Appendix 4 (a) – Comparative Information on Resources (Person months)

			DIST				UNIFE				IST				UU				TOTAL			
			Period		Cumulative		Period		Cumulative		Period		Cumulative		Period		Cumulative		Period		Cumulative	
WP/Task		Deliv.	Est	Act	Est.	Act	Est	Act	Est.	Act	Est	Act	Est.	Act	Est	Act	Est.	Act	Est	Act	Est.	Act
WP1																						
D1.1	Project Presentation	1			0.5	0.5				0.2				0.2				0.2			0.5	1.1
D1.2	Dissemination and Use Plan	6			1				0.3				0.3				0.3				1.9	
D1.3	Management Report 1	6			0.5	0.5															0.5	0.5
D1.4	Periodic Progress Report 1	12			0.5	0.5			0.2	0.2			0.2	0.4			0.2	0.2			1.1	1.3
D1.5	Management Report 2	12			0.5	0.5				0.2				0.2				0.2			0.5	1.1
D1.6	Management Report 3	18																				
D1.7	Periodic Progress Report 2	24	1	1	1	1	0.3	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	2	2	2	2
D1.8	Management Report 4	24																				
D1.9	Technology Implementation Plan	30																				
D1.10	Final Report	30																				
	WP-Total		1	1	4	3	0.3	0.2	0.8	0.8	0.3	0.4	0.8	1.2	0.4	0.4	0.9	1	2	2	6.5	6
WP2																						
D2.1	Robot setup specifications and design	6			2	2			2	2			4	1.5			1	1			9	6.5
D2.2	Robot setup	8			8	8							2	2							10	10
D2.3	Visual primitives for object identification	8			2	2							8	6							10	8
D2.4	Basic robot behaviors	12			3	3							4	2							7	5
D2.5	Architecture of the learning artifact	18	4	6	4	10	1	0.5	1	0.5	2	7	2	8	1	1	1	1	8	14.5	8	19.5
D2.6	Robot testing and technology assessment	24	6	6	6	6					2	2	2	2					8	8	8	8
D2.7	Final demonstration and results	30																				
	WP-Total		10	12	25	31	1	0.5	3	2.5	4	9	22	21.5	1	1	2	2	16	22.5	52	57
WP3																						
D3.1	Biological data acquisition setup specification	6			2	2			2	2			1	1.5			2	2			7	7.5
D3.2	Biological data acquisition setup	8			2	2			5	5			4	0.5			4	4			15	11.5
D3.3	Data collection analysis and processing softw	12			5	5			1	1				0.5							6	6.5
D3.4	Modeling of the mirror neurons representation	18	1	1	1	1	4	4	4	4	2	6	2	6	1	1	1	1	8	12	8	12
	WP-Total		1	1	10	10	4	4	12	12	2	6	7	8.5	1	1	7	7	8	12	36	37.5
WP4																						
D4.1	Protocol for the monkey experiments	6			1	1			4	4											5	5
D4.2	Protocol for the behavior development experi	6															4	4			4	4
D4.3	Preliminary results of the monkey experiment	12							10	10											10	10
D4.4	Preliminary results of the behavior developme	12															10	10			10	10
D4.5	Final results of the biological experiments	24	2	2	2	2	10	10	10	10					5	5	5	5	17	17	17	17
D4.6	Comparison between "artificial" and "real" neu	30																				
	WP-Total		2	2	3	3	10	10	24	24					5	5	19	19	17	17	46	46
	TOTAL		14	16	42	47	15.3	14.7	39.8	39.3	6.3	15.4	29.8	31.2	7.4	7.4	28.9	29	43	53.5	140.5	146.5

Appendix 5 – Project progress report (per partner)

Cost breakdown for the reporting period

(Also reported on D1.7, Periodic progress report 2)

