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## ICT Report 2020

### Board of Governors

Meeting on 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> of April, 2021 – Brussels

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## Introduction

The purpose of this document is to provide a detailed ICT report on the year 2020, namely, to give

- a status report on the main objectives defined for the year 2020 in the previous ICT Report<sup>1</sup> i missions accomplished, uncompleted and/or non-initiated missions.
- an overview of the noteworthy events in the year 2020 as part of the information system (IS) of the European Schools and its IT resources.

The report also provides in the chapter 'From 2021 onwards' information about envisaged projects.

In line with the revised prioritisation of its tasks and projects the ICT Unit focused in 2020 on an improvement of the security and reliability of the IT infrastructure and the continuation of the prioritised key projects. Moreover, requests for some new developments were also addressed as well as the internal needs for improvements at the ICT Unit.

In 2021, the ICT Unit will focus on a continuation of the already started projects. A particular attention will be given to the ongoing 'MDM/CEA' project that focuses on implementing a Master Data Management project and a web-based solution for student enrolment (CEA).

This report has been produced by the OSG ICT and Statistics Unit.

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<sup>1</sup> 2020-02-D-21-en-3 Rapport ICT

## Year 2020

Due to the Covid-19 pandemic, the year of 2020 was a major challenge also for the ICT unit. The preliminary action plan had to be adapted for being able to support the European Schools and the Office of the Secretary General. Some of the most important efforts carried out were:

- Providing necessary equipment for teleworking such as laptops to the staff at the OSG.
- Enabling and securing VPN-solutions for facilitating and securing distance working.
- Adapting and developing solutions in Microsoft TEAMS for facilitating the distance teaching and learning.
- Support for providing additional teleworking equipment for the staff of the Office of the Secretary General such as keyboards, monitors, office chairs and more.

The ICT Unit, following to the recommendations of the Internal Audit Service of the European Commission (IAS) in its 'Consulting Report on human resources allocation and distribution of non-teaching tasks in the European Schools', has conducted training in the PM<sup>2</sup> project methodology – introduced by and used at the EC. All members of the ICT unit did take part in the training and the methodology is currently being adopted by the ICT unit.

## 1. ICT Strategy: ICT Governance Group

The ICT Strategy Group met on numerous occasions in 2020, such as:

- Meetings of the ADMIN Sub-Group (chaired by the Head of the ICT Unit) for the administrative, financial and security aspects.
- Meetings of the PEDDA Sub-Group (chaired by the Head of the Pedagogical Development Unit) for all pedagogical aspects.
- The IT ADMIN Sub-Group met in 2020 four times. The first meeting was mainly dedicated to an update of the IT priorities, while the other three meetings focused on the challenges related to the Covid-19 situation and the main ongoing projects, namely:
  - the migration to the new domain environment EURSC.EU,
  - the MDM/CEA project

The IT-PEDA Sub-Group (chaired by the Head of the Pedagogical Development Unit), focusing on all pedagogical aspects, met several times during the year 2020. Whilst taking as its basis the priorities, in pedagogical terms, expressed in the Multi-Annual Plan approved by the Board of Governors at its April 2018 meeting<sup>2</sup>, the IT-PEDA Sub-Group produced several documents, including in particular 'Guidelines for the pedagogical use of mobile devices in the European Schools'.

A more detailed report on the activities of the IT-PEDA Strategy WG will be appended to the Annual Activity Report of OSG<sup>3</sup>.

## 2. System and Networks Sub-Unit

During 2020 the focus for the System and Networks team was on the ongoing projects and on the further strengthening of the technical infrastructure. Special attention has been paid to the assessment of existing solutions and for creating roadmaps for future improvements and developments.

Based on the reviewed prioritisation of projects the System and Networks Sub-Unit focussed on

- the migration to EURESC.EU,
- the strengthening of the network security and infrastructure,
- data centre improvements.

### 2.1 Migration to EURSC.EU

Concerning the migration from EURSC.ORG to EURSC.EU a roadmap describing all essential steps was developed and discussed within the ICT ADMIN Group and with the Directors of the 13 schools. The objective was to migrate all the schools by the end of 2019.

