PROJECT FINAL REPORT

Grant Agreement number:	FP7 – 312690
Project acronym:	**ANAEE**
Project title:	Infrastructure for Analysis and Experimentation on Ecosystems
Funding Scheme:	Combination of CP & CSA
Period covered:	from 1st November 2012 to 31st October 2016

Project co-ordinator name, title and organisation:

Name:	PhD Dr.habil. Abad CHABBI
Title:	Director of research
Organisation:	French National Institute for Agricultural Research - (INRA)
Tel:	+33(0)5 49 55 61 78
Mobile:	+33 (0)6 82 80 02 85
E-mail:	abad.chabbi@lusignan.inra.fr
Project website address:	http://www.anaee.com/

Figures

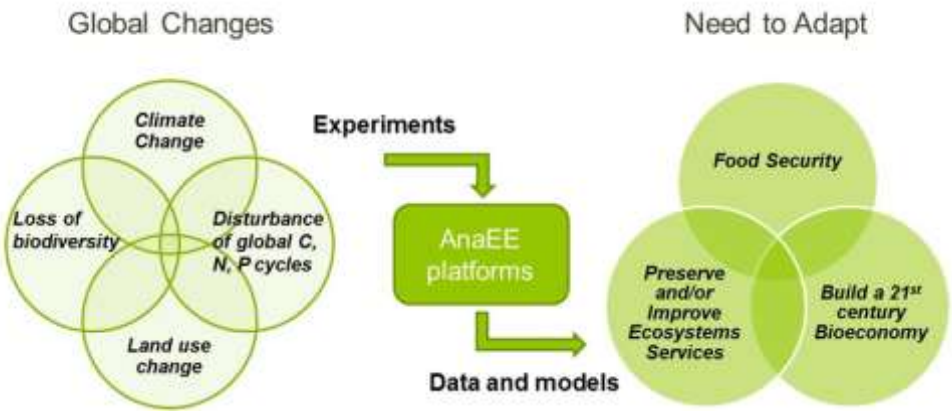

Figure 1. AnaEE through ecosystem experimentation will provide data and models to address main societal challenges.

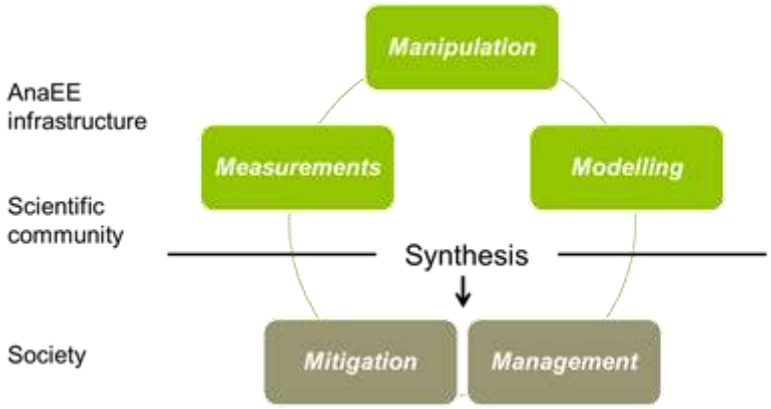

Figure 2. The impact of global changes are measured and modelled using ecosystems manipulated experimentelly. The synthesis of these reesults will allow determining mitigation and management strategies.

