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"Present and future Challenges for Engineering Education and Research in Europe"
Session C2 – “ Priority Issues for Engineering Deans”**

Internationalization and employment of the Italian graduate engineers

This is the first time I have been to a SEFI conference. During the past twenty years I have been attending the conferences of the *sister* organization IGIP, where I have enjoyed meeting colleagues and friends, the magnificent venues of the conferences and their organization, and... the German environment. I was the only Italian participant.

The kind invitation by the Chairman of SEFI, Claudio Borri, has given me the possibility of being here. I want to take this opportunity to discuss two aspects of the education of our engineering students: **Internationalization and Employment of Italian graduates** .

Internationalization

Today the Italian young graduates, and sometimes even the senior engineers, have a cultural void : “ the lack of internationalization “, i.e. the lack of an international culture, and the incapability to master one or more foreign languages.

This cultural void than constitutes a serious professional handicap for a young or a less young engineer who has to work today in an environment where “ globalization “ is the keyword. He will have difficulties discussing with foreign customers and suppliers, will be at disadvantage working in an international organization or in an international project, will have difficulties in keeping professionally up-to-date and his lack of communication will make it more difficult to build social and business international relations. He will have difficulties to work abroad, without feeling the nostalgia for the sun and for spaghetti. It is not by chance that many key positions in international Organizations are occupied by non Italian managers.

Universities and companies are worried and have taken actions to improve this situation.

Some industrial organizations offer to their managers language courses, the participation to technical and management programmes abroad in prestigious business schools, intereuropean co-operation in international management programmes (EUROTEAM , UNITECH).

European Universities, with the help of projects, sponsored by the EU , as Socrates, Leonardo, etc, encourage the exchange of undergraduates with foreign universities , where they can attend semesters or work on their final thesis. An increasing number of European universities are now running European undergraduate programmes which offer European diplomas. There are of course difficulties, financial and sometime of reciprocity, but the initiative is commendable . Our undergraduates are today more international minded than they were ten years ago. In spite of the results, I believe that our efforts are still insufficient and that much more must be done to overcome this weakness. It can be done with the help of the business world.

How ? Up to now it is relatively easy to ask a company to host, for a short period, an undergraduate to work on his final thesis on a project which is of mutual interest of the university and of the company, Companies are interested because the undergraduates are young, enthusiastic, often have creative ideas and bring to the company a useful contribution....at zero cost.

The situation changes when we ask the company to host the undergraduate in one of its laboratories or subsidiaries abroad. Costs for financing the stage are higher, the efficiency and the effectiveness of the young man or woman is lower and so is the immediate return to the company. We receive seldom positive answers. An exception is the Nuovo Pignone, the Italian company of the GE Group, wich has signed an agreement with our University, and is hosting some of our students in its plants abroad. This result was obtained thanks to the far-sighted Chairman of the company, Piero Salvadori. A similar agreement with McKinsey Italy is now being implemented. Our University is now offering to undergraduates stages in China and Morocco, in

co-operation with Piaggio and with the Italian industrialists in Morocco. My suggestion is to promote, a " formalized " international network, with companies and universities, with the aim of a large European undergraduates exchange. Companies would have benefits and disadvantages. The benefits: the hosting Organization, in addition to the limited work made by the students, would have a useful international contact with the academic world and, as major benefit, the possibility of meeting and evaluating undergraduates who have been carefully selected and who will be a valuable resource for the immediate future, The return on image will be great Of course resources are necessary.

In spite of the fact that the attention by the business world to these ideas is today lower than it has been in previous years, I believe that a better and wider co-operation between companies and universities is necessary to improve the present situation.

Employmentt

The second subject of my presentation is **the employment of graduate engineers.**

The first employment (and not only the first) of the graduate engineers has become difficult in Italy and, I believe, in other European countries. I am referring to the graduates with five years university education. This is due to the gap between the demand by employers, which are going through a difficult economic period, and the number, and probably the quality, of the applicants.

The media often discuss the question, whether we have in Italy a sufficient number of graduate engineers. Often the comparison with other industrial European countries is to our disadvantage. More often well known journalists and so called experts put the blame of the insufficient growth of the Italian System on the insufficient number of engineers and of graduates in technical subjects.

Is this a fair comparison, or is it distorted by the differences of the higher education in different countries ? On the other hand, I know too well the difficulties of our young graduates who can not find a satisfactory job: they write hundreds of letters, usually without answers, they have one interview after another and finally they are compelled to accept an unsatisfactory and not professionally motivating temporary contract with low pay and without any guarantee of continuity, what I call a " stagelemosina ". The proliferation of postgraduate often useless programmes (we call masters) is a consequence. Unfortunately the time when companies were hunting the undergraduates in their first university years is over. I follow the matter with preoccupation, but I have no idea what action the universities can take : better placement ? improved contacts with the employers ? encourage the graduates to job hunting abroad ? building a network of ex alumni and expats willing and able to help ? restrict the number of graduates ? encourage graduates to express new ideas and implement new spin off enterprises ? With which success rate ? I am working in some of these ideas and I believe that a discussion, some advice, some decisions taken in this conference would be helpful. The first action would be to conduct a survey Europewide on " Employment of the university graduate engineers in 2005 " . The survey would help us to understand the seriousness of the problem, its results could be presented to national and to European higher education authorities and could help to promote ad hoc projects . Of course, resources will be necessary for any action, and the business world should help.

I ask now the President of SEFI and the President of IGIP . to be aware of these preoccupations and to take any joint action which could be beneficial to our young colleagues. I am confident that projects, aiming to financial and not financial support, proposed to the EU jointly by European universities and by large European companies would be positively considered

I do not have time to discuss two other subjects " The brain drain " and " The repatriation of the engineers working abroad, the so called expats ", which I leave to a next occasion.

I would like to end my talk with a warning from a British colleague : " Letting our graduates squander their talents in low-paid and low-skilled jobs is not just making a mockery of their personal investment in a university education, it is undermining our own investment in our country".

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