Even though this objective was not achieved during 2020 - partially due to the obstacles caused by the Covid-19 situation - substantial progress could be made due to the improved cooperation between the System and Networks Sub-Unit and the IT teams of the schools. This close cooperation should allow the finalisation of the project in 2021.

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<sup>2</sup> Doc 2018-01-D-79-en-4.

<sup>3</sup> Doc 2021-02-D-5-en-1.

## 2.2 Network Security and Infrastructure

The second focus was on the system and network security. The modernisation of the networking infrastructure initiated during the previous years was continued. The new SD-WAN technology was introduced and implemented on the 3<sup>rd</sup> floor, a new office area acquired by the OSG during 2020. The network routing was also reviewed and improved, providing greater stability and better performance.

Several assessments projects have been carried out with external support, such as for the AD - infrastructure, with the goal of identifying security risks and for creating detailed plans for the necessary updates and the forthcoming cloud migrations.

The Microsoft Premier contract and external consultancy played a significant role in 2020, providing expertise and support when it came to incident resolution and in terms of additional human resources. Cloud services continued to improve efficiencies for all facets of the European Schools, most notably in the area of hosting the SAP infrastructure, the EURSC.EU test environment and the Office 365 service.

## 2.3 Data Centre Improvements

The data centre was severely affected under the last months of 2020 by a major incident, a total failure of the cooling equipment. Both cooling cabinets failed simultaneously which resulted in the loss of several servers and services.

Due to the implemented fail-over solutions it was possible to quickly respond to the incident and to recover the lost services. The servers have been also fully replaced. However, these interventions required a major effort from the System team.

For avoiding future incidents, the overall data centre solution has been reviewed and a project for improving the data centre environment started with the following tasks:

- Replacement of the failed cooling cabinets
- Securing the power supply by installation of new UPS
- Elevation of the floor
- New environment monitoring solution
- New contract for data centre support

## 3. Development and Statistics Sub-Unit

### 3.1 School Management Administrative Application (SMS)

The SMS application was migrated to the new version of SMS (1.8). Adaptation of this new version was supposed to enable the ES

- to develop the application further so as to cater for the schools' needs better,
- to have better support provided by the supplier,
- to comply better with the rules associated with the GDPR.

Initially, migration was supposed to start in January 2020 and to end with deployment in the week of 18 May 2020.

Problems quickly emerged during the first stage of migration. The problems were associated with the data migration, but they were also due to the difference between the old and the new version of SMS.

In addition, as a result of the Covid-19 pandemic, new rules concerning the deliberations, the generation/ publication of school reports and the Baccalaureate had to be established in the old version of SMS.

Four schools participated in the testing and validation phase of this new version of SMS. Meetings were regularly organised with those schools to receive their feedback. A team was also made available to the testers so that they could share their opinions but also report the problems encountered.

The timeframe initially planned was revised and deployment took place in mid-July 2020.

Given the shortage of time, the training of SKUs could not be organised. Handbooks were produced and made available to users on the OSG's IT SharePoint.

The beginning of the new school year was very complicated for the schools and for the OSG's ICT Unit.

### 3.2 Statistics Platform – SAP Business Objects

The BO universes that mapped the SMS and PERSEE data were adapted to present instead the data stored in the Data Warehouse.

This major change was implemented as transparently as possible in order to minimise the negative effects on the BO reports already present and used by the Central Office and the schools. One of the advantages of this operation was to have lessened the dependency between the BO reporting tool and the SMS or PERSEE data sources. This will enable there to be greater flexibility in the future should the source of data or the reporting tool evolve.

In parallel, the SAP BO (Business Objects) statistics platform was adapted regularly, in order to respond to new needs, particularly those associated with absences.

### 3.3 Data Warehouse

During the first half of 2020, the Data Warehouse and the routines enabling data to be copied into it were implemented.

The Data Warehouse is a database housing data coming from several sources, in particular SMS and PERSEE (information on job codes).

Those data are used by the BO, MIM and PERSEE applications, which display data coming from SMS.

The Data Warehouse's main objectives are:

- To facilitate transition to the new version of SMS.

The data structure of the new version of SMS has evolved a great deal. The Data Warehouse presents the data in a structure very similar to the previous version of SMS, which enabled SMS to be updated without impacting negatively on BO, MIM or PERSEE.