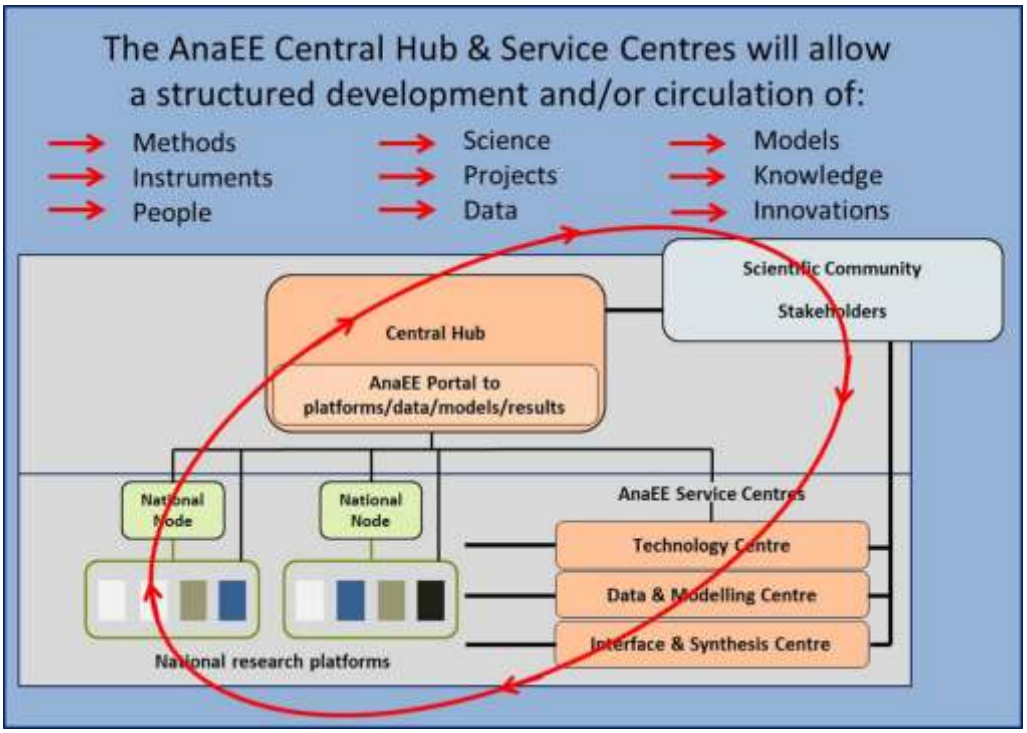

Figure 3. The structure of AnaEE and the services provided through the supra-national entities of AnaEE.

