CARBON BASED SMART SYSTEM FOR WIRELESS APPLICATION

Start Date : 01/09/12
Project n°318352 **Duration : 36 months**

Topic addressed : Very advanced nanoelectronic components: design, engineering, technology and manufacturability

WORK PACKAGE 7 : Project management

DELIVERABLE D7.11

Progress Management Reports #3
Covered period: T0+12 – T0+18

Due date : T0+18 **Submission date : T0+23**

Lead contractor for this deliverable: TRT

Dissemination level : PU – Public

WORK PACKAGE 7: Project management

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CHANGE RECORD SHEET

REVISION LETTER	DATE	PAGE NUMBER	DESCRIPTION
Template			
V1	10/07/2014	19	All partners contribution

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1 JUSTIFICATION OF MAJOR COST ITEMS AND RESSOURCES

1.1 BRIEF DESCIPTION OF WORK, MAJOR COST ITEMS AND RESSOURCES

1.1.1 TRT

Brief description of work

WP 2	TRT has participated to the design definition for the microwave CNT amplifier, CNT switch the graphène devices
WP 3	TRT has been involved in the characterisation of CNT and graphene materials It has also developed a process flow of the RF switch based on the CNT and the first fabrication run was started Contribution the knowledge of CNT growth for filter fabrication
WP 4	TRT has been strongly involved on test activities. Contribution for the characterization of different devices (CNT and Graphene FET, CNT RF switch, CNT based filter, CNT and graphene antenna, Graphene detector). Leading the task concerning the CNT interconnects characterization.
WP 6	TRT has put a lot of work on the construction of the Nano-RF website. The public area of the website describes the stakes of the project, the partners, the main lines of the project and links it to relevant references. The private area includes confidential information and allows the partners to exchange safely voluminous data.
WP 7	TRT has been strongly involved in the establishment of the Grant Agreement and has driven the negotiations to find a commitment of all partners on a Consortium Agreement. As coordinator, TRT has launched the project with a successful Kick-Off Meeting organised in Paris area. Since, it closely manages the evolution of the project by following the costs, the delays of the deliverables, and by establishing correcting actions when necessary. Redaction of progress activity and management reports.

Major Cost Items

- Personal costs : 17.61 person-months

Tables of costs

	M12-M18	Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
TRT	Personnel costs	629 254	174 580	0	39 391	0	213 971	34	415 283
	subcontracting	9 000	0	0	0	0	0	0	9 000
	other direct costs	115 039	80 644	0	0	0	80 644	70	34 395
	indirects costs	737 794	52 385	0	0	0	52 385	7	685 409
	total	**1 491 087**	**307 609**	**0**	**39 391**	**0**	**347 000**	**23**	**1 144 087**

Table 1 : TRT Table of costs

Table of Human Resourcess

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
TRT	WP 1	7,00	0,50	0,00	0,00				0,50	7%	6,50
	WP 2	16,00	2,50	2,98	0,60				6,08	38%	9,92
	WP 3	26,00	1,00	5,00	15,51				21,51	83%	4,49
	WP 4	13,00	0,00	0,00	0,30				0,30	2%	12,70
	WP 5	14,00	0,00	0,00	0,00				0,00	0%	14,00
	WP 6	4,00	0,31	0,60	0,50				1,41	35%	2,59
	WP 7	14,00	0,46	0,40	0,70				1,56	11%	12,44
	Total	94,00	4,77	8,98	17,61	0,00	0,00	0,00	31,36	33%	62,64

Table 2 : TRT Table of Human Resources

1.1.2 CHALMERS

Brief description of work

WP 2	
WP 3	CNT growth, TCVD graphene Growth and transfer of CNT bundles into TSVs for 3D interconnection Contribute knowledge about graphene growth for RF devices
WP 4	Contribution for the task concerning the CNT interconnects characterization
WP 6	
WP 7	

Major Cost Items

- Personal costs : 6.10 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
CHALMERS	Personnel costs	280 909	31 541	0	0	0	31 541	11%	249 368
	subcontracting	0	0	0	0	0	0	0%	0
	other direct costs	131 301	30 954	0	0	0	30 954	24%	100 347
	indirects costs	247 326	37 497	0	0	0	37 497	15%	209 829
	total	659 536	99 992	0	0	0	99 992	15%	559 544

Table 3 : CHALMERS Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
CHALMERS	WP 1	4,00	3,50	0,50	0,00				4,00	100%	0,00
	WP 2	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 3	36,00	0,00	7,30	6,10				13,40	37%	22,60
	WP 4	16,00	0,00	0,00	0,00				0,00	0%	16,00
	WP 5	5,00	0,00	0,00	0,00				0,00	0%	5,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	9,00	0,00	2,00	0,00				2,00	22%	7,00
	Total	70,00	3,50	9,80	6,10	0,00	0,00	0,00	19,40	28%	50,60