- To significantly lessen the dependency between the applications that consume the data (statistical reports, robot that creates the Office 365 accounts, etc.) and the databases of the source applications (such as SMS or PERSEE).
- To consolidate and pre-calculate certain data before exposing them to BO, in order to enhance performance and increase coherence.
- To detect any coherence problems in the data pre-emptively and to be able to correct them more quickly.

So as not to impact negatively on the performances of the databases of the source applications, synchronisation of the data is done during the night.



Consequently, the data extracted from SMS visible in BO, MIM or PERSEE are those of D-1.

### **3.4 Application of the Brussels Central Enrolment Authority (CEA)**

As in previous years, this application was updated to comply with the new rules of the Enrolment Policy. It was decided to implement a solution with Microsoft on Azure that will replace the existing application.

### **3.5 Collaboration platform for administrative activities (SharePoint intranet, SharePoint)**

#### **OSG**

The existing sites were maintained and updated, in particular the sites of the DPO and of the HR Unit. Responsibility for the sites of the Pedagogical Development Unit, the Baccalaureate Unit and the Procurement Sub-Unit was taken on fully by the respective units themselves.

#### **Schools**

Some schools are continuing to develop the SharePoint intranet to better meet the need for sharing of administrative resources.

### **3.6 NEW ALTEE Application**

New ALTEE is a .NET application stored on-Premises used to create external contacts exclusively managed by the Central Office. Once the contact has been created, he will be distributed within our internal Active Directories to allow them to be part of various distribution lists and to receive the permissions to access the necessary application such as DOCEE. The Development and Statistics Sub-Unit took over maintenance of this application.

As the application is old, the Development Sub-Unit had to make it as speedy as possible, whilst also automating the process to the maximum extent. It was not possible for the application, which is dependent on different environments, to be 100% automated. Some processes are still dependent a human action.

### **3.7 Harmonisation of the Technical processing of Payments: Isabel – ING practice accounts**

In the European Schools' IT environment, there are different technical processes for the processing of payments to staff, suppliers and others. All payments must be made using SAP accounting software. Once the amounts to be paid have been defined and approved in SAP, these payment orders have to be transferred to the respective banks of the schools or of the OSG. The different schools work with numerous different banks. Each bank has its own online portal where payments have to be approved.

In order to harmonise these technical transfers and use only one portal, a project was set up: Isabel – ING practice accounts. The objective was for all the schools to end up using the system that the OSG and the Belgian schools already use, namely Isabel.

The Development Sub-Unit got to grips with the processes and provided support for this project's technical implementation. All the schools migrated to the new tool. The old processes were disabled.

### **3.8 Development of an Application for the Differential Adjustment**

In 2019, the Accounts Unit raised the issue of the need for a new application for the Differential Adjustment Sub-Unit in order to replace a 20-year-old Microsoft Access application. Further to that request a thorough analysis of the operational requirements was made.

Following that analysis, a Web-based application was proposed, which incorporates the most important and the most frequently used functionalities of the old application and adds some new functionalities that contribute to its ease of use and to a reduction in the workload.

In that context, it was decided to opt for an in-house customised development, in the form of a Web portal with SSO, where all the information (data and documents) that was previously distributed across several systems is grouped together. That will also facilitate the sharing of documents between the OSG's Differential Adjustment Sub-Unit and the administrative staff of the schools, since they will also have access to this application. Finally, this will also ensure greater transparency vis-à-vis the schools since they will be able to monitor the status of each case without having to contact the OSG.

The application was developed in 2020, although it was somewhat behind schedule, this being due to the large amount of complex data that had to be transferred.

### 3.9 Identity Synchronisation (MIM Project)

As is the case each year, the change of school year in SMS (done in mid-July 2020) led to the creation of new teacher and student accounts and the updating of all the appropriate lists.

This year it was not necessary to delete lists or types of account as was the case in 2019 with the parent accounts and lists.

The support contract with the Predica company was extended in order to allow day-to-day assistance to be provided for, in particular, synchronisation of data in a test environment and performance of qualitative tests.