Contractors	Costs											
	Costs	Personnel	Durable equipment	Subcontrac-ting	Travel and subsistence	Consumables	Computing	Protection of *knowledge*	Other specific costs	Administrative and financial coordination costs	Overheads	TOTAL
Coordinator DIST	D[5]	128,605.42	7,687.50	61,019.91	28,450.75	18,203.95	0.00	0.00	0.00	14,541.10	91,222.68	349,731.31
	A[6]	45,721.63	3,277.18	54,150.70	11,059.78	10,326.25	0.00	0.00	0.00	2,967.50	33,874.28	161,377.32
Contractor UNIFE	D	54,310.00	9,352.84	5,289.00	7,902.48	37,179.75	0.00	0.00	8,839.00	0.00	23,516.81	146,389.88
	A	22,580.00	4,018.76	5,289.00	3,684.00	36,808.00	0.00	0.00	0.00	0.00	13,418.15	85,797.91
Contractor UU	D	92,296.96	1,287.56	248.16	9,195.32	3,317.56	455.64	0.00	716.27	0.00	21,503.49	129,020.96
	A	43,430.41	99.51	0.00	5,602.77	716.27	0.00	0.00	0.00	0.00	9,969.79	59,818.75
Contractor IST	D	96,041.45	0.00	3,280.00	16,550.22	4,372.15	0.00	0.00	0.00	0.00	156,448.00	276,691.82
	A	43,253.95	0.00	2,400.00	4,326.81	151.82	0.00	0.00	0.00	0.00	74,648.00	124,780.58
TOTAL		154,985.99	7,395.45	61,839.70	24,673.36	48,002.34	0.00	0.00	0.00	2,967.50	131,910.22	431,774.56

1 - To be filled in by the *coordinator* /administrative and financial *coordinator* (in case of split between administrative and financial coordination and scientific coordination) starting from the second period.

2 - Insert the *project commencement date* .

3 - Insert the end date of the last period covered by the integrated cost statement.

4 - The administrative and financial *coordinator* , in case of split between administrative and financial coordination and scientific coordination.

5 - Costs declared and subject to acceptance of the Commission for the current and previous periods.

6 - Costs accepted by the Commission for previous period(s).

DIST

Main contribution during this period	
Workpackage/Task	**Action**
WP 1	Project management
	Organization of project's meeting: three meetings were held during Y2. All meetings were organized as a two-day event. Both presentation and open discussion sessions were organized.
WP 2	Artifact realization
Task 2.6	Design of the architecture of the learning artifact. This activity included both the realization of a robotic hand to complete the humanoid setup at DIST and some effort in preparing the software control architecture with the required potential to comfortably carry out the experiments on grasping and manipulation. Also some activity was devoted to the design of a certain set of robotic behaviors to deal with hand localization and precise controlled reaching.
WP 3	Biological setup development
Task 3.6	Extensive data collection for the mirror neurons modeling activity has been carried out at DIST. This activity included also some additional effort in designing automatic data extraction procedures. In particular, DIST has been working on the localization of the hand and visual features extraction.
WP 4	Neuroscience experiments
	N/A

Deliverables due this period		
Deliverable number	**Title of Deliverable**	**Status (Draft Final, Pending)**
D1.6	Management report 3	Final
D1.7+1.8	Management report 4 + Periodic progress report 2	Final
D2.5	Architecture of the learning artifact	Final
D2.6	Robot testing and technology assessment	Postponed
D3.4	Modeling of mirror neurons representation	Final

Dissemination actions (articles, workshops, conferences etc.)

DIST is organizing the 4th workshop on Epigenetic Robotics to be held in Genoa on August 2004. More information can be found at: http://www.epigentic-robotics.org

Deviations from the planned work schedule/reasons/corrective actions/special attention required

Due to unspecific delay both in the biological experiments and on the implementation of the developed methodology on the robotic setup a 6-month unpaid extension was formally requested. As a consequence a few deliverables have been postponed. An up-to-date technical annex has been provided.

Planned actions for the next period

The next 12 month activity will concentrate on integrating the mirror neuron model on the robotic setup.