Table 4: CHALMERS Table of Human Resources

1.1.3 FORTH

Brief description of work

WP 2	
WP 3	fabrication of supporting structures for the FET develop fabrication modules for graphene devices, fabricate Schottky
WP4	Contribution for the characterization of different devices : CNT and Graphene FET, Graphene detector
WP 6	
WP 7	

Major Cost Items

- Personal costs : 7.02 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
FORTH	Personnel costs	170 911	16 175	0	0	0	16 175	9%	154 736
	subcontracting	3 000	0	0	0	0	0	0%	3 000
	other direct costs	84 172	20 317	0	0	0	20 317	24%	63 855
	indirects costs	167 656	13 425	0	0	0	13 425	8%	154 231
	total	**425 739**	**49 917**	**0**	**0**	**0**	**49 917**	**12%**	**375 822**

Table 5 : FORTH Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
FORTH	WP 1	2,00	2,00	0,00	0,00				2,00	100%	0,00
	WP 2	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 3	58,00	5,90	16,83	5,00				27,73	48%	30,27
	WP 4	3,00	0,00	0,00	2,02				2,02	67%	0,98
	WP 5	4,00	0,00	0,00	0,00				0,00	0%	4,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	5,00	0,00	0,00	0,00				0,00	0%	5,00
	Total	72,00	7,90	16,83	7,02	0,00	0,00	0,00	31,75	44%	40,25

Table 6: FORTH Table of Human Resources

1.1.4 LAAS

Brief description of work

WP 2	Design power switch Design CNTfilter/oscillator Design LNA
WP 3	RF graphene properties characterization employing graphene loaded CPW structure
WP 4	LAAS is the WP4 leader and lead the task concerning the characterization of the CNT RF switch. Contribution for the characterization of different devices (CNT and Graphene FET, CNT RF switch, CNT based filter, graphene antenna, graphene detector).

WP 6	
WP 7	

Major Cost Items

- Personal costs : 6.96 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
LAAS	Personnel costs	179 690	53 612	0	4 650	0	58 262	32%	121 428
	subcontracting	0	0	0	0	0	0	0%	0
	other direct costs	86 000	2 700	0	0	0	2 700	3%	83 300
	indirects costs	159 414	33 787	0	2 790	0	36 577	23%	122 837
	total	**425 104**	**90 099**	**0**	**7 440**	**0**	**97 539**	**23%**	**327 565**

Table 7: LAAS Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
LAAS	WP 1	6,00	3,66	0,00	0,00				3,66	61%	2,34
	WP 2	2,00	0,00	2,00	0,00				2,00	100%	0,00
	WP 3	24,00	0,00	6,22	4,56				10,78	45%	13,22
	WP 4	12,00	0,00	0,00	1,84				1,84	15%	10,16
	WP 5	1,00	0,00	0,00	0,00				0,00	0%	1,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	3,00	0,00	2,00	0,56				2,56	85%	0,44
	Total	48,00	3,66	10,22	6,96	0,00	0,00	0,00	20,84	43%	27,16

Table 8: LAAS Table of Human Resources

1.1.5 UPMC

Brief description of work

WP 2	Design the CNT antenna
WP 3	RF material test structures for classical material parameters (epsilon, mu, sigma and resistance/inductance/capacitance) characterisation
WP 4	UPMC lead the activity concerning the characterization of the CNT based filter. Contribution also for the characterization of the CNT and graphene antenna and CNT/Graphene FET.
WP 6	
WP 7	

Major Cost Items

- Personal costs : 1.5 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
UPMC	Personnel costs	125 851	0	0	0	0	0	0	125 851
	subcontracting	39 200	157	0	0	0	157	0	39 043
	other direct costs	20 902	0	0	0	0	0	0	20 902
	indirects costs	100 260	1 257	0	0	0	1 257	1	99 003
	total	**286 213**	**1 414**	**0**	**0**	**0**	**1 414**	**0**	**284 799**

Table 9 : UPMC Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
UPMC	**WP 1**	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	WP 2	**17,00**	2,60	2,43	1,30				**6,33**	**37%**	**10,67**
	WP 3	**6,00**	0,00	0,64	0,20				**0,84**	**14%**	**5,16**
	WP 4	**15,00**	0,00	0,00	0,00				**0,00**	**0%**	**15,00**
	WP 5	**1,00**	0,00	0,00	0,00				**0,00**	**0%**	**1,00**
	WP 6	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	WP 7	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	Total	**39,00**	**2,60**	**3,07**	**1,50**	**0,00**	**0,00**	**0,00**	**7,17**	**18%**	**31,83**

Table 10: UPMC Table of Human Resources

1.1.6 IMT

Brief description of work

WP 2	Design the CNT transistor Design capacitive CNT switch Design the parameters of the CNT array Design graphene antenna Design graphène FET, and graphène mixer/oscillator
WP 3	Contribute to technology nodes (opto litho mask fabrication)
WP 4	IMT has been strongly involved on test activities. Contribution for the characterization of different devices (CNT and Graphene FET, CNT RF switch, CNT based filter, CNT and graphene antenna, Graphene detector). Leading the task concerning the task concerning the graphene detector characterization.
WP 6	
WP 7	