Thanks to the smooth operation of the Data Warehouse, to the use of the test environment and to the contribution of all IT teams, the beginning of the 2020-2021 school year and the creation of TEAMS 2021 were able to start without major problems.

### 3.10 MDM – CEA Project

The final proposal, embedded in a wider 'data governance concept', was submitted to the Board of Governors in April 2020 and received its approval.

The MDM-CEA project came into being and was ultimately broken down into three sub-projects:

- Identity Management
- Online enrolment form for the Brussels Schools
- Creation of a new application for the Brussels Central Enrolment Authority (CEA).

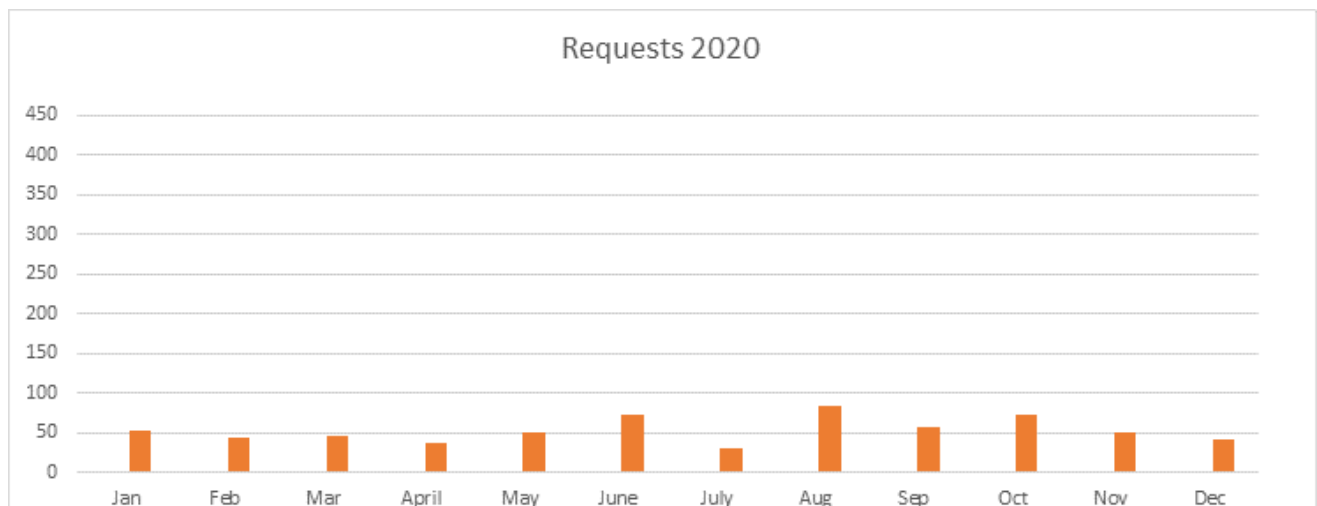
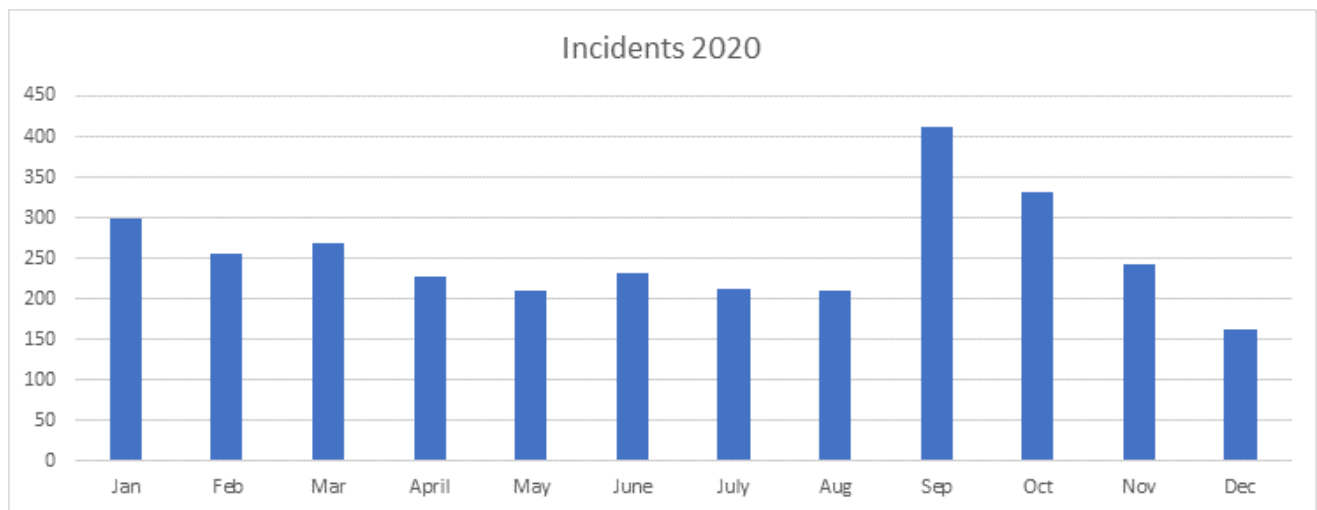
A Statement of Work (SoW) was proposed by Microsoft and accepted by the Central Office, which allowed the project to be initiated and the necessary resources allocated.

