



MARIE CURIE ACTIONS



Contract FP6

MSCF-CT-2006-046042

European School of Antennas (ESoA)

Annex 1

progress report, Second year, 2008

GENERAL PROGRESS OF THE PROJECT

Due date of the progress report: 15/2/2009

First submission date: 10/3/2009

Resubmitted after corrections:

Start date of project: 1/1/2007 duration:

Organisation name of lead contractor for this document: **UNISI (1)**

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1. ESoA Board and monitoring of the project
2. Organized courses
3. Indicators of progress and success

1. ESoA Board and monitoring of the project

In 2008, The ESoA management board (EMB) the EMB met 3 times, in London, Noordwijk and Dublin (see Table 1).

	Location	Organizer	Date
1	London	UNISI	February 22, 2008
2	Noordwijk	UNISI	May 29, 2008
3	Dublin	UNISI	October 03, 2008

Tab.1 2008 EMB Meetings of the and participation

The meetings and has been chaired by the ESoA Coordinator. The participation of Partner representative to the meeting is summarized in Table 3. At the end of each meeting, the coordinator have sent to all member of the EMB the minute of meeting and an exchange of e-mail has been carried out to complete the minute and to involve people not present to the meetings.

The meetings had the following objectives

- agreeing courses planning;
- verifying the progress of the ESoA related to the expected Courses schedule;
- reviewing the status of the delivered Courses and implementing actions to improve them, if needed;
- reviewing the policy and strategy for the spreading and dissemination activities;

During the project, the EMB have defined methods and procedures to identify, assess, monitor and control areas of risks related to the Course objectives. No main faults in the organisation of Courses have been detected by the EMB and no change of Course responsibility have been assigned it to other Participants. The evaluation forms filled by the students, have been found satisfactory in all cases.

Through the evaluation board meeting we have monitored the correct progresses of the project and the estimation of the deviation from the foreseen outline of the Annex 1 to the contract. In particular, at the end of each Course, each organiser have reported to the EMB the results or the weakness experienced.

Participation to Meetings		1	2	3
1	UNISI	*	*	*
2	UNIFI		*	
3	KTH			
4	DTU			
5	TKK		*	*
6	UMLV		*	
7	IETR			
8	SAPIENZA	*	*	*
9	POLITO		*	
10	UPC	*	*	*
11	UPM	*	*	*
12	UPV	*	*	*
13	CHALMERS		*	
14	EPFL			
15	TNO		*	*
16	UNSA		*	
17	IMST	*	*	*
19	UNINA	*	*	*
20	UKARL	**	*	*
21	CTU	*	*	*
22	UNIZAG		*	*
23	UBHAM			
24	CTTC			

Tab.2 Participation to the meetings from the partner
(double star means two people attending from the same institution)

3. Organized courses

The courses done in 2008 matched those foreseen in the Annex 1 of the contract. They are listed in Tab. 3. The courses have been held in the same weeks foreseen in the contract, with exception for the courses organized by ESTEC, SAPIENZA and UNSA, whose date have been shifted. In particular, the course of UNSA, predicted to be held in 2009, has been anticipated to the end of 2008.

2008							
	Title	Place	Coor-dinator	Insti-tution	Coun-try	Date foreseen in the contract	Actual date
1	Analysis of planar and conformal antennas	Lausanne	J. Mosig, Z. Sipus	EPFL	CH	4-8 Feb 2008	4-8 Feb 2008
2	Antennas for space application	Noordwijk	L.Salghetti, J-M. Laheurte	ESTEC	NL	24-28 Mar 2008	10-14 Mar 2008
3	Ultrawideband antennas	Karlsruhe	W. Wiesbeck	UKARL	D	7-11 Apr 2008	7-11 Apr 2008
4	Travelling wave antennas	Rome	F. Frezza	SAPIENZA	I	28 Apr- 2 May 2008	21-21 Apr 2008
5	Advanced mathematics for antenna analysis	Dubrovnik	Z. Sipus, S.Maci	UNIZAG	HR	5-9 May 2008	5-9 May 2008
6	Propagation in mobile communication	Sienna	S. Maci, W. Wiesbeck	UNISI	I	9-13 Jun 2008	9-13 Jun 2008
7	Antennas for mobile communication	Prague	M. Mazanek, M. Ferrando	CTU	CZ	16-20 Jun 2008	16-20 Jun 2008
8	Antenna measurements	Madrid	M. Sierra Castaner	UPM	ES	23-27 Jun 2008	23-27 Jun 2008
9	Active antennas	Birmingham	P. Hall	UBHAM	UK	8-12 Sep 2008	8-12 Sep 2008
10	Time domain techniques for antenna analysis	Nice	J-L. Dubard	UNSA	FR	24-28 Nov 2008	13-17 Oct 2008

Tab. 3 Course given in 2008 under the project.