UNIFE

Main contribution during this period	
Workpackage/Task	**Action**
WP 1	Project management
	N/A
WP 2	Artifact realization
Task 2.6	Contribution to the discussion on the biological plausibility of the artifact.
WP 3	Biological setup development
Task 3.6	Contribution to the formulation of the mirror neuron model described in deliverable 3.4. UNIFE also contributed to the definition of the data-set, e.g. in defining the types of grasp, the number of recording, etc.
WP 4	Neuroscience experiments
Task 4.4	UNIFE contributed along three different lines of research: experiments on behaving monkeys, extending part of the "biological data acquisition setup", and in using TMS to study the role of the mirror system in communication. Monkey experiments: The goal of these experiments is to establish if F5 premotor neurons are sensitive to the vision of monkey's own acting hand. This is to verify whether mirror neurons might have originated from an adaptation of a visual feedback system that normally also controls grasping execution. We recorded more than 100 neurons in both areas and we submitted to formal testing more than 80% of them. The data is currently under analysis and we are collecting additional data on the other cerebral hemisphere. UNIFE is involved in improving the biological data acquisition setup. This implementation requires the optimization of several factors that might strongly influence the performance of the action-recognition system. Some of the questions addressed are whether stereoscopic vision is really necessary to create the visuomotor map, how much does finger occlusion during grasping influence action recognition, is the embodiment characterizing the mirror system based on movements recognition or on actions recognition, etc. To answer these questions we set up a paradigm in which subjects are looking at the experimenter grasping objects in different ways. Subjects are requested to indicate the exact instant of object touching by tapping with their index finger. Different experimental conditions allow testing subjects in binocular vs. monocular conditions as well as varying the type and shape of objects. Mirror system and communication: within the framework of the scientific problem of action recognition UNIFE is investigating what is the role of the mirror system in communication in humans. On the basis of preliminary observations we are now investigating the role of premotor cortex in speech perception by applying transcranial magnetic stimulation to inferior frontal cortex during phonological tasks. In addition we have set up an fMRI experiment aiming to clarify the role of Broca's region in action understanding and inter-individual communication.

Deliverables due this period		
Deliverable number	**Title of Deliverable**	**Status (Draft Final, Pending)**
	See below (Deviations from planned work schedule).	

Dissemination actions (articles, workshops, conferences etc.)

1. Craighero L. Bello A., Fadiga L., Rizzolatti G., Hand action preparation influences the responses to hand pictures, Neuropsychologia, Amsterdam, 2002, 40: 492-502.
2. Fadiga L., Craighero L., Buccino G., Rizzolatti G. Speech listening specifically modulates the excitability of tongue muscles: a TMS study, Europ. J. Neurosci, Oxford, 2002, 15: 399-402.
3. Gallese V., Fadiga L., Fogassi L., Rizzolatti G. Action representation and the inferior parietal lobule. In: Common Mechanisms in Perception and Action - Attention and Performance - Volume XIX. Eds. Prinz W. e Hommel B. (New York: Oxford University Press) 2002.
4. Rizzolatti G., Fadiga L., Fogassi L., Gallese V. From mirror neurons to imitation: facts and speculations. In: The Imitative Mind Development, Evolution and Brain Bases. Eds. Meltzoff A.N., Prinz W. (Cambridge: CUP (Cambridge studies in cognitive perceptual development), 2002.
5. Rizzolatti G., Fadiga L. The mirror-neuron system and action recognition. In Higher-order motor disorders: from Neuroanatomy and Neurobiology to Clinical Neurology. Eds. Freund H.J., Jeannerod M., Hallett M. (New York: Oxford University Press), In press.
6. Fadiga L., Craighero L. New insights on sensorimotor integration: From hand action to speech perception, Brain and Cognition (2003, in press).
7. Fadiga L., Craighero L. Electrophysiology of action representation. J. Clin. Neurophysiol., In press.
8. Rizzolatti G., Craighero L. The Mirror-neuron system. Annual Review of Neuroscience (2004, in press)

1. Invited lecture at the International Workshop on “Perception, Action, Syntax and the brain”, Leipzig 2003.
2. Invited lecture at the NFSI 2003 - 4th International Conference on noninvasive functional source imaging, Chieti, 2003.
3. Invited lecture at the EURESCO Conference 03-110 on "Three-Dimensional Sensory and Motor Space", Maratea 2003.

Deviations from the planned work schedule/reasons/corrective actions/special attention required

Results from monkey experiments are encouraging. We decided therefore to increase our sample and to extend the study to mirror neurons. For this reason we formally requested a six-month unpaid extension. As a consequence the biological experiment final deliverable has been postponed.

Planned actions for the next period

1. Complete neuron recordings.
2. Investigate how action consequences are detected and predicted during observation of others’ action.
3. Analyze data on motor resonance and speech perception and conclude TMS experiments.