Major Cost Items

- Personal costs : 5.00 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
IMT	Personnel costs	81 517	21 506	0	0	0	21 506	26%	60 011
	subcontracting	0	0	0	0	0		0%	0
	other direct costs	22 318	11 680	0	0	0	11 680	52%	10 638
	indirects costs	21 145	6 637	0	0	0	6 637	31%	14 508
	total	**124 980**	**39 824**	**0**	**0**	**0**	**39 824**	**32%**	**85 156**

Table 11 : IMT Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
IMT	WP 1	2,00	0,00	2,00	0,00				2,00	100%	0,00
	WP 2	25,00	4,90	10,17	5,00				20,07	80%	4,93
	WP 3	5,00	1,00	0,50	0,00				1,50	30%	3,50
	WP 4	15,00	0,00	0,00	0,00				0,00	0%	15,00
	WP 5	2,50	0,00	0,00	0,00				0,00	0%	2,50
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	1,50	0,10	0,50	0,00				0,60	40%	0,90
	Total	51,00	6,00	13,17	5,00	0,00	0,00	0,00	24,17	47%	26,83

Table 12: IMT Table of Human Resources

1.1.7 GI

Brief description of work

WP 2	
WP 3	Provide exfoliated graphene & transfer 2D material to arbitrary substrates or over Apertures
WP 4	
WP 6	
WP 7	

Major Cost Items

- Personal costs : 2,00 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
GI	Personnel costs	95 317	5 996	0	2 292	0	8 288	9%	87 029
	subcontracting	0	0	0	0	0	0	0%	0
	other direct costs	38 376	0	0	818	0	818	2%	37 558
	indirects costs	40 087	12 855	0	2 964	0	15 819	39%	24 268
	total	173 780	18 851	0	6 074	0	24 925	14%	148 855

Table 13 : GI Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
GI	WP 1	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 2	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 3	19,00	1,50	2,50	1,50				5,50	29%	13,50
	WP 4	1,00	0,00	0,00	0,00				0,00	0%	1,00
	WP 5	1,00	0,00	0,00	0,00				0,00	0%	1,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	0,00	0,50	0,50	0,50				1,50	0%	-1,50
	Total	21,00	2,00	3,00	2,00	0,00	0,00	0,00	7,00	33%	14,00

Table 14: GI Table of Human Resources

1.1.8 TAS

Brief description of work

WP 2	Provide antenna parameters and help at graphene antenna design Provide graphène parameters and design test devices to find graphene properties to be used in the design
WP 3	
WP 4	
WP 6	
WP 7	

Major Cost Items

- Personal costs : 0,1 person-months

Tables of costs

	M12-M18	Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
TAS	Personnel costs	29 015	1 301	0	0	0	1 301	4	27 714
	subcontracting	0	0	0	0	0	0	0	0
	other direct costs	2 715	354	0	0	0	354	13	2 361
	indirects costs	35 818	1 005	0	0	0	1 005	3	34 813
	total	**67 548**	**2 660**	**0**	**0**	**0**	**2 660**	**4**	**64 888**

Table 15 : TAS Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
TAS	**WP 1**	**2,00**	0,00	0,08	0,00				**0,08**	**4%**	**1,92**
	WP 2	**1,00**	0,00	0,00	0,10				**0,10**	**10%**	**0,90**
	WP 3	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	WP 4	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	WP 5	**2,00**	0,00	0,00	0,00				**0,00**	**0%**	**2,00**
	WP 6	**0,00**	0,00	0,00	0,00				**0,00**	**0%**	**0,00**
	WP 7	**2,00**	0,00	0,00	0,00				**0,00**	**0%**	**2,00**
	Total	**7,00**	**0,00**	**0,08**	**0,10**	**0,00**	**0,00**	**0,00**	**0,18**	**3%**	**6,82**

Table 16: TAS Table of Human Resources

1.1.9 SHT

Brief description of work

WP 2	
WP 3	optimization of PECVD growth process of single CNTs on conductive & non-conductive substrates Contribution the knowledge of CNT growth Growth of CNTs for filter fabrication PECVD growth of CNTs for antenna fabrication Contribution of knowledge on graphene growth
WP 4	Contribution for the characterization of the CNT interconnect
WP 6	
WP 7	

Major Cost Items

- Personal costs : 8.20 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
SHT	Personnel costs	98 453	34 488	0	0	0	34 488	35%	63 965
	subcontracting	0		0	0	0	0	0%	0
	other direct costs	102 312	19 025	0	0	0	19 025	19%	83 287
	indirects costs	120 459	32 108	0	0	0	32 108	27%	88 351
	total	**321 224**	**85 621**	**0**	**0**	**0**	**85 621**	**27%**	**235 603**