Each course prolonged for 5 days, with possible home-assignments for extra-credits after the course. The typical format of one course has been 5 hours of lectures in the morning, and 3-4 hours of other activities in the afternoon. These activities have been concerned with exercises, reading of key papers on topical subjects, laboratory experiments, panel discussions, and student plenary presentations. Typically, each course consist on about 20-25 hours of lectures and 15-20 hours of other activities. The lectures have been provided in part by people from the host Universities, and in part by key-note speakers from the other institutions. The courses also include the participation of key-note speakers from industries and Universities external to the partner institutions. Each course, which foresees a written assessment test, provides to the students from 2 to 4 ECTS credits, depending on the quantity of additional home assignments.

The good success of the project is due to two basic factors: the excellence of the teachers, and the fact that the courses were at the state of the art. The courses have been organized taking care of the homogenization of the presentations by different teachers. The courses have been widely appreciated by the students, as testified by the excellent average scores in the evaluation forms (see next the “indicators of quality”). The courses were very much

appreciated also from the teachers. The attempt to find a way to teach together and to complement and homogenize the lectures has been considered stimulating and beneficial from the majority of the teachers, especially in consideration of the heterogeneity of the audience often composed by students with a different background.

3. Indicators of progress and success of the project

The definition of the various indicators was introduced in Annex 1 of the first reporting period, and they are again summarized in Table 4 for convenience. All the parameters can be defined at the individual level for each course as well as at global level averaging the individual values obtained for each course. The average indicators will report the letter “A” behind the indicator acronym. The individual course indicators estimate the success of one course with respect to the average. The values assumed by the indicators both at individual course level and at global level are discussed in the following subsections. At the end, we summarize the results with global average indicators.

Objective	Indicator for a single course	Name	Acronym	
			For individual course	Averaged wrt number of courses
i) Estimate of the deviation from the foreseen outline (progress indicator)	Ratio “attending participants” / “expected participants”	Indicator of progress 1	IP1	AIP1
	Ratio “financed participants” / “expected financed participants”	Indicator of progress 2	IP2	AIP2
	Complement to unity of “Maximum number of participants from the same country” / “total participants”	Indicator of progress 3	IP3	AIP3
ii) Estimate of the level of satisfaction of the participant: output of the evaluation forms (success indicator)	Average Score from the evaluation form relevant to the quality of teaching (normalized to unity)	Quality of teaching	QT	AQT
	Average Score from the evaluation form relevant to the quality of organization (normalized to unity)	Quality of organization	QO	AQO
	Average Score of the evaluation form relevant to the quality of the laboratories (norm. to unity)	Quality of the laboratories	QL	AQL
iii) Estimate of the internationalization degree (success indicator)	Ratio “Number of country per course” / “number of EU significant countries”	Normalized number of countries	NNC	ANNC
	Ratio “students not resident to the host country” / “students resident to the host country”	International Mobility Index of Student	IMIS	AIMIS
	Average between the ratio “Teachers not resident in the host country” / “teachers resident in the host country” (IMIT) and the normalized ratio student/teachers (NRST)	Effectiveness of Teachers Mobility	ETM	AETM

Tab. 4 Indicator of progress and success.

We divide the nine indicators in three categories, depending on the objectives:

- (i) INDICATORS OF PROGRESS: estimates the deviation from the foreseen outline,
- (ii) INDICATORS OF QUALITY estimates the level of satisfaction of the participants on the basis of the evaluation forms filled by the students;
- (iii) INDICATORS of INTERNATIONALIZATION: estimates the internationalization aspects

i. Indicators of progress

The parameters defined in this typology are:

1. Ratio “attending participants”/”expected participants” (Indicator of Progress 1, IP1),
2. Ratio “financed participants”/”expected financed participants” (Ind. of Progress 2, IP2),
3. Complement to unity of “Maximum number of participants from the same country”/ “total number of participants” (Indicator of Progress 3, IP3).