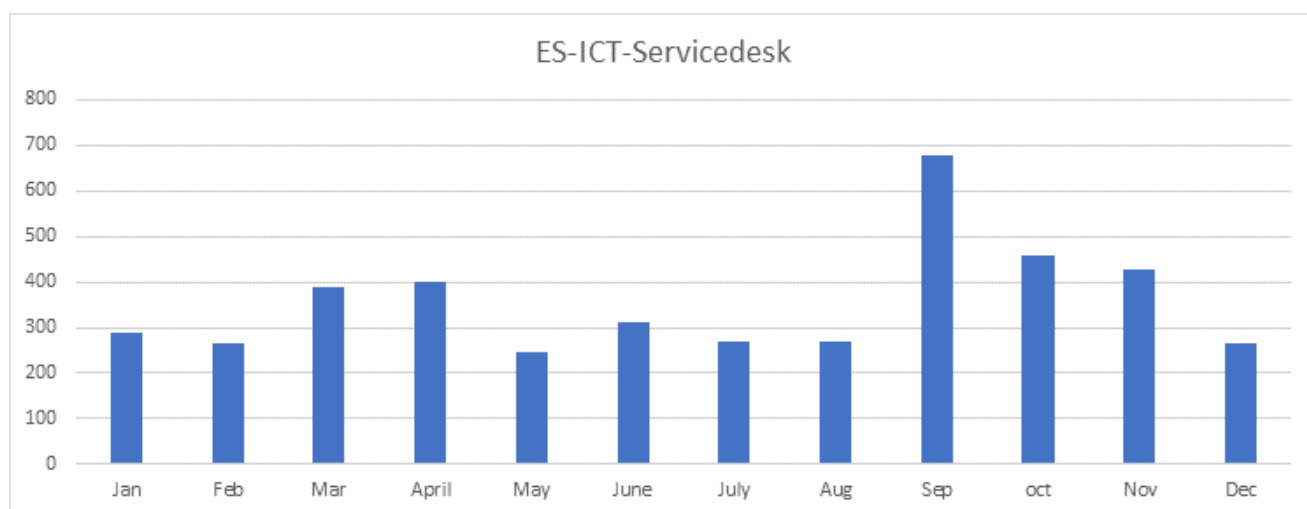
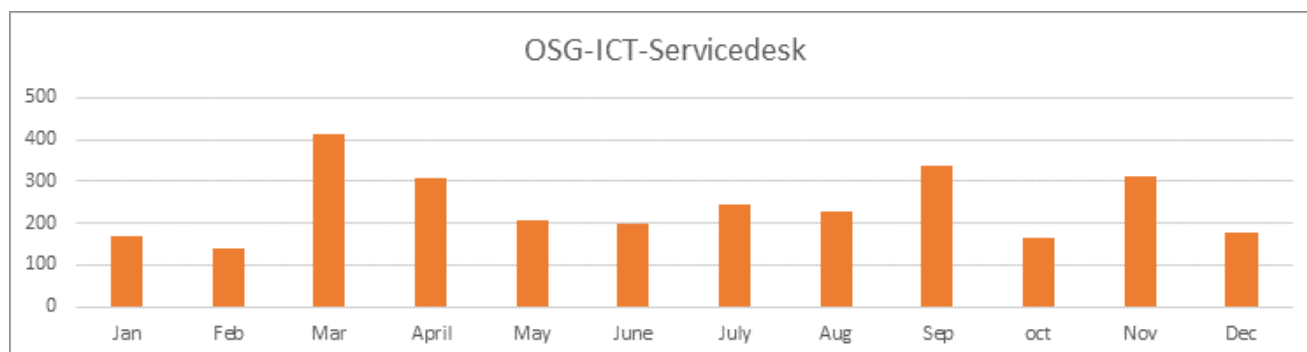
The Office was also able to rely on support from DG HR for the setting up of a connection for the online form with EU Login. In addition, the form was also supposed to automatically receive identifying data from SYSPER2, but that functionality, requiring far more resources, was excluded from the project in its initial phase.