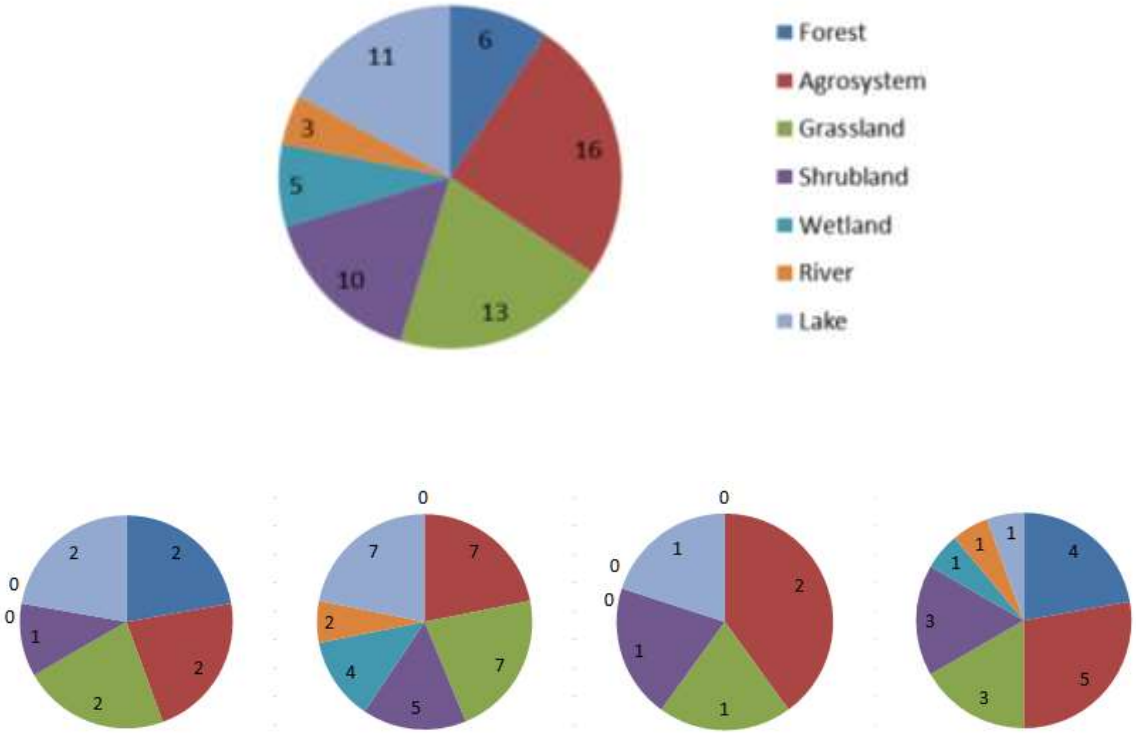

Figure 4. Representation of currently existing experimental installations at the 28 Enclosed platforms across ecosystem types in total (top panel) and in the four assigned climatic zones from left to right (bottom panel) in the order Humid Continental, Humid Oceanic, Mediterranean and Subarctic.

