environment requirements, the consortium decided to adopt an Open Source Content Management System (namely Moodle [5]) since this kind of tools fits very well for the intended objectives.

Moodle is an open source platform which provides a powerful set of predefined tools and, in this specific case, it also has an extensive language support. Cause of that, the final view of the Didactical Platform implementation shows both the Contents Repository (available to the project partners) and the specific courses intended for each target group (see figure 4).

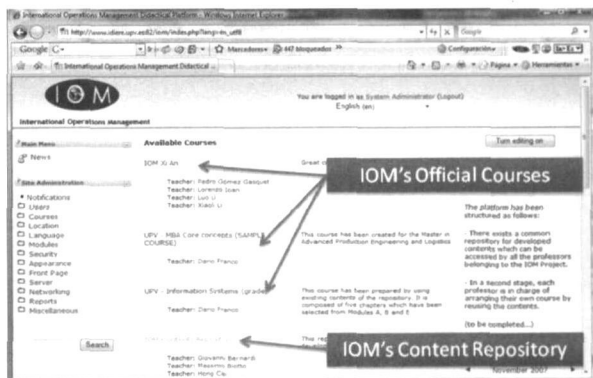


Fig 4 IOM Didactical Platform Screenshot from a course creators role

5 Conclusions

The approach outlined in this paper would appear to be a useful in dealing with heterogeneous didactical environments as required by the IOM Project. When heterogeneous teams, having different goals and working procedures, need to work cooperatively, the alignment of such expectations and practices which would al-

low accomplishing the overall goal becomes a critical issue.

The usefulness of CMS has been already proven in several deployments and they are gaining adopters in supporting didactical activities at different instructional levels. In our case, we have proposed a Moodle-based architecture which has enabled us to implement a working environment which can be as flexible as each partner needs but at the same time, which provides a common infrastructure supporting the contents creation and release procedure.

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