



Ex-post Audit Report 2015

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I. Introduction

The purpose of this Ex-post Audit Report is to provide input to the annual assurance declaration for the year 2015 of the Executive Director of the CSJU.

In this context, the report describes the results of the ex-post audits performed until today, which potentially provide support or put in doubt the confirmations given in the assurance declaration by the Director, i.e.:

- The information provided in the Provisional Annual Activity Report (AAR) 2015 gives a true and fair view
- Resources have been used in the year 2015 for the intended purpose
- Resources have been spent complying with sound financial management
- The underlying transactions are legal and regular
- No information, which could hamper the interest of the JU, is missing in the AAR 2015

The results of the EPA process represent a significant element of the Internal Control System of the JU and need to be described in the AAR. Therefore, this report summarises key information regarding the EPA process, which should be summarised in the AAR 2015 in the section related to Internal Controls.

The main objectives of the ex-post audits are:

- 1) Through the achievement of a number of quantitative targets, assess the legality and regularity of the validation of cost claims performed by the JU's management
- 2) Provide an adequate indication on the effectiveness of the related ex-ante controls
- 3) Provide the basis for corrective and recovery activities, if necessary

The scope of the audits performed during the year 2015 comprised exclusively of FP7 grant agreements and their related expenditure. For H2020 grants, ex-post audits will start in the year 2016 only. Therefore, all activities and their results as explained in this report relate only to FP7 expenditure.

II. Ex-post audits performed during the year 2015

II.1 Current status and time planning

In the year 2015, cost claims pertaining to the execution of grant agreements related to the FP7 program were subject to audits. For the H2020 grant agreements no audits have been performed by the JU yet, as the final validation of the first H2020 cost claims by the JU will be done from March 2016 onwards only. Hence, a population of auditable cost claims will be available only by middle of 2016.

For FP7 cost claims , on the basis of the Clean Sky Ex-post audit Strategy, as adopted by the CS Governing Board, two new audit batch assignments have been launched in the year 2015, which are still on-going.

The batch assignments EPA BA 15 and 16/2015 were launched in July 2015 by sending the announcement letters to the selected beneficiaries. The scope of the assignments included 12 audits covering 6 Grant Agreements for Members. The total value of launched audits was covering Euro 64.919.934 (reported validated project costs) and Euro 32.459.967 (requested JU contribution).

The audits were assigned to two external audit firms. For 10 of the 12 audits, Final Audit Reports have been received until today, one report is in draft version and for one audit no report has been issued yet.

The total audited value of audits from these two batches, which presented final results until now and which were hence included in the results of the EPA exercise 2015 was Euro 46.612.523 (reported validated project costs) and Euro 23.306.262 (requested JU contribution).

In addition to the audits launched in the year 2015, the results of 6 audits stemming from the previous EPA exercises of the years 2012 and 2014 could be finalised and are considered in the exercise of the year 2015. The concerned audit reports were finalised by the audit firms with a delay and results could not be reflected in the calculation of error rates of the years 2012 to 2014.

The total audited value of the 16 audits included in the EPA exercise 2015 was Euro 54.439.452 (reported project costs) and Euro 27.219.726 (requested JU contribution).

Table 1a:

EPA exercise 2015		
	Total value of audited project costs	Number of audits
Audits launched in 2015	46.612.523	10
Audits launched before 2015	7.826.929	6
Total audits included in EPA exercise 2015	54.439.452	16

Based on the results of the pre-final or final audit reports, extrapolation of systematic errors has been launched. Overpayments in audited and unaudited cost claims have been corrected.

Final representative and residual error rates have been calculated based on the Final Audit Reports and contribute to the final Declaration of Assurance for 2015 of the Executive Director.