The attribute “expected” makes reference to what foreseen in the Annex 1 of the contract. Note that the third parameter SHOULD NOT BE LESS THAN 70% IN ORDER TO CLAIM A FINANCIAL SUPPORT TO THE COURSE. INDEED, THE MAXIMUM NUMBER OF PARTICIPANT FROM THE SAME COUNTRY SHOULD NOT BE LARGER THAN 30%.

The values of IP1, IP2, and IP3 are illustrated in Table 5. The participants to each course (both students and teachers) are calculated by weighting each participant for a “participation coefficient” that quantifies his percentage presence in the course. Each student is weighted by unity, while one teacher that participates for one day only over five will be weighted for 0,2 in the total summation. The course coordinators have often participated to all days (5 days) in their course and thus have been often weighted by unity. The other speakers are weighted for a coefficient 0.2, 0.4, 0.6, 0.8, or 1 in case they participated 1, 2, 3, 4, or 5 days. In calculating AIP3, the participation of speakers of the same country has been accounted for by the same weighing factor. The calculation of the course participant is provided in ANNEX 3, and we report here the results.

The results are presented with a round off approximation to the closest integer number. The attending participants are reported in the third column (taken from the Annex 1 of the contract, the participants have been actually less than those expected (last column), except for the courses of ESTEC, UNIZAG and UPM. The course of EPFL, UKARL and CTU were a little below the expectation. The final average leads to $AIP1=0,81$. The foreseen financed students as from the contract were 5 per each course. The 50% of the organizers respected this number, while EPFL, ESTEC and UNIZAG decided to assign one more grant (6 instead of 5). CTU actually respected the number of 5 but two of the granted students unexpectedly decided not to participate to the course. Only UBHAM assigned 3 grants instead of 5 due to the low number of students who followed the course. Finally, we had an $AIP2=0,98$, which has been considered a good value too.

Organizer	Country where the course is held	Financed participants	Attending participants (see Annex III)	Expected financed participants (from Annex 1 to the contract)	Expected Total participants (from Annex 1 to the contract)	IP1 attending participants/expected participants	IP2 financed participants/expected financed participants	IP3 Complement to unity of "Maximum number of Participants from the same country"/"total of participants"
EPFL	CH	6	17,8	5	21	0,85	1,2	1-0,17 = 0,83
UMLV	NL	6	29,2	5	22	1,33	1,2	1-0,23 = 0,77
UKARL	D	5	23,8	5	25	0,95	1	1-0,30 = 0,70
SAPIENZA	IT	5	11,2	5	20	0,56	1	1-0,29 = 0,71
UNIZAG	HR	6	19,8	5	18	1,10	1,2	1-0,30 = 0,70
UNISI	IT	5	11,4	5	25	0,46	1	1-0,30 = 0,70
CTU	CZ	3	14	5	15	0,93	0,6	1-0,23 = 0,77
UPM	ES	5	25,6	5	25	1,02	1	1-0,30 = 0,70
UBHAM	UK	3	6,8	5	20	0,34	0,6	1-0,29 = 0,71
UNSA	FR	5	13,2	5	23	0,57	1	1-0,27 = 0,73
						AIP1	AIP2	AIP3
Average		4,9	17,28	5	21,4	0,81	0,98	0,73

Tab. 5 Participation of student and teachers to the course and financed participants in comparison with those foreseen in the contract. (*) denotes courses that put a limit to the number of students

ii. Indicators of quality

The good progress and success of the project is also indicated by the satisfaction of the participants. To this end, evaluation forms have been distributed and filled by the students at the end of each course. While the details relevant to each course are given in the Annex 2 to this report ("project achievements"), we show here the average of the scores obtained by each course. We note that all the participants have filled the evaluation forms. These forms are those presented in Annex 1 to the contract; the ranking in these form was: 1 Poor; 2 Fair, 3 Average, 4 Good, 5 Excellent. The scores of the individual students have been averaged over the student number and normalized to 1, so that the ranking of the normalized scores is:

0.1-0.2 Poor; 0.3-0.4 Fair, 0.5-0.6 Average, 0.7-0.8 Good, 0.9-1 Excellent

Teaching	EPFL	ESTEC	UKARL	SAPIEN	UNIZAG	UNISI	CTU	UPM	UBHAM	UNSA
Instructor is knowledgeable about the subject	0,96	0,96	0,96	0,84	0,98	0,98	0,95	0,93	0,75	0,95
Instructor is prepared	0,96	0,94	0,94	0,81	0,96	0,98	0,94	0,92		0,94
Instructor encourages participation	0,92	0,88	0,84	0,80	0,88	0,88	0,89	0,84		0,86
Instructor answers students' questions	0,96	0,94	0,92	0,82	0,96	0,98	0,93	0,90		0,93
Instructor is enthusiastic about teaching	0,96	0,88	0,90	0,81	0,94	0,9	0,91	0,91		0,93
Instructor's fluency in English	0,90	0,90	0,92	0,80	0,88	0,94	0,86	0,88		0,91
Interest of material	0,90	0,92	0,92	0,80	0,88	0,9	0,90	0,88		0,88
Relevance of material	0,92	0,90	0,94	0,81	0,92	0,9	0,89	0,88		0,86
Using teaching aids	0,92	0,86	0,94	0,70	0,88	0,94	0,86	0,86		0,90
How pertinent were the course objectives to the target audience?	0,90	0,96	0,90	0,81	0,86	0,9	0,86	0,87		0,86
How well do you feel the course objectives were met?	0,90	0,94	0,88	0,81	0,86	0,86	0,87	0,86		0,84
How well do you feel about the level of detail of the course documents?	0,92	0,88	0,86	0,80	0,90	0,9	0,83	0,87		0,81
QT	0,93	0,91	0,91	0,80	0,91	0,92	0,89	0,88	0,75	0,89

Organization	EPFL	ESTEC	UKARL	SAPIEN	UNIZAG	UNISI	CTU	UPM	UBHAM	UNSA
How would you rate the letter of invitation in providing you with the information you needed to make your	0,88	0,80	0,88	0,80	0,90	0,70	0,78	0,86		0,90
How well was the registration/check-in process organised, staffed and located	0,90	0,74	0,90	0,81	0,96	0,77	0,90	0,92		0,83
How would you rate the lodging accommodations for this course?	0,86	0,76	0,88	0,81	0,96	0,68	0,71	0,83		0,82
How would you rate the quality and variety of the meals served?	0,94	0,80	0,82	0,60	0,98	0,67	0,81	0,76		0,83
The classroom is comfortable and inviting	0,90	0,94	0,90	0,81	0,96	0,80	0,92	0,81		0,95
Desks and tables provide adequate work space	0,82	0,96	0,82	0,81	0,98	0,87	0,92	0,88		0,65
QO	0,88	0,83	0,87	0,77	0,96	0,75	0,84	0,84		0,83

Laboratory	EPFL	ESTEC	UKARL	SAPIEN	UNIZAG	UNISI	CTU	UPM	UBHAM	UNSA
Quality of measurements facilities	0,90		0,84			0,85	0,82	0,90		0,92
Questions are closely related to the theories presented and provide hand-on practice with the theories	0,88		0,90			0,90	0,86	0,86		0,82
Enforces understanding of important concepts	0,80		0,90			0,87	0,88	0,87		0,88
Encourages critical thinking and demonstrates pros and cons of	0,88		0,90			0,85	0,87	0,86		0,80
Properly coordinated lab preparation	0,86		0,86			0,85	0,90	0,90		0,73
Effective supervision during the lab	0,82		0,90			0,92	0,90	0,91		0,92
Instructions are given at appropriate detail	0,90		0,82			0,90	0,91	0,90		0,92
QL	0,86		0,87			0,88	0,88	0,89		0,85

Tab 6: Quality factors relevant to the teachers derived from the normalizations to 1 of the average scores in the evaluation form.

Table 7, illustrates the average scores gained by the various courses for quality of teaching, quality of the course organization, and quality of the experimental part of the course (laboratories), when available, respectively. The course in UK (UBHAM) presented a simplified evaluation form, where only one voice was present. The scores relevant to the quality of teaching have been given by the students to all the teachers individually, and averaged also with respect to the number of teachers, too. Complete data are given in Annex 2 of this report (Project Achievement). The last row of the three tables shows the result of a further average among the scores to the single voices. All the courses (except UBHAM) reach an average score over 8 in quality of teaching and experimental lab., and all of the courses (except SAPIENZA and UNISI) had more than 8 in the quality of the organization.