Table 17 : SHT Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
SHT	WP 1	1,00	0,60	0,4	0				1,00	100%	0,00
	WP 2	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 3	29,00	3,50	7,80	6,70				18,00	62%	11,00
	WP 4	4,00	0,00	0,00	0,70				0,70	18%	3,30
	WP 5	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 6	0,00	0,30	0,20	0,40				0,90	0%	-0,90
	WP 7	4,00	0,30	0,20	0,40				0,90	23%	3,10
	Total	38,00	4,70	8,60	8,20	0,00	0,00	0,00	21,50	57%	16,50

Table 18: SHT Table of Human Resources

1.1.10 UNIVPM

Brief description of work

WP 2	Multiphysics simulation of CNT transistor Multiphysics design of CNT NEMS switch Design the graphene detector
WP 3	
WP 4	Contribution for the CNT/graphene antenna characterization
WP 6	
WP 7	

Major Cost Items

- Personal costs : 11,50 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
UNIVPM	Personnel costs	78 035	43 880	0	0	7 231	51 111	65%	26 924
	subcontracting	1 000	0	0	0	0	0	0%	1 000
	other direct costs	29 892	23 132	0	0	0	23 132	77%	6 760
	indirects costs	92 170	40 207	0	0	4 339	44 546	48%	47 624
	total	**201 097**	**107 219**	**0**	**0**	**11 570**	**118 789**	**59%**	**82 308**

Table 19 : UNIVPM Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
UNIVPM	WP 1	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 2	24,00	2,00	4,00	8,00				14,00	58%	10,00
	WP 3	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 4	10,00	0,00	0,00	3,00				3,00	30%	7,00
	WP 5	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 6	5,00	0,50	0,50	0,50				1,50	30%	3,50
	WP 7	0,00	0,00	0,00	0,00				0,00	0%	0,00
	Total	39,00	2,50	4,50	11,50	0,00	0,00	0,00	18,50	47%	20,50

Table 20: UNIVPM Table of Human Resources

1.1.11 LiU

Brief description of work

WP 2	Provide physical properties of graphene on SiC wafer and help at graphène antenna design Will help to the design to all graphène devices to complay the graphene on wafer characterstics
WP 3	Graphene growth by high temperature decomposition of SiC
WP 4	
WP 6	
WP 7	

Major Cost Items

- Personal costs : 6,0 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
LiU	Personnel costs	73 526	38 131	0	0	0	38 131	52%	35 395
	subcontracting	0	0	0	0	0	0	0%	0
	other direct costs	44 765	3 051	0	0	0	3 051	7%	41 714
	indirects costs	70 974	24 710	0	0	0	24 710	35%	46 264
	total	**189 265**	**65 892**	**0**	**0**	**0**	**65 892**	**35%**	**123 373**

Table 21 : LiU Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
LiU	WP 1	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 2	2,00	0,00	0,00	0,00				0,00	0%	2,00
	WP 3	20,00	1,00	5,50	6,00				12,50	63%	7,50
	WP 4	1,00	0,00	0,00	0,00				0,00	0%	1,00
	WP 5	1,00	0,00	0,00	0,00				0,00	0%	1,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	0,00	0,00	0,00	0,00				0,00	0%	0,00
	Total	24,00	1,00	5,50	6,00	0,00	0,00	0,00	12,50	52%	11,50

Table 22: LiU Table of Human Resources

1.1.12 ICN

Brief description of work

WP 1	
WP 2	Design resistive switch
WP 3	CNT: Micro-Raman and Brillouin scattering for structural and study of frequency ranges. Near-field optical/thermal microscope and 3-omega to study thermal loss mechanisms. Pump-and-probe experiments to study lifetimes of phonon and phonon dynamics affecting switching.
WP 4	
WP 6	
WP 7	

Major Cost Items

- Personal costs : 12.24 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
ICN	Personnel costs	119 704	50 943	0	2 258	0	53 200	44%	66 504
	subcontracting	1 499	0	0	0	0	0	0%	1 499
	other direct costs	66 439	19 591	0	293	0	19 884	30%	46 555
	indirects costs	111 683	42 320	0	1 530	0	43 851	39%	67 832
	total	**299 325**	**112 854**	**0**	**4 081**	**0**	**116 935**	**39%**	**182 390**

Table 23 : ICN Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
ICN	WP 1	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 2	1,00	0,00	1,00	0,00				1,00	100%	0,00
	WP 3	18,00	0,00	2,41	11,98				14,39	80%	3,61
	WP 4	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 5	10,00	0,00	0,00	0,00				0,00	0%	10,00
	WP 6	1,50	0,00	0,00	0,00				0,00	0%	1,50
	WP 7	1,00	0,27	0,27	0,26				0,80	80%	0,20
	Total	31,50	0,27	3,68	12,24	0,00	0,00	0,00	16,19	51%	15,31

Table 24: ICN Table of Human Resources

1.1.13 Tyndall

Brief description of work

WP 2	
WP 3	High k oxide and dielectric technology implementation
WP 4	
WP 6	
WP 7	