II.2 Audit sample and coverage

The sample considered in the ex-post audit exercise 2015 and included in the calculation of the error rates 2015 is composed of four parts¹:

- (A) 2 remaining audits stemming from the EPA exercise 2012 not included in error rates 2012 to 2014
- (B) 1 remaining audit stemming from the EPA exercise 2013 on GAPs not included in 2013 or 2014 error rate
- (C) 1 remaining audit stemming from the EPA exercise 2013 on GAMs not included in 2013 or 2014 error rates
- (D) 2 remaining audit stemming from the EPA exercise 2014 on GAMs not included in 2014 error rates
- (E) 10 audits launched in July 2015 with provisional audit results

The sample consists of validated cost claims from GAMs stemming from projects carried out in the years 2008 to 2015 and from one GAP related to projects finalised in 2010.

2 beneficiaries have been selected due to a higher risk exposure and are included in the results of the EPA 2015. For details see table 1 in the following.

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¹ The following description of the sample refers only to audits with sufficiently final audit results, which are included in the calculation of the error rates. The sample of audits launched is higher in numbers and values.

Table 1

Audit exercise	Totals	GAMs 2008	GAMs 2009	GAMs 2010	GAMs 2011	GAMs 2012	GAMs 2013	GAMs 2014	GAPs 2010	GAPs 2011
(A)	2 remaining audits from EPA exercise 2012 not included in 2012 error rates (Batch 7 & 8)									
audited value	1,857,516.02	125,057.00	691,142.00	695,341.84	345,975.18					
number of cost claims	10	2	3	3	2					
number of audits	2									
(B)	1 Remaining audits from EPA exercise 2013 (Batch 9) on GAPs									
audited value (contribution)	60,290.61								60,290.61	
number of cost claims	1								1	
number of audits	1								1	
(C)	1 Remaining audits from EPA exercise 2013 (Batch 12) on GAMs									
audited value	2,281,888.24				1,375,278.70	906,609.54				
number of cost claims	2				1	1				
number of audits	1									
(D)	2 Remaining audits from EPA exercise 2014 (Batch 13) on GAMs									
audited value	3,627,233.62				1,089,154.12	1,750,099.22	787,980.28			
number of cost claims	5				1	2	2			
number of audits	2									
(E)	10 out of 12 Audits launched in 2015 (Batch 15+16) on GAMs for which audit reports have been received									
audited value	46,612,523					18,221,238	14,306,938	14,084,347		
number of cost claims	24					9	9	6		
number of audits	10									
total										
audited value	54,439,451.63	125,057.00	691,142.00	695,341.84	2,810,408.00	20,877,946.94	15,094,917.78	14,084,347.46	60,290.61	0.00
number of cost claims	42	2	3	3	4	12	11	6	1	0
number of audits	16	0	0	0	0	0	0	0	0	0

For the calculation of the audit coverage, the accumulated audited value covered by the EPA exercises 2011 to 2015 is compared to the accumulated total amount of validated cost claims at the end of the year 2015.

Table 2a:

Accumulated audit coverage based on audits finalised for the reporting period 2015:

audits finalised	Euro
audited value from EPA exercise 2011	44,266,850.86
audited value from EPA exercise 2012	39,495,743.74
audited value from EPA exercise 2013	40,528,612.74
audited value from EPA exercise 2014	77,979,724.64
audited value from EPA exercise 2015	54,439,451.65
Total audited value of the years 2011 to 2015 (a)	256,710,383.63
Total audit population (b)	1,069,158,788.47
Coverage (a) / (b)	24.01%

The samples were established according to the methodology described in the approved CSJU Ex-post Audit Strategy considering the following elements:

- Most significant cost claims (all CCs until a certain coverage starting from the biggest ones)
- Representative sample selected at random (by counting)
- Risk based sample (2 beneficiaries have been selected on the basis of a risk assessment)

As presented in table 1, a specific sample for GAPs had been launched in the year 2013 from which one remaining audit has been included in the results of the EPA exercise 2015.