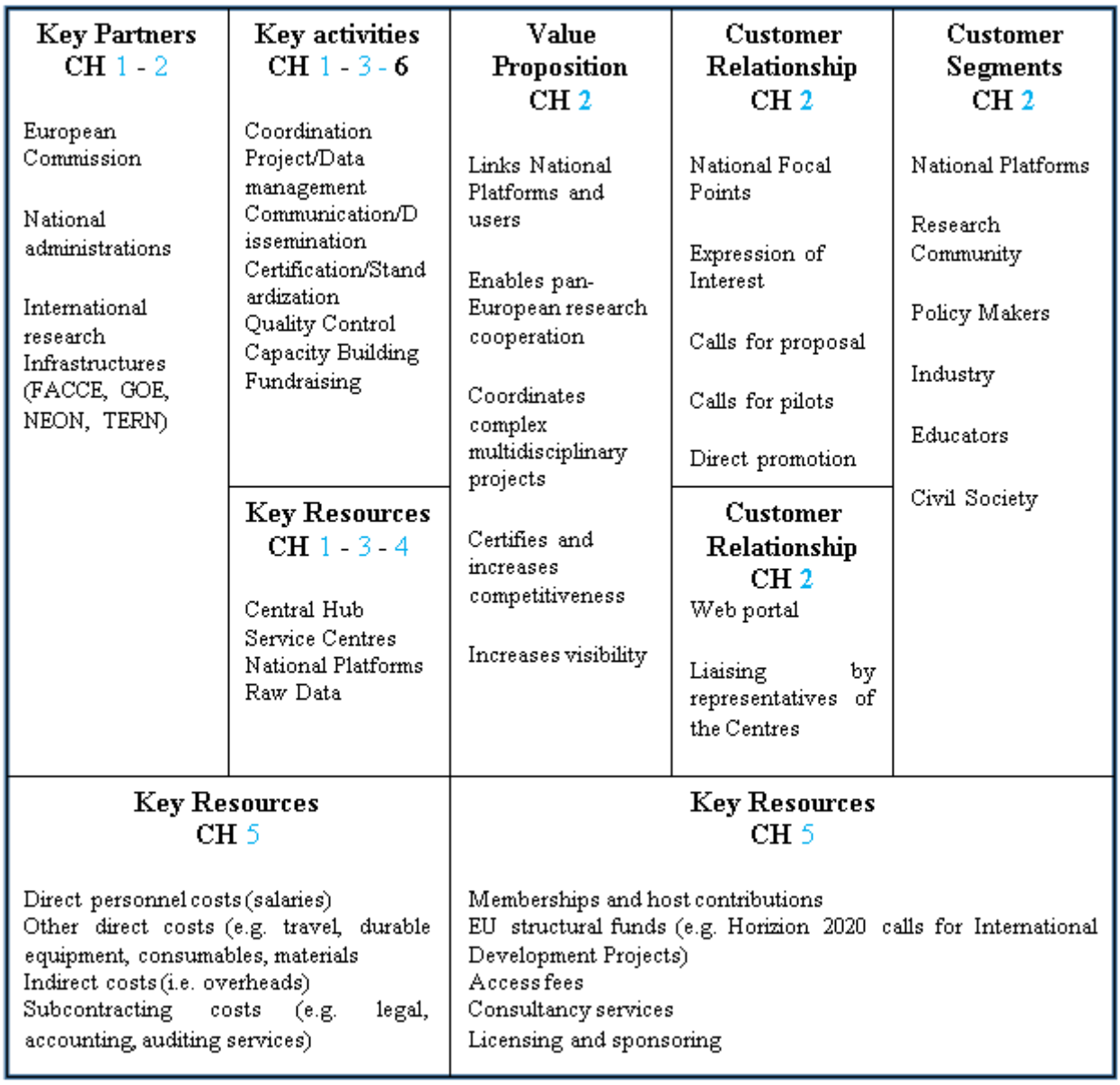

Figure 5. The AnaEE business model canvas with references to all Business Plan chapters.

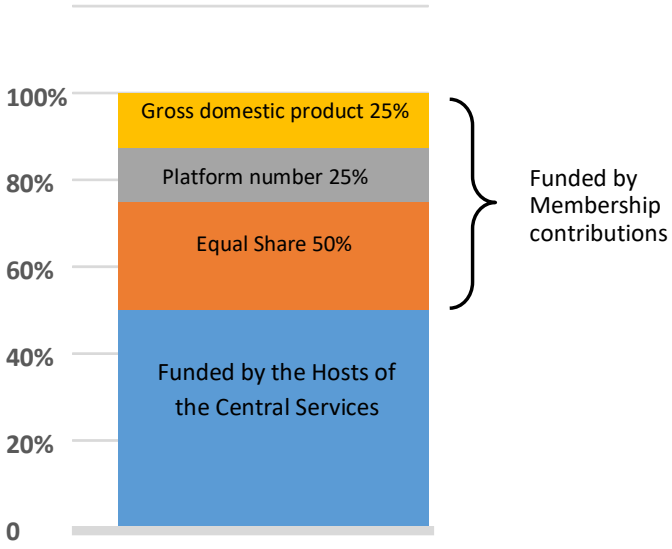

Figure 6. The AnaEE funding model.

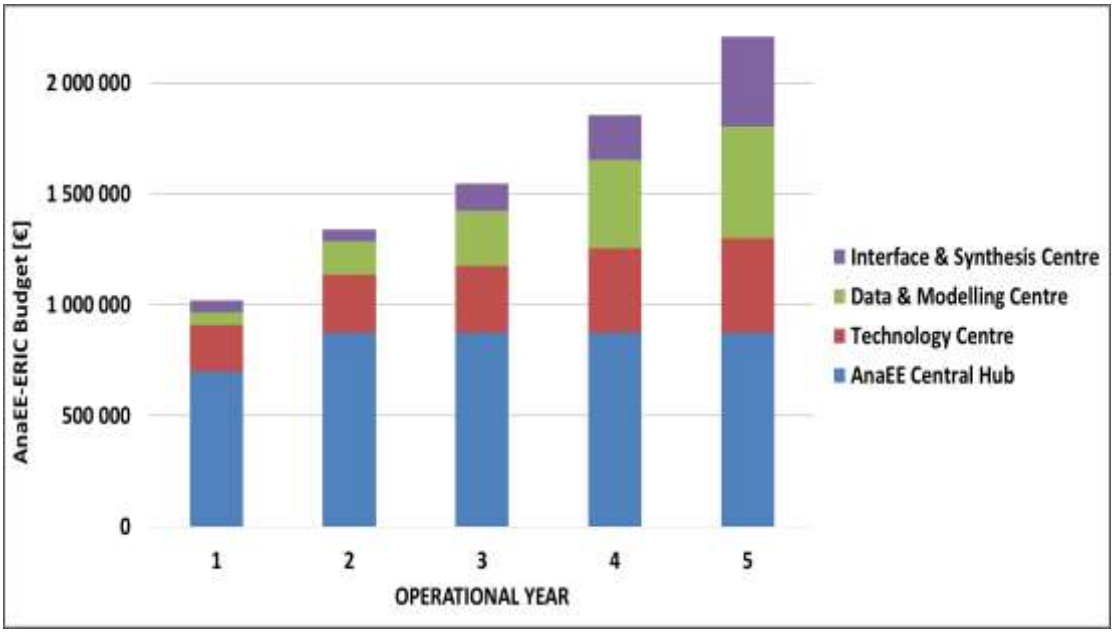

Figure 7. The suggested modular implementation of AnaEE Service Centres over the first five years.