Major Cost Items

- Personal costs : 6,00 person-months

Tables of costs

M12-M18		Budget M12	Type of Activity				TOTAL	% Spent	Remaining budget
			RTD	DEM	MGT	OTHER			
Tyndall	Personnel costs	134 492	27 867	0	0	0	27 867	21%	106 625
	subcontracting	0	0	0	0	0	0	0%	0
	other direct costs	40 269	5 959	0	0	0	5 959	15%	34 310
	indirects costs	104 857	20 296	0	0	0	20 296	19%	84 561
	total	**279 618**	**54 122**	**0**	**0**	**0**	**54 122**	**19%**	**225 496**

Table 25 : Tyndall Table of costs

Table of Human Resources

Partner	WP	Planned PM	Actual Person-Months							% Total	Remaining PM
			Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
Tyndall	WP 1	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 2	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 3	20,00	4,50	2,88	4,50				11,88	59%	8,12
	WP 4	14,00	0,00	2,00	1,00				3,00	21%	11,00
	WP 5	2,00	0,00	0,00	0,00				0,00	0%	2,00
	WP 6	0,00	0,00	0,00	0,00				0,00	0%	0,00
	WP 7	8,50	0,00	1,00	0,50				1,50	18%	7,00
	Total	44,50	4,50	5,88	6,00	0,00	0,00	0,00	16,38	37%	28,12

Table 26: Tyndall Table of Human Resources

1.2 TABULAR OVERVIEW OF BUDGETED AND ACTUAL COSTS

Partner	Total Budget	Actual cost							% Total	Remaining Budget
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
TRT	1 735 664,00	82 384,00	162 193,00	347 000,00	0,00	0,00	0,00	591 577,00	34,08%	1 144 087,00
CHALMERS	836 520,00	65 091,00	111 893,00	99 992,00	0,00	0,00	0,00	276 976,00	33,11%	559 544,00
FORTH	512 250,00	36 507,93	50 003,07	49 917,00	0,00	0,00	0,00	136 428,00	26,63%	375 822,00
LAAS	524 160,00	44 240,00	54 816,00	97 539,00	0,00	0,00	0,00	196 595,00	37,51%	327 565,00
UPMC	306 560,00	1 416,40	18 930,60	1 414,00	0,00	0,00	0,00	21 761,00	7,10%	284 799,00
IMT	332 760,00	42 124,21	165 655,79	39 824,00	0,00	0,00	0,00	247 604,00	74,41%	85 156,00
GI	248 000,00	27 576,00	19 068,00	24 925,00	0,00	0,00	0,00	71 569,00	28,86%	176 431,00
TSA	70 000,00	0,00	2 452,00	2 660,00	0,00	0,00	0,00	5 112,00	7,30%	64 888,00
SHT	432 899,00	41 933,00	69 742,00	85 621,00	0,00	0,00	0,00	197 296,00	45,58%	235 603,00
UNIVPM	246 787,00	29 396,98	16 293,02	118 789,00	0,00	0,00	0,00	164 479,00	66,65%	82 308,00
LiU	272 000,00	19 476,92	63 258,08	65 892,00	0,00	0,00	0,00	148 627,00	54,64%	123 373,00
ICN	335 901,00	15 511,63	21 063,37	116 935,00	0,00	0,00	0,00	153 510,00	45,70%	182 391,00
Tyndall	395 694,00	45 990,40	70 085,60	54 122,00	0,00	0,00	0,00	170 198,00	43,01%	225 496,00
Total Cost	6 249 195,00	451 648,47	825 453,53	1 104 630,00	0,00	0,00	0,00	2 381 732,00	38,11%	3 867 463,00