The following data can be summarized to describe the audits performed on GAPs:

Table 2b:

Accumulated audit coverage for GAPs of all EPA exercises based on audits finalised:

audits on GAPs finalised	Euro
audited value from EPA exercise 2012	760,537.50
audited value from EPA exercise 2013	3,397,199.68
audited value from EPA exercise 2014	1,260,041.25
audited value from EPA exercise 2015	60,290.61
Total audited value of the years 2012 to 2015 (a)	5,478,069.04
Total audit population (b)	114,403,511.45
Coverage (a) / (b)	5%

II.3 External audit firms under contract

Audits have been assigned to the external auditors in line with the EPA framework contract in batches.

In 2015 specific contracts have been signed with 2 individual audit firms for 2 batch assignments as follows:

Table 3a:

Audit Firms	Number of audit engagements	Number of cost claims	Audited value
KPMG Germany	6	9	10.924.962,04
PKF Litteljohn UK	6	20	53,994,972.04
Total	12	29	64.919.934

The total 16 audits included in the EPA exercise 2015 had been assigned as follows:

Table 3b:

Audit Firms	Number of audit engagements	Number of cost claims	Audited value
KPMG Germany	8	13	11,535,252.65
PKF LittleJohn UK	8	29	42,904,198.98
Total	16	42	54,439,451.63

III. Quantitative audit results (indicators):

III.1 Status of audits:

From the audits launched, the following summaries reflect the status at the time of this report:

Table 4:

Status of audits launched in 2015	number	share of total launched
Total number launched	12	
Draft audit reports received	11	92%
Pre-final reports received	10	83%
Final reports received	3	25%

Table 5:

Status of remaining audits launched from 2012 to 2014	number	share of total launched
Total number launched and remaining open for EPA 2015	7	
Draft audit reports received	7	100%
Pre-final reports received	6	86%
Final reports received	4	57%

III.2 Adjustments and detected error rates

Table 6:

Audit exercises - individual and accumulated until 2014	Total audited value/requested contribution of reports received	Adjustment	Adjustment in favour of CSJU	Adjustment in favour of the beneficiary	Detected error rate in favour of the beneficiary	Detected error rate in favour of CS JU	Representative error rate in favour of the beneficiary	Representative error rate in favour of CSJU	Systematic error rate in favour of JU	Total unaudited cost claims of audited beneficiaries (€)
Results audit exercise 2011	44,266,850.86	-1,569,365.79	-2,686,685.42	1,117,319.63	2.52%	-6.07%	2.52%	-6.07%	-4.94%	43,363,736.30
Results audit exercise 2012 (detected results incl. non representative)	39,495,743.74	-1,373,270.95	-1,788,282.04	415,011.09	1.05%	-4.53%			-1.74%	65,276,835.18
Results audit exercise 2012 (representative results excl. risk based items)	32,898,244.96	-365,833.96	-780,304.90	414,470.94		-2.37%	1.26%	-2.37%	-2.09%	54,809,095.66
Results audit exercise 2013 (detected results incl. non representative)	40,528,612.74	-1,174,807.79	-1,314,650.19	139,842.40	0.00	-0.03			-0.03	35,691,805.19
Results audit exercise 2013 (representative results excl. risk based items)	30,916,364.23	-623,430.37	-760,341.62	136,911.25	0.44%	-2.46%	0.44%	-2.46%	-2.08%	33,929,403.24
Results audit exercise 2014 (detected results incl. non representative)	77,979,724.64	35,020.20	-483,860.14	518,880.34	0.67%	-0.62%			-0.70%	149,043,223.29
Results audit exercise 2014 (representative results excl. risk based items)	77,979,724.64	35,020.20	-483,860.14	518,880.34	0.67%	-0.62%	0.67%	-0.62%	-0.70%	149,043,223.29
Results audit exercise 2015 (detected results incl. non representative)	54,439,451.65	14,703.61	-2,466,022.33	2,480,725.94	4.56%	-4.53%			-6.36%	63,554,223.56
Results audit exercise 2015 (representative results excl. risk based items)	45,247,563.41	-743,303.50	-2,464,906.33	1,721,602.83	3.80%	-5.45%	3.80%	-5.45%	-5.56%	61,544,477.62
Accumulated results all audit exercises (detected results incl. non representative)	256,710,383.63	-4,067,720.72	-8,739,500.12	4,671,779.39	1.82%	-3.40%			-3.11%	356,929,823.52
Accumulated results all audit exercises (representative results excl. risk based items)	231,308,748.10	-3,266,913.42	-7,176,098.41	3,909,184.98	1.69%	-3.10%	1.69%	-3.10%	-2.84%	342,689,936.11