IST

Main contribution during this period	
Workpackage/Task	**Action**
WP 1	Project management
	In addition to the regular activities of the project (meetings communication, etc) during the second year of MIRROR, IST has worked primarily on WP2 – Artifact Realization and in WP3 – Biological Setup.
WP 2	Artifact realization
Task 2.6	IST has contributed to the definition of the architecture of the learning artifact. They have provided their expertise both in defining the control architecture and into the realization of the learning components. In practice this effort overlaps with that of WP3.
WP 3	Biological setup development
	The work developed in WP3 consisted in designing a biologically plausible methodology of gesture recognition exploiting motor information as well as visual data. One key element of the approach consists in the definition of a Visuo-Motor Map (VMM) that establishes an association between the appearance of images of the hand and the corresponding motor information. Testing of the first implementation was carried out on a data set collected by employing the data-glove setup developed within Mirror. Future work will focus on extending the methodology and using more varied experimental data and conditions as well as implementing this approach in the real artifact.
WP 4	Neuroscience experiments
	N/A

Deliverables due this period		
Deliverable number	**Title of Deliverable**	**Status (Draft Final, Pending)**
3.4	Modeling of mirror neuron representation	Final

Dissemination actions (articles, workshops, conferences etc.)

1. Raquel Vassallo, José Santos-Victor, Hans-Jorg Schnebeli, "Using Motor Representations for Topological Mapping and Navigation," Intl. Conference on Intelligent Robots and Systems, IROS 2002, Lausanne, Switzerland, October 2002,
2. Manuel Cabido Lopes, José Santos-Victor, "Visual Transformations in Gesture Imitation: what you see is what you do," ICRA - IEEE International Conference on Robotics and Automation, Taiwan, September 2003.
3. Manuel Cabido Lopes, José Santos-Victor, "Motor Representations for Hand Gesture Recognition and Imitation," IROS Workshop on Robot Programming by Demonstration, Las Vegas, SA, October 31st, 2003.

Deviations from the planned work schedule/reasons/corrective actions/special attention required

Planned actions for the next period

Testing of the mirror neuron model will be extended to a new data set possibly including a different distribution of actions and point of views.

UU (Department of Psychology)

Main contribution during this period	
Workpackage/Task	**Action**
WP 1	Project management
	N/A
WP 2	Artifact realization
Task 2.6	UU has contributed to the definition of learning architecture and especially to the correct understanding of the developmental progression of the acquisition of reaching and grasping skills and eventually to the mirror representation. Also, UU helped if verifying the biological plausibility of the proposed model.
WP 3	Biological setup development
Task 3.6	UU generically contributed to the modeling activity by providing an explanatory framework for the development of the mirror representation as described in D1.7 and D3.4
WP 4	Neuroscience experiments
Task 4.4	During the second year of the project, UU has worked on two kinds of problems related to the development of manual control. In addition, UU has also started to investigate action control when visual information is temporarily absent due to occlusion of the external object. 1. Children's ability to adjust the orientation of objects with various shapes in order to fit them into holes is studied. By varying the form of the objects and the holes, the difficulty of the task can be manipulated. Pre-adjustments of the orientation of the various objects before trying to push them through the holes, give information about the subjects spatial cognition as well as their ability to plan these actions. Some experiments have been completed an others are planned. 2. During Y2, an experimental paradigm has been established to the development of infants' predictive reaching for moving objects. Two orthogonal servomotors drive an object on a 1 x 1 m planar surface. The motors are placed behind the surface and transmit the motion to the object magnetically. Software for this device has been developed during Y2 and now we are able to construct any almost arbitrary motion with any velocity profile. The device is going to be used to explore predictive reaching and the development of extrapolation rules in infant catching. 3. During Y2, UU has proceeded with the work on predictive visual tracking. Infants' ability to smoothly track objects of different size, track them along different trajectories, and over occlusion has been studied. The focus during this year has been on the emergence of predictive tracking of temporarily occluded objects. We have pursued this effort with two kinds of eye movement recordings: EOG and cornea reflection.

Deliverables due this period		
Deliverable number	**Title of Deliverable**	**Status (Draft Final, Pending)**
4.5	Following the extension of the project this deliverable has been postponed. Some of the results are discussed in D1.7.	Pending

Dissemination actions (articles, workshops, conferences etc.)
1. Rosander, R. and von Hofsten, C. (2003) Infants' emerging ability to represent object motion. **Cognition,** (in press). 2. Gredebäck, G. and von Hofsten, C. (2003) Infants' evolving representation of moving objects between 6 and 12 months of age. **Infancy, (**in press).
Deviations from the planned work schedule/reasons/corrective actions/special attention required
WP4 has been delayed and final results postponed to month 30.
Planned actions for the next period
Continue the experimentation along the three strains outlined above.