Table 27 Tabular overview of budgeted and actual costs

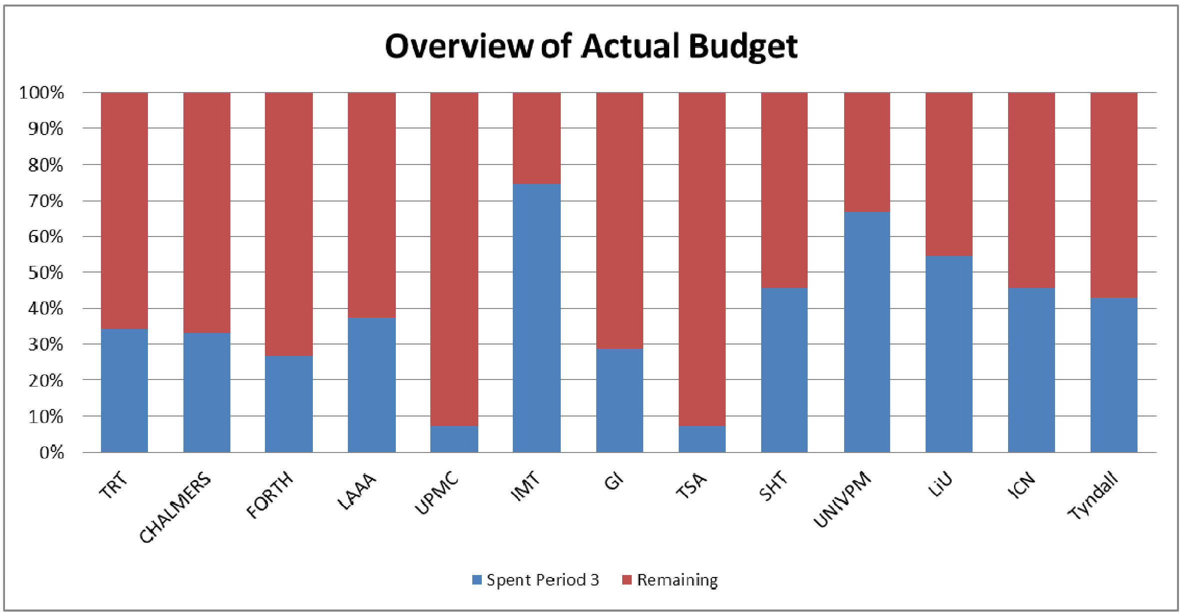

Figure 1 : Actual spent budget vs planned total budget for each partner

1.3 TABULAR OVERVIEW OF PLANNED AND ACTUAL HUMAN RESOURCES

Partner	Planned PM	Actual Person-Months							% Total	Remaining PM
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
TRT	94,00	4,77	8,98	17,61	0,00	0,00	0,00	31,36	33,36%	62,64
CHALMERS	70,00	3,50	9,80	6,10	0,00	0,00	0,00	19,40	27,71%	50,60
FORTH	72,00	7,90	16,83	7,02	0,00	0,00	0,00	31,75	44,10%	40,25
LAAS	46,00	5,66	6,22	6,96	0,00	0,00	0,00	18,84	40,96%	27,16
UPMC	39,00	2,60	3,07	1,50	0,00	0,00	0,00	7,17	18,38%	31,83
IMT	51,00	6,00	13,17	5,00	0,00	0,00	0,00	24,17	47,39%	26,83
GI	21,00	2,00	3,00	2,00	0,00	0,00	0,00	7,00	33,33%	14,00
TSA	7,00	0,00	0,08	0,10	0,00	0,00	0,00	0,18	2,57%	6,82
SHT	36,00	4,70	8,60	8,20	0,00	0,00	0,00	21,50	59,72%	14,50
UNIVPM	39,00	2,50	4,50	11,50	0,00	0,00	0,00	18,50	47,44%	20,50
LiU	24,00	1,00	5,50	6,00	0,00	0,00	0,00	12,50	52,08%	11,50
ICN	31,50	0,27	4,68	12,24	0,00	0,00	0,00	17,19	54,57%	14,31
Tyndall	44,50	4,50	5,88	6,00	0,00	0,00	0,00	16,38	36,81%	28,12
Total	575,00	45,40	90,31	90,23	0,00	0,00	0,00	225,94	39,29%	349,06