The (ex-post) detected error rate is an indicator of the quality of the ex-ante controls as it gives an estimate of errors that remain undetected after the ex-ante controls have been performed.

The accumulated **(ex-post) detected error rate**² in favour of the CSJU identified so far in the audited population amounts to **-3.4%**, (see table 6). The rate represents a weighted average of the individual rates detected.³

The corresponding rate for the individual audit exercise of the year 2015 is at **-4.53%**.

The **representative error rate**, which indicates the error rate applicable on the entire population of cost claims before corrective measures, amounts to **-3.10%** for the accumulated audit results of all EPA exercises performed so far.

The individual annual result for the year 2015 is **-5.45%**.

The representative error rate does not include risk based audits, which by definition do not form part of the representative sample. The audits included in the EPA 2015 include the results of 2 risk based audit engagements.

The **(ex-post) residual error rate** indicates the “net-errors” that remain in the total population after implementing corrective actions resulting from the ex-post controls including extrapolation of systematic errors to non-audited cost claims. The residual error rate is calculated according to the following formula:

$$\text{ResER}\% = \frac{(\text{RepER}\% * (P-A) - (\text{RepER}_{\text{sys}}\% * E))}{P}$$

Taking into account the systematic adjustments proposed by the auditors in the audits performed in the year 2015 so far, the following residual error rates are calculated:

² Errors actually detected in the audited sample related to the total amount of the sample

³ According to the CSJU Audit Strategy, the average representative error rate is calculated as simple average of all individual rates detected. In our view, the result of this simple average error rate is misleading. Using a non-weighted average of all error rates discovered in each of the cost claims, irrespective of the value of the total amounts involved, would require a sufficiently big sample size and population to arrive at a meaningful representative result.

Table 7a:

Calculation of residual error rate (ResER%): Accumulated 2008 to 2015	
Total population (P) =	1,069,158,788.47
Audited population (A)=	231,308,748.10
total non-audited cost claims of audited beneficiaries (E) =	342,689,936.11
Representative error rate (RepER%) =	-3.10%
Systematic error rate (RepERsys%) =	-2.84%
ResER% =	-1.52%

Table 7b:

Calculation of residual error rate (ResER%): for EPA exercise 2015	
Total population (P) =	287,805,375.72
Audited population (A)=	45,247,563.41
total non-audited cost claims of audited beneficiaries (E) =	61,544,477.62
Representative error rate (RepER%) =	-5.45%
Systematic error rate (RepERsys%) =	-5.56%
ResER% =	-3.40%

The accumulated results established for the period 2008 to 2015 indicate again a residual error rate well below 2 %. Compared to the status at the end of the year 2014, the rate has increased by 0.38 percentage points, due to a higher representative error rate in the annual EPA results for 2015. However, as the JU puts the focus on the accumulated audit results for the entire FP7 expenditure, the residual error rate for the accumulated values indicates again the full achievement of the JU's objective to remain below the 2% limit.

Like in the previous years, the annual exercise 2015 provides a snapshot of audit results pertaining to various past years (2008 to 2014, see table 1) and not specifically to the expenditure of the year 2015. For getting a representative picture of the remaining error in the unaudited expenditure of the JU's at the end of the year 2015, it is therefore necessary to look at the accumulated results of all past audit exercises.