Tables

Table 1. Summary of combinations of ecosystems/pressures/climatic zones that were given a higher than average score of importance by the expert panel (see Table 2), which are missing from the currently existing and proposed Open Air platforms. Green background color indicates that combination is already part of planned upgrades within some of the suggested. Different number of lines for each climatic zone simply indicates how many unique combinations were missing and how condensed this could be presented. For instance, the second line means that in the Humid Continental (HC) climatic zone air pollution is a missing pressure among the current agrosystems, grasslands and shrublands. Combinations in total indicates how many unique combinations are missing for each line (i.e. number of ecosystems x number of pressures for that line), while Climate combinations in total are for the climate-related pressures only.

Climate	Forest	Agrosystem	Grassland	Shrubland	Wetland	River	Lake	Elevated CO_2	Warming	Precipitation change	Hydrological change	UV	Soil eutrophication	Water eutrophication	Air pollution	Fire	Soil erosion	Desertification	Management	Habitat fragmentation	GMO	Pests	Biodiversity loss	Combinations iin total	Climate combinations in total
HC				x					x	x														2	2
HC		x	x	x											x									3	
HC	x		x	x												x								3	
HC	x		x	x	x															x				4	
HC		x	x		x																	x[1]		3	
HC					x																		x	1	
HO	x							x																1	1
HO					x				x															1	1
HO							x			x	x													2	2
HO				x							x									x				2	1
HO	x			x	x	x	x															x		5	
HO					x	x	x																x	3	
MED	x		x					x																2	2
MED	x	x	x	x	x		x		x															6	6
MED					x	x	x			x	x													6	6
MED						x	x							x										2	
MED			x												x		x							2	
MED	x	x	x	x												x								4	
MED	x		x	x	x															x				4	
MED	x	x	x	x	x	x	x															x[1]		7	
MED					x	x	x																x	3	
SA			x			x																x[2]		2	
SA			x			x	x																x[2]	3	
Pressure/ecosystem/climatic zone combinations missing - in total																								**71**	**21**

[1] only planned for agrosystem

[2] only planned for grassland

Table 2. AnaEE climate, pressure and ecosystem matrix, including scores from the expert survey. Most crucial pressures according to the experts are indicated in red. (HO = Humid oceanic, HC = Humid continental, GMO = genetically modified organisms). A value of 40 or higher indicate that this pressure/ecosystem/climatic zone combination is estimated to have an importance above average across all combinations.