Table 28 : Overview of planned and actual human resources per partner

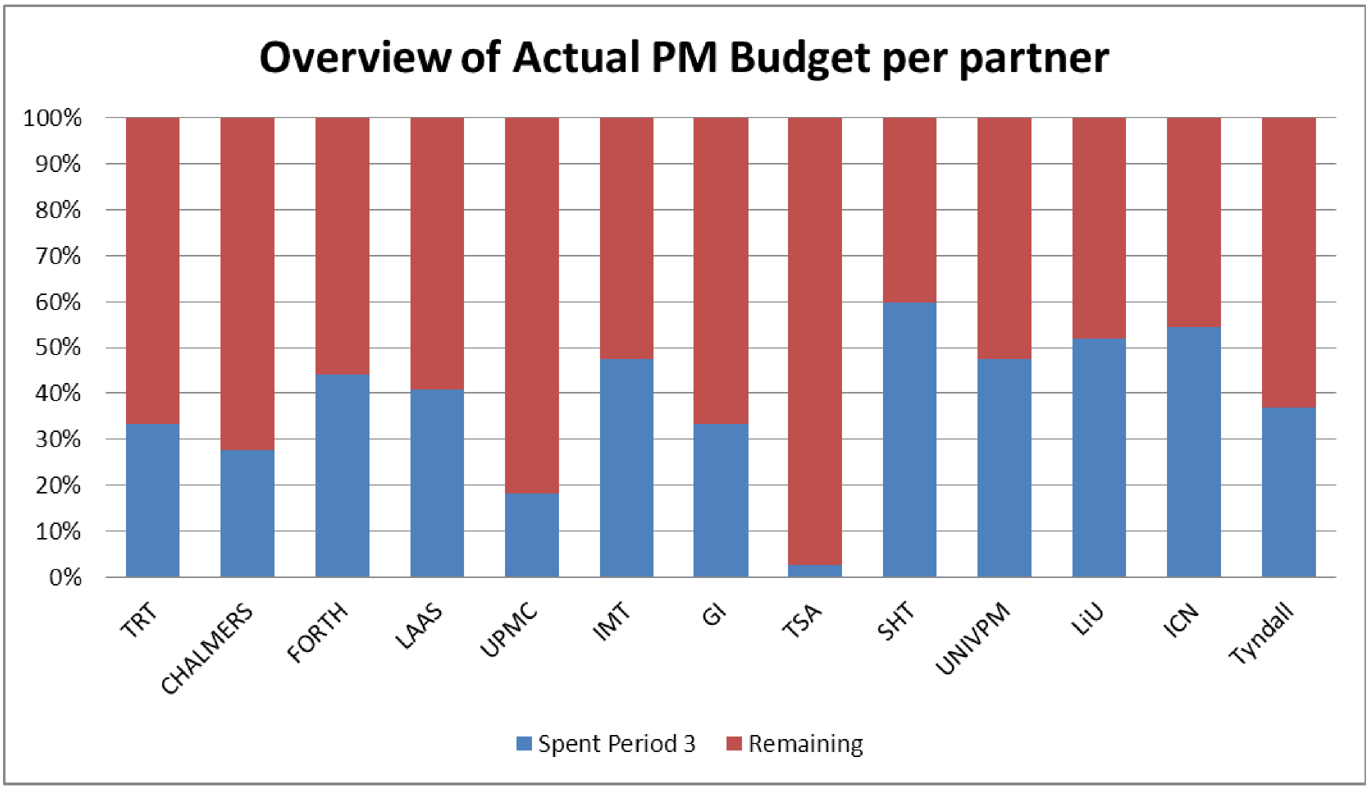

Figure 2 : Actual spent PM vs total budgeted PM for each partner

Partner	Planned PM	Actual Person-Months							% Total	Remaining PM
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
WP1	22,00	10,26	2,98	0,10	0,00	0,00	0,00	13,34	60,64%	8,66
WP2	88,00	12,00	20,58	14,90	0,00	0,00	0,00	47,48	53,95%	40,52
WP3	261,00	18,40	58,58	62,05	0,00	0,00	0,00	139,03	53,27%	121,97
WP4	104,00	0,00	2,00	8,86	0,00	0,00	0,00	10,86	10,44%	93,14
WP5	43,50	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00%	43,50
WP6	10,50	1,11	1,30	1,40	0,00	0,00	0,00	3,81	36,29%	6,69
WP7	48,00	1,63	4,87	2,92	0,00	0,00	0,00	9,42	19,63%	38,58
Total	577,00	43,40	90,31	90,23	0,00	0,00	0,00	223,94	38,81%	353,06