Indicators of quality			
Course	QT	QO	QL
EPFL	0,93	0,88	0,86
ESTEC	0,91	0,83	NA
UKARL	0,91	0,87	0,87
SAPIENZA	0,80	0,77	NA
UNIZAG	0,91	0,96	NA
UNISI	0,92	0,75	0,88
CTU	0,89	0,84	0,88
UPM	0,88	0,84	0,89
UBHAM	0,75	NA	NA
UNSA	0,89	0,83	0,85
Average	AQT	AQO	AQL
	0,88	0,84	0,87

Tab 7: Average indicators of student satisfaction.

A further average is next applied with respect to the number of courses and normalized with respect to unity, to obtain three parameters that serve as global estimators of the school: the Quality of Teaching (QT), the Quality of Organization (QO), and the Quality of the Laboratory (QL). Table 7 reports the three indicators, and their average with respect to the number of courses (respectively called AQT, AQO, and AQL). The final result has to be considered excellent.

iii Indicators of internationalizations

This category of indicators estimate of the good level of internationalization of the project.

International mobility Index for students (IMIS)

A good indicator of success is defined as the *international mobility index for students (IMIS)*, defined as the ratio between the number of student *not* resident to the host country over the total number of students per course.

Table 8 shows the total attendance of students, with indication of their country of residence. The last row of this Table provides the IMIS for each course. Spain and Italy, followed by Sweden provided the major number of students. The average of 78% has to be considered good. Note that extra-EU countries provided very few participants and do not have actual influence over the global statistics (see Table 8).

Course	Switz / Lausan ne	Nether. / Noordw	Germa ny / Karlsr .	Italy/ Rome	Croatia / Dubrov	Italy/ Siena	Czech R/Prague	Spain/ Madrid	UK/Birmi ngham	France/ Nice	Total
Spain	3	6	2	1	1	2		7		1	23
Italy	1	5	1	2	5	1					15
UK	1		2	2	1	1	2	3	1	1	14
Sweden						1	2	6			9
Netherlands		3			2						5
France	2		5	1	1			1		4	14
Czech Repu.			1				2			1	4
Germany	2		6			1					9
Switzerland		1	1				1	1			4
Croatia	1				2			1		1	5
Greece								1			1
Austria			2								2
Belgium		1		2	2	1					6
Japan	1				1			1			3
Portugal		1									1
Poland	1		2				1				4
Luxembourg		1									1
Ukraine		1									1
Turkey		2						1		1	4
China	1					1				1	3
Canada	2										2
Singapore		2									2
Ireland						1	1				2
Portugal								1		2	3
USA								1			1
Finland				1			2				3
Argentina									1		1
Russia									2		2
Rwanda				1							1
Denmark		1					1			1	3
TOTAL (AVE 15)	15	24	22	10	17	8	11	24	5	12	148
Not from the same country %)	80%	75%	73%	80%	71%	75%	82%	71%	80%	67%	75%
IMIS	1,00	0,88	0,73	0,80	0,88	0,88	0,82	0,71	1,00	0,67	

Tab 8: Provenience of the students by nationality The last row indicates the IMIS

Effectiveness of teachers' mobility (ETM)

As the teachers are concerned, the number of teachers and their provenience is shown in Table 9. Note that in Table 9, the number of teacher is considered without weighting them for the time they participate to the course. The effective (weighted) participation, is indeed reported in Annex 3 to this management report.

Course Provenience	Switz / Lausanne	Nether. / Noordw	Germany / Karlsruhe	Italy/Rome	Croatia / Dubrov	Italy / Siena	Czech R/Prague	Spain/Madrid	UK/Birmingham	France / Nice	TOT
Spain			2				5	3			10
Italy		1		5	2	2		1		1	12
Sweden	1							1			2
Switzerland	1				1						2
Poland											0
Germany			6			3	1			3	13
Netherlands		9	1								10
Serbia	2										2
Croatia	1				1				1		3
Czech Repu.							2				2
France		1							1	4	6
Finland								1			1
UK									3		3
Singapore	1										
Denmark		1						1			2
TOTAL (AVE 7)	6	12	9	5	4	5	8	7	5	8	69

Tab 9: Provenience of the teachers by nationality.

From the data in Tab 8 and 9, we construct three indexes

International mobility index for teachers (IMIT): ratio per each course between teachers non resident in the host country and total number of teachers;

Normalized Ratio Student Teacher (NRST): is the ratio per course course between Student and teachers divided by 3.