The specific result of the audit batches related to audits on GAPs indicates a residual error rate of **1,43%** (compared to 1.18% until end of 2014) as presented in the following table:

Table 7c:

Calculation of accumulated residual error rate (ResER%): GAPs EPA 2012 to 2015	
Total population (P) =	114.403.511,45
Audited population (A)=	5.478.068,95
total non-audited cost claims of audited beneficiaries (E) =	6.835.277,83
Representative error rate (RepER%) =	-1,60%
Systematic error rate (RepERsys%) =	-1,60%
ResER% =	-1,43%

III.3 Extrapolation

The extrapolation of systematic errors for the audit exercise 2015 has been launched during the months February to May 2016 for all beneficiaries, for which audits have identified a net systematic error rate of all cost claims included in the individual audit of one beneficiary exceeding -1% (in favour of the JU). The process started once the pre-final audit reports had been agreed with the audit firms.

The correction of unaudited cost claims from systematic errors through extrapolation is nearly fully finalized as reflected in table 8 of this report.

III.4 Materiality

The following materiality thresholds have been agreed with the audit firms:

- Overall materiality for qualification of the auditors opinion: 2% of total audited value of cost claims included in the audit report
- Reporting materiality for adjustments to be listed in the audit reports: Euro 150
- Sampling approach:

First sample layer: Selection of significant cost items in all cost categories (i.e. individual items with a value equal or above 10 % of the total costs declared in the individual cost claim (Form C))

Second sample layer: In addition, a random, statistical or judgemental sample of the residual amounts will be drawn and tested.

For 12 out of 16 audits of the EPA exercise 2015, opinions have been qualified by the auditors because of material adjustments (over 2%⁴ of respective total declared costs audited).

IV. Implementation of audit results

Correction of overpayments identified in the ex-post audits closed in the year 2015 have been immediately launched upon receiving pre-final audit reports.

Likewise, the financial effect of the extrapolation of systematic errors detected in these audits on unaudited cost claims of the audited beneficiaries has been included in the correction exercise.

Errors detected and their financial effect on unaudited cost claims are corrected through (1) payments received from beneficiaries on the JUs bank account, (2) through anticipation of the correction during the ex-ante validation of cost claims of audited beneficiaries during on-going audits or (3) through off-setting with errors detected in favor of the beneficiaries.

The rate of implementation for the EPA exercise 2015 amounts to 97.2% as shown in table 8 below.

Table 8:

Total corrective action for EPA exercise 2015 - implementation				
Audited value (of audited and unaudited cost claims) Euro	Adjustments in favour of CSJU per audit reports Euro	related overpayment Euro	correction of overpayment implemented Euro	Correction rate for overpayment implemented (%)
118,063,058.71	-4,777,008.45	-2,343,530.79	-2,278,218.85	97.21%

⁴ The percentage of the detected errors being considered for qualifying the opinion does not distinguish errors in favour of the JU and in favour of the beneficiary. Hence, opinions are also qualified in cases of errors in favour of beneficiaries above the threshold.

On accumulated level for all detected errors and the related extrapolation of systematic errors since the beginning of the ex-post audits in 2011, 99% of overpayments have been corrected at the time of this report.

V. Summary and conclusion for the Assurance declaration of the Executive Director in the AAR 2015 (version May 2016)

The final results of the ex-post audit exercises 2011 to 2015 pertain to validated cost claims for GAMs and GAPs of the years 2008 to 2014.

As described in the materiality criteria in the Annex of the AAR, the control objective of the JU is to ensure for the CS FP7 program, that the residual error rate, which represents the remaining level of errors in payments made after corrective measures, does not exceed 2% of the total expense incurred until the end of the program.

Up to now, the accumulated audit coverage of the validated financial statements pertaining to GAMs and GAPs for the years 2008 to 2014 is 24 %.

The indicators established from the sample covered in 5 audit exercises carried out in the years 2011 to 2015, reflect a representative error in favor of the JU in the validated operational expense of **-3.1%** (compared to **-1.18%** for the accumulated exercises 2011 to 2014).