Appendix 6 – Project's Achievements Fiche

Questions about project's outcomes	Number	Comments
1. Scientific and technological achievements of the project (and why are they so?)		
Question 1.1. Which is the 'Breakthrough' or 'real' innovation achieved in the considered period	N/A	Brief description: • An explanatory model of the role of mirror neurons in action recognition and understanding together with a formal probabilistic model of the working of the mirror system.
2. Impact on Science and Technology: Scientific Publications in scientific magazines		
Question 2.1. Scientific or technical publications on reviewed journals and conferences		Title and journals/conference and partners involved: 1. Rosander, R. and von Hofsten, C. (2003) Infants' emerging ability to represent object motion. **Cognition,** (in press). 2. Gredebäck, G. and von Hofsten, C. (2003) Infants' evolving representation of moving objects between 6 and 12 months of age. **Infancy, (**in press). 3. P. Fitzpatrick and G. Metta. Grounding vision through experimental manipulation. In the Philosophical Transactions of the Royal Society: Mathematical, Physical, and Engineering Sciences, 361:1811, pp. 2165-2185. 4. L. Natale, S. Rao, G. Sandini. Learning to act on objects. 2nd Workshop on Biologically Motivated Computer Vision (BMCV). Tübingen (Germany), November 22-24, 2002 5. G.Metta, L.Natale, S.Rao, G.Sandini. Development of the "mirror system": a computational model. In Conference on Brain Development and Cognition in Human Infants. Emergence of Social Communication: Hands, Eyes, Ears, Mouths. Acquafredda di Maratea - Napoli. June 7-12, 2002. 6. P. Fitzpatrick, G. Metta, L. Natale, S. Rao, and G. Sandini. Learning About Objects Through Action: Initial Steps Towards Artificial Cognition, In 2003 IEEE

		International Conference on Robotics and Automation (ICRA). May 12-17, 2003 Taipei, Taiwan. 7. Craighero L. Bello A., Fadiga L., Rizzolatti G., Hand action preparation influences the responses to hand pictures, Neuropsychologia, Amsterdam, 2002, 40: 492-502. 8. Fadiga L., Craighero L., Buccino G., Rizzolatti G. Speech listening specifically modulates the excitability of tongue muscles: a TMS study, Europ. J. Neurosci, Oxford, 2002, 15: 399-402. 9. Fadiga L., Craighero L. New insights on sensorimotor integration: From hand action to speech perception, Brain and Cognition (2003, in press). 10. Fadiga L., Craighero L. Electrophysiology of action representation. J. Clin. Neurophysiol., In press. 11. Raquel Vassallo, José Santos-Victor, Hans-Jorg Schnebeli, "Using Motor Representations for Topological Mapping and Navigation," Intl. Conference on Intelligent Robots and Systems, IROS 2002, Lausanne, Switzerland, October 2002, 12. Manuel Cabido Lopes, José Santos-Victor, "Visual Transformations in Gesture Imitation: what you see is what you do," ICRA - IEEE International Conference on Robotics and Automation, Taiwan, September 2003. 13. Manuel Cabido Lopes, José Santos-Victor, "Motor Representations for Hand Gesture Recognition and Imitation," IROS Workshop on Robot Programming by Demonstration, Las Vegas, SA, October 31st, 2003.
Question 2.2. Scientific or technical publications on non-reviewed journals and conferences		Title and journals/conference and partners involved
Question 2.3. Invited papers published in scientific		Title and journals/conference and partners involved 1. von Hofsten, C. (2003) The development of prospective control in looking. In J. Lockman and J. Rieser (Eds.) **Action as an Organizer of Perception and**