Table 29 : overview of planned and actual human resources per Workpackage

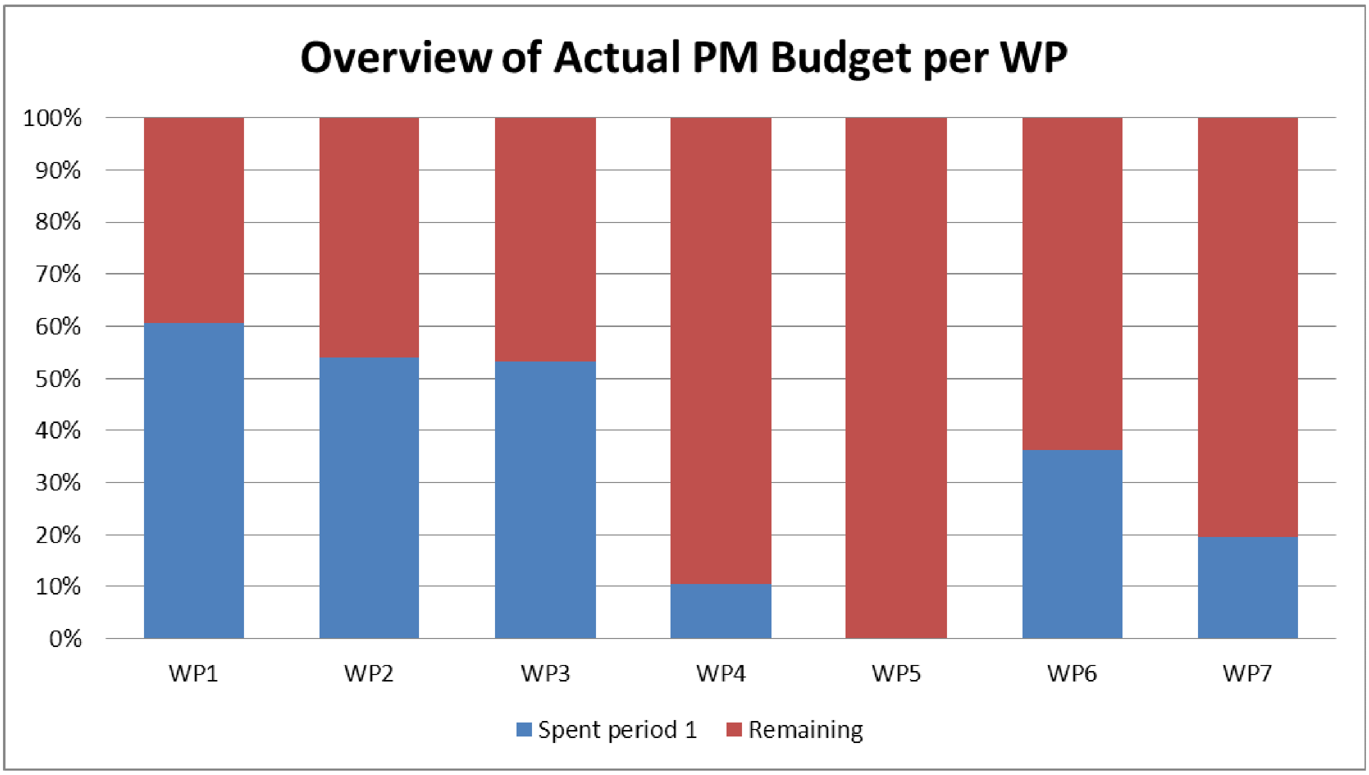

Figure 3 : Actual spent PM vs total budgeted PM for each workpackage

1.4 MAJOR DEVIAVTIONS

At this stage of the project, no major deviation has occurred in term of cost or human resources.

	Planned	Actual							% Total	Remaining
		Period 1	Period 2	Period 3	Period 4	Period 5	Period 6	Total		
Cost	**6 249 195,00**	451 648,47	825453,53	1101970,00	0,00	0,00	0,00	2379072,00	38,07%	3 870 123,00
PM	**577,00**	45,42	90,31	90,23	0,00	0,00	0,00	225,96	39,16%	351,04

Table 30 : Summary of planned and actual costs and PM expenses

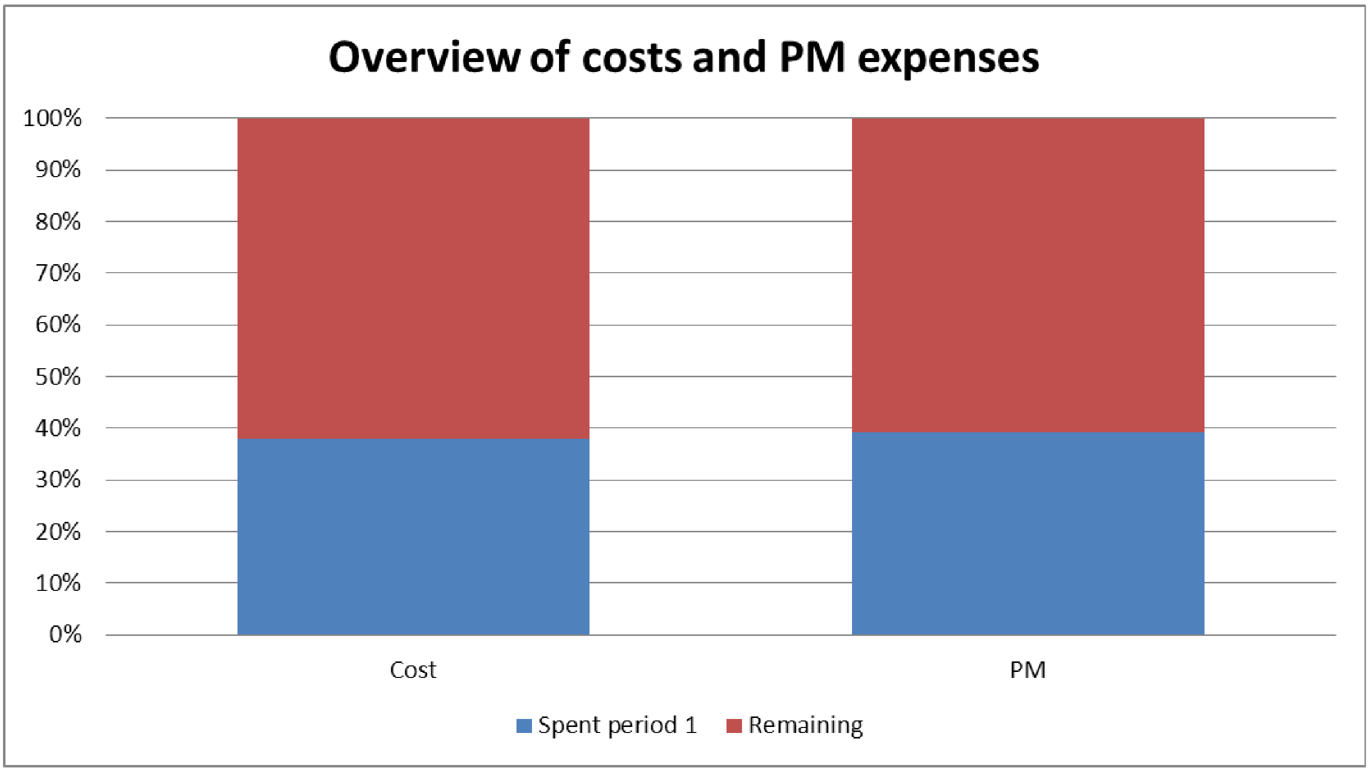

Figure 4 : Overview of cost and PM expenses