	Forest	Agro	Grass	Shrub	Wetland	River	Lake	least valued ... most valued
HO	42	38	38	31	29	11	12	Elevated C02
HC	43	39	39	32	30	11	13	
Subarctic	39	35	35	30	28	10	12	
Med	44	40	41	34	32	14	15	
HO	59	59	56	50	44	34	39	Climate warming
HC	67	66	64	55	49	38	46	
Subarctic	80	80	75	66	58	46	55	
Med	68	67	65	58	50	39	44	
HO	53	61	54	47	61	50	47	Precipitation changes
HC	63	70	62	51	69	58	51	
Subarctic	46	52	47	39	51	41	38	
Med	65	75	66	54	73	62	56	
HO	38	40	43	40	61	59	57	Hydrological changes
HC	36	39	40	37	58	57	55	
Subarctic	34	38	41	36	57	55	54	
Med	38	43	43	39	64	62	60	
HO	22	25	23	20	21	15	15	UV radiation
HC	23	27	24	21	22	15	15	
Subarctic	21	25	23	19	21	15	15	
Med	26	31	28	23	28	19	19	
HO	43	37	42	39	41	33	33	Soil eutrophication and pollution (incl. heavy metals, atm. deposition)
HC	38	33	38	35	38	30	30	
Subarctic	28	25	28	26	27	21	21	
Med	34	31	35	32	34	25	25	
HO	14	14	14	14	40	62	65	Water eutrophication, brownification and pollution (incl. acidification)
HC	13	13	13	13	35	56	59	
Subarctic	11	11	11	11	27	46	49	
Med	11	11	11	11	32	52	55	
HO	46	41	41	39	34	18	18	Air pollution (including O3)
HC	51	44	45	41	36	19	19	
Subarctic	40	37	36	32	30	15	15	
Med	47	41	41	38	33	18	18	
HO	38	22	33	33	17	13	15	Fire
HC	51	30	43	43	23	17	20	
Subarctic	41	25	36	37	19	16	16	
Med	75	45	62	64	32	25	28	
HO	29	47	35	34	27	35	30	Soil erosion
HC	30	50	38	37	28	35	30	
Subarctic	23	35	27	28	21	24	21	
Med	33	57	43	43	29	36	30	
HO	15	23	21	22	11	12	11	Desertification
HC	29	39	38	35	22	25	22	
Subarctic	11	17	15	16	8	9	8	
Med	38	54	52	52	31	34	30	
HO	44	51	41	30	32	25	23	Agro-forestry management practices (tillage, fertilizer, grazing, mowing, harvest, breeding...)
HC	45	54	44	31	33	26	24	
Subarctic	31	35	30	24	23	13	13	
Med	39	48	40	29	31	23	21	
HO	58	26	50	47	54	32	33	Habitat fragmentation
HC	57	26	50	46	53	32	32	
Subarctic	42	20	34	34	38	21	21	
Med	51	25	47	41	47	30	30	
HO	14	30	21	16	17	17	17	GMO
HC	14	30	21	16	17	17	17	
Subarctic	10	20	14	12	10	11	11	
Med	15	30	22	17	15	16	16	
HO	46	42	45	40	41	45	45	Pests and invasive species
HC	44	41	43	38	40	43	43	
Subarctic	43	40	42	38	37	41	41	
Med	49	46	48	41	44	47	48	
HO	52	37	63	42	58	55	58	Biodiversity loss (not a pressure but manipulation needed)
HC	56	39	68	44	63	56	60	
Subarctic	44	28	50	35	49	44	47	
Med	58	40	70	44	64	58	62	

Table 3. Number of currently existing platform/pressure combinations in total across all suggested Enclosed platforms. Numbers are shown for each climatic zone as well as in total. Humid Continental (HC), Humid Oceanic (HO), Mediterranean (MED), Subarctic (SA).

Pressure	HC	HO	MED	SA	Total
Warming	4	15	3	5	27
Precipitation change	2	13	3	5	23
Biodiversity	2	14	2	4	22
Air pollution	2	11	4	3	20
Elevated CO_2	4	8	3	3	18
Pests	2	11	1	3	17
Management	2	9	1	4	16
Water eutrophication	2	10	1	2	15
Hydrological change	0	9	1	3	13
Soil eutrophication	1	8	2	2	13
UV	3	6	2	2	13
Soil erosion	1	7	0	1	9
Habitat fragmentation	1	5	1	1	8
GMO	1	3	1	3	8
Desertification	0	3	1	2	6
Fire	0	3	0	0	3

Table 4. Indication (x) of combinations of ecosystems/pressures per climate zone, that were given a higher than average score of importance by the expert panel (see Table 1), which are missing from the currently existing and proposed platforms (solid red dots in Addendum 2 for existing combinations).

Humid continental	**Forest**	**Agrosystem**	**Grassland**	**Shrubland**	**Lake**	**Wetland**	**River**
Warming						x	
Precipitation change					x	x	x
Biodiversity loss	x			x		x	x
Air pollution							
Elevated CO_2	x						
Pests					x	x	x
Management							
Water eutrophication							x
Hydrological change			x		x	x	x
Soil eutrophication							
UV							
Soil erosion							
Habitat fragmentation	x			x		x	
GMO							
Desertification							
Fire	x		x	x			