Effectiveness of Teacher Mobility (ETM): is the average between IMIT and NRST (i.e., $ETM = (IMIT + NRST) / 2$)

Comment on NRST: To have an indicator that is homogeneous wrt the others, this absolute ratio student/teachers for each course is normalized for the “optimal” ratio student over teacher, which has been fixed to 3, as in the previous report. This normalization factor, although apparently quite arbitrary, is agreed in the board on the basis of the experience in giving international short courses.

Comment on IMIT and NRST: It is important to note that neither NRST nor IMIT should be considered *per se* a good indicator of success. Indeed, although large IMIT means an increase of mobility, having a large number of teachers out of the host country also means large expenses, so that lowering IMIT normally means saving costs. On the other hand, large values of the indicator NRST increase the effectiveness of the teaching in terms of cost, but it is not necessarily a good indicator of success (e.g., some courses with a lot of experimental works need large assistance).

Comment on ETM: A quite good indicator of success is the average between IMIT and NRST (i.e., $ETM = (IMIT + NRST) / 2$). This parameter can be called Effectiveness of Teachers Mobility (ETM) since it balances properly the mobility of the teachers with the effectiveness of this mobility in terms of number of student per teacher.

The indexes IMIT, NRST, and ETM are reported in Table 10

	EPFL	ESTEC/UMLV	UKARL	SAPIENZA	UNIZAG	UNISI	CTU	UPM	UBHAM	UNSA
IMIT	0,83	0,25	0,33	1,00	0,75	0,60	0,75	0,57	0,40	0,50
NRST	0,83	0,67	0,81	0,67	1,42	0,53	0,46	1,14	0,33	0,50
ETM	0,83	0,46	0,57	0,83	1,08	0,57	0,60	0,86	0,37	0,50

Tab 10: International mobility index of teachers (IMIT), normalized ratio student over teachers (NRST), and Effectiveness of teachers' mobility (ETM) for each course.

Normalized number of countries per course (NNC)

The *Normalized number of countries (NNC)*, namely the number of countries “involved” in each course over the number of “significant” EU countries.

The “involved” number of countries includes the provenience of both students and teachers. The attribute “significant” to the number EU country is calculated on the basis of the population of the country. In particular, it is considered significant to the purpose of normalization, the number of EU countries which have a population over the average of the EU country population (see histogram in Fig. 1). This number is found to be 7.

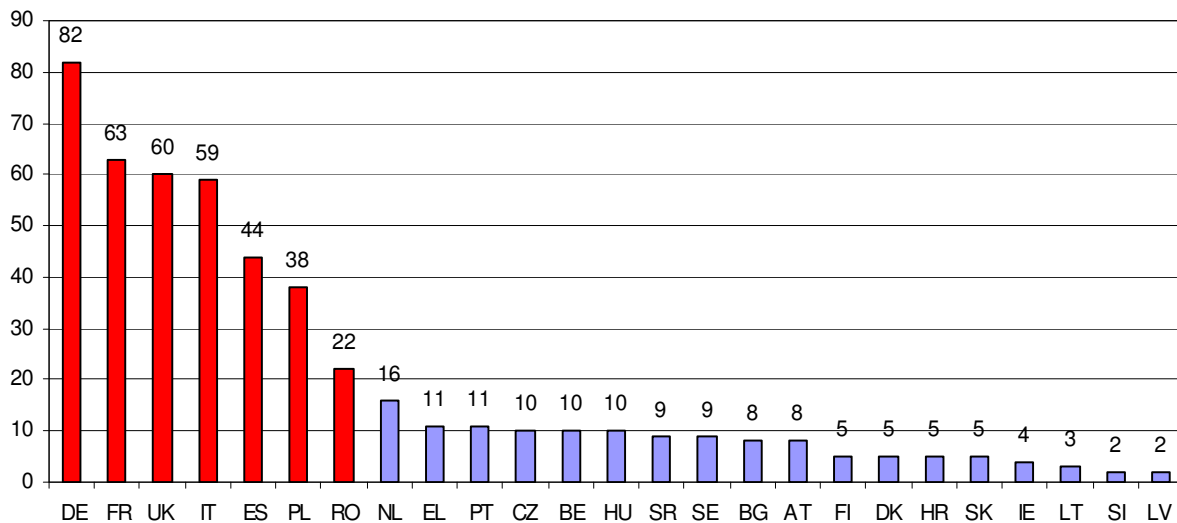


Fig. 1: Number of EU countries ordered by habitants (indicated in million units on top of the columns). The total population is about 500 millions with an average of 20 millions per each country. The number of countries with a number of habitants over the average are 7 (red bars). This number is used to normalize the NNC index.