or technical journal or conference.		**Cognition during Learning and Development. Minnesota symposium on Child Psychology.** 2. G.Metta, P.Fitzpatrick. **Early integration of vision and manipulation.** Invited talk at the International Joint Conference on Neural Network. July 20-24, 2003. Portland, Oregon, USA. 3. Gallese V., Fadiga L., Fogassi L., Rizzolatti G. Action representation and the inferior parietal lobule. In: Common Mechanisms in Perception and Action - Attention and Performance - Volume XIX. Eds. Prinz W. e Hommel B. (New York: Oxford University Press) 2002. 4. Rizzolatti G., Fadiga L., Fogassi L., Gallese V. From mirror neurons to imitation: facts and speculations. In: The Imitative Mind Development, Evolution and Brain Bases. Eds. Meltzoff A.N., Prinz W. (Cambridge: CUP (Cambridge studies in cognitive perceptual development), 2002. 5. Rizzolatti G., Fadiga L. The mirror-neuron system and action recognition. In Higher-order motor disorders: from Neuroanatomy and Neurobiology to Clinical Neurology. Eds. Freund H.J., Jeannerod M., Hallett M. (New York: Oxford University Press), In press. 6. Rizzolatti G., Craighero L. The Mirror-neuron system. Annual Review of Neuroscience (2004, in press).
3. Impact on Innovation and Micro-economy		
A - Patents		
Question 3.1. Patents filed and pending		When and in which country(ies): Brief explanation of the field covered by the patent:
Question 3.2. Patents awarded		When and in which country(ies): Brief explanation of the field covered by the patent* (if different from above):

Question 3.3. Patents sold		When and in which country(ies): Brief explanation of the field covered by the patent* (if different from above):
Questions about project's outcomes	**Number**	**Comments or suggestions for further investigation**
B - Start-ups		
Question 3.4. Creation of start-up	No	If YES, details: - date of creation: - company name - subject of activity: - location: - headcount: - turnover: - profitable : yes / no / when expected
Question 3.5. Creation of new department of research (ie: organisational change)	No	Name of department:
C – Technology transfer of project's results		
Question 3.6. Collaboration/ partnership with a company?		Which partner : DIST Which company : Telerobot S.r.l. Italy What kind of collaboration? Realization of the robotic hand.

4. Other effects		
A - Participation to Conferences/Symposium/Workshops or other dissemination events		
Question 4.1. Active participation[1] to Conferences in EU Member states, Candidate countries and NAS. (specify if one partner or "collaborative" between partners)		Names/ Dates/ Subject area / Country:
Question 4.2. Active participation to Conferences outside the above countries (specify if one partner or "collaborative" between partners)		Names/ Dates/ Subject area / Country:
B – Training effect		
Question 4.3. Number of PhD students hired for project's completion	4	In what field: 2- Developmental Psychology 1- Robotics 1- Neuroscience
Questions about project's outcomes	**Number**	**Comments or suggestions for further investigation**

[1] 'Active Participation' in the means of organising a workshop / session / stand / exhibition directly related to the project (apart from events presented in section 2).

C - Public Visibility		
Question 4.4. Media appearances and general publications (articles, press releases, etc.)		References: 1. TBS Japan: what is a man? (will be shown in Japan by the end of November) 2. SVT Sweden: 2 TV programs about early infant development 3. New York Times: 2003.1.8 Article about Catching 4. BBC program on mirror neurons in humans (Series: Human Instinct) 1. "Senza un corpo non si impara" A. Minoglio Focus n. 133 - Novembre 2003 2. "A Genova dove si alleva il Babybot che "impara" a conoscere il mondo come un neonato" C. Protettì MediaDuemila - Settembre 2003 3. "Benvenuto babybot" Quark - 2 giugno 2003 4. "Si fa presto a dire androidi" F. Tarissi - L'espresso 8 maggio 2003 5. "Questo robot ci darà una mano" G. Filetto - La Repubblica - 18 marzo 2003 6. G. Filetto- La Repubblica - 9 marzo 2003 7. "Babybot, intelligenza aritificiale all'italiana" (V. Fieramonte -Le Scienze - Gennaio 2003) (Please attach relevant information)
Question 4.5. Web-pages created or other web-site links related to the project		References: http://www.psyk.uu.se/hemsidor/spadbarnslabbet http://www.liralab.it/mirror http://www.unife.it/neurolab (Please attach relevant links)
Question 4.6. Video produced or other dissemination material		References: (Please attach relevant material)
Question 4.7. Key pictures of results		References: (Please attach relevant material .jpeg or .gif)

D - Spill-over effects		
Question 4.8. Any spill-over to national programs	No	If YES, which national programme(s):
Question 4.9. Any spill-over to another part of EU IST Programme	No	If YES, which IST programme(s):
Question 4.10. Are other team(s) involved in the same type of research as the one in your project?	No	If YES, which organisation(s):