Based on the representative error rate, the accumulated residual error rate, i.e. the accumulated error stemming from the audit exercises 2011 to 2015 remaining after cleaning the population from systematic errors, amounts to **-1,52%**.

The corresponding residual error rate for the annual EPA exercise 2015 only would be **-3.4%**. This result does not include two risk based audits, which if included would change the residual error rate to **-2.4%**.

The population of GAPs is covered by two specific samples (9%), which resulted in a representative error rate of **-1,60%**. The related residual error rate established only for grant agreements with Partners remains nearly unchanged compared to the previous year and lies presently at **-1.43%** (previous year: **-1.18%**). These results do not indicate a significant risk for undetected overpayments to Partners.

The corrective measures for the first 5 annual audit exercises, carried out in the years 2011 to 2015, have been nearly fully implemented. The correction of **99%** of the detected overpayment and related extrapolation effect has been implemented.

Hence, the result of the accumulated residual error rate can be considered as a relevant indicator for the remaining error in the population of validated cost claims or respectively in the operational expense as reflected in the Annual Accounts of the JU.

Due to the specific situation of the CSJU with its named beneficiaries receiving 75% of the entire operational funds, and with a view to the comparatively high share of systematic errors detected so far (RepERSys% = **-2.84%** versus RepER% = **-3.1%**), the potential for excluding errors from non-audited cost claims remains high until the end of the program.

By sharing the information on systematic and non-systematic errors detected in the EPA process with the Financial Officers of the JU in a timely way, the quality of the ex-ante validation of cost claims for GAMs will be maintained until the end of the program.

With a view to the termination of the FP7 program in the next year, we expect the accumulated residual error rate to stabilize at the current level, which is well below the targeted maximum limit of 2%.

The results of the EPA process 2015 reflect the legality and regularity of the validation process for GAM execution 2008 to 2014. Thus, they do not directly relate to the entire expenditure incurred by the JU until the end of year 2015.

However, the JU's EPA strategy is implemented through an ongoing process, which produces accumulated results applicable to the entire expense incurred for the CS program until a certain point of time. At present we have results for payments incurred for GAMs and GAPs 2008 to 2014. The EPA coverage and identified error rates have to be evaluated with a view to the multiannual EPA strategy, which has evolved as an on-going process during the duration of the program from the beginning until now and which will be continued until the closure of the program.

At the reporting deadlines for members in March 2016 the JU has received the first Certificates on H2020 Financial Statements for the years 2014 and 2015, which provide now the first input for an additional ex-ante control layer for the H2020 operational expenditure. As the rules of the H2020 program foresee a certification of cost claims only at the end of the actions, we consider the JU's implementation of ex-ante controls (CFS every second year) as in line, if not above the legal requirements.

Subsequent to the receipt of the CFS, the ex-post audits on H2020 grants will follow. Hence, as of 2016 the operational expense incurred by the JU for H2020 grants for the years 2014 and 2015 will be covered by ex-post audits.

The audit approach for the H2020 grants of Clean Sky 2 JU has been established together with the CSC of DG RTD and is reflected in the H2020 audit strategy, which is applicable for the entire Research family. Audits for Clean Sky 2 JU will start in the second half of 2016 and will provide individual assurance for the H2020 programme execution of Clean Sky 2 JU.

Conclusion:

Under this global and multi-annual aspect, we consider the accumulated results of the EPA process 2011 to 2015 together with the CFS received for H2020 cost claims as relevant and

appropriate to provide assurance for the operational expenditure as recognized in the Final Accounts 2015.

Regarding the scope and the results of the EPA exercises 2011 to 2015, a reservation in the Assurance Declaration of the Executive Director for the Final AAR 2015 (AAR) is not considered necessary. However, the details of the EPA exercise 2015 should be adequately reflected in the AAR 2015.