The absolute number of country involved in each course and its normalized number with respect to 7 is given below

Course	EPFL	EST EC	UKA RL	SAPIE NZA	UNIZ AG	UNISI	CTU	UPM	UBH AM	UNSA
Number of countries (NC)	14	12	10	7	11	7	9	13	6	10
Normalized number of countries (NNC)	2,00	1,71	1,43	1,00	1,57	1,00	1,29	1,86	0,86	1,43

Tab 11: Number of countries (NC) and normalized number of countries (NNC) involved per each course.

iv. Summary and global indicators of the project and comparison with the indicators of 2007.

The summary of the indicators of progress and success is given in Table 12 and 13, respectively. In these tables, the total Indexes of Progress (IP) and Success (IS) are defined for each course by the average over the various indicators. Global indexes of the overall school are also obtained as a further average over the number of courses; thus, leading to the two global parameters, the Average Index of Progress (AIP) and the Average Index of Success (AIS).

Indicator of Progress 2007				
Course	IP1	IP2	IP3	IP
TNO	0,96	1	0,72	0,89
PC	1,14	1	0,73	0,96
IETR	0,65	0,8	0,70	0,72
DTU	0,7	1	0,71	0,80
KTH	1,45	1	0,72	1,06
POLITO	0,84	1	0,70	0,85
Average	AIP1	AIP2	AIP3	AIP
	0,96	0,97	0,71	0,88

Indicator of Progress 2008				
Course	IP1	IP2	IP3	IP
EPFL	0,85	1,20	0,83	0,96
ESTEC	1,33	1,20	0,77	1,10
UKARL	0,95	1,00	0,70	0,88
SAPIENZA	0,56	1,00	0,71	0,76
UNIZAG	1,10	1,20	0,70	1,00
UNISI	0,46	1,00	0,70	0,72
CTU	0,93	0,60	0,77	0,77
UPM	1,02	1,00	0,70	0,91
UBHAM	0,34	0,60	0,71	0,55
UNSA	0,57	1,00	0,73	0,77
Ave	AIP1	AIP2	AIP3	AIP
	0,81	0,98	0,73	0,84

Tab 12: Indicators of progress and their average. The final column is an “Index of Progress” of the course

Indicators of success 2008							
Course	QT	QO	QL	IMIS	ETM	NNC	IS
EPFL	0,93	0,88	0,86	1,00	0,83	2,00	0,65
ESTEC	0,91	0,83	N	0,88	0,46	1,71	0,96
UKARL	0,91	0,87	0,87	0,73	0,57	1,43	0,90
SAPIENZA	0,80	0,77	N	0,80	0,84	1,00	0,84
UNIZAG	0,91	0,96	N	0,88	1,09	1,57	1,08
UNISI	0,92	0,75	0,88	0,88	0,57	1,00	0,83
CTU	0,89	0,84	0,88	0,82	0,61	1,29	0,89
UPM	0,88	0,84	0,89	0,71	0,86	1,86	1,01
UBHAM	0,75	N	N	1,00	0,37	0,86	0,74
UNSA	0,89	0,83	0,85	0,67	0,50	1,43	0,86
Average	AQT	AQO	AQL	AIMIS	AETM	ANNC	AIS
	0,88	0,84	0,87	0,84	0,67	1,41	0,88

Indicators of success 2007							
Course	QT	QO	QL	IMIS	ETM	NNC	IS
TNO	0,84	0,72	N	1,00	0,40	1,14	0,82
UPC	0,89	0,88	0,86	0,74	0,93	1,71	1,00
IETR	0,86	0,79	0,86	0,64	0,37	0,86	0,73
DTU	0,90	0,80	0,92	0,83	0,63	0,86	0,82
KTH	0,83	0,78	0,81	0,72	0,50	1,14	0,79
POLITO	0,87	0,84	N	0,79	0,67	1,00	0,83
Average	AQT	AQO	AQL	AIMIS	AETM	ANNC	AIS
	0,87	0,80	0,86	0,79	0,58	1,12	0,83

Tab 13 Indicators of Success and their average. The final column is an “Index of Success” of the course, obtained by the average.

We observe that all the indicators are defined as much as possible in a homogeneous way, and we may say that good indexes are those larger than 0,7.

However, we observe that the NNC, since normalized wrt an absolute parameter, may overcome unity, counterbalanced by the tough parameter ETM that assume average lower values.