Accompanied by Microsoft, the project started in September and is still in the process of development.

## 4. Servicedesk Sub-Unit

In total 10862 tickets have been sent by the ICT departments of the schools, the personnel of the OSG, the national inspectors and the heads of delegation. This represents an increase of +/- 20% compared to the year before. Main reasons are the release of the new version of SMS and homeworking because of lockdown due to the Covid-19 pandemic.





Due to the Covid-19 pandemic, the ICT Servicedesk was tasked with the roll out of +/- 75 laptops in a period of 4 days. Users had to be trained in the use of the VPN solution and the particularities of homeworking.

At the beginning of the confinement period, demands for support increased dramatically due to generalized homeworking. And at the beginning of the school year, demands increased due to the new release of the school management system SMS.

The ICT Servicedesk was tasked with the ongoing migration of the different network disks of the OSG to the EURSC.EU domain.

Other areas of activities of the ICT Servicedesk were:

- Providing support for the roll out of the new version of SMS (v1.8).
- The logistical support for different trainings offered in the offices of the OSG.

- The technical support for the implementation of the new SharePoint sites of the schools, which have been created to facilitate the access to the documents of the Administration Boards of the schools.
- The preparation of the deployment plan of the new licenses of Microsoft Office 365.
- Supporting the different users and stakeholders in the creation and use of MS Teams.
- Providing support for the different meetings that had to be done remotely due to lockdown.
- Assisting the Digital Pedagogy Assistant.
- Creation of special policies for Microsoft Teams to cater for the specific needs of the schools and the OSG.

Finally, the ICT Servicedesk provided the necessary support for the different projects of the other cells of the ICT & Statistics Unit.

## From 2021 onwards

### 1. ICT Strategy: ICT Governance Group

The Strategy Group will continue to give guidance to the OSG and in particular the ICT Unit. It will have to follow closely the implementation of the proposed 'Data Governance Concept' started in 2020 that contains three different projects which were approved by the Board of Governors in April 2020. These projects are:

- the creation of a Master Data management tool,
- the replacement of the current enrolment application for the European Schools in Brussels and the development of an enrolment platform and

- replacement of the current software used for the calculation of the remuneration of seconded staff members<sup>4</sup>.

Moreover, the Strategy Group will also support the ICT Unit in the ongoing efforts for improving the overall IT-service quality as well as for providing better efficiency and end user satisfaction.

## 2. Common projects for the ICT Unit at the OSG

For improving the efficiency and the quality of services provided by the ICT Unit a number of projects will be conducted primary at the unit level but also in collaboration with the IT staff at the schools.

### 2.1 Improved IT Service Management

During 2020, the methodology used for project management has been in focus and the PM2 methodology has been introduced. During 2021, focus will be on improving the methodologies and the toolset used for IT service management. Training is planned at unit level for improving the competency in the ITIL framework.

### 2.2 Improving Planning and Prioritisation

A new toolset has been introduced at the end of 2020 for managing and communicating IT plans. This toolset will be used for supporting agile methodologies and planning. The goal is to enable more granular information management, sharing plans and priorities with stakeholders but also for enabling necessary follow-ups and measuring goal efficiency. The creation of a dynamic and flexible common IT roadmap is also one of the main goals.

### 2.3 Improving Communication and Collaboration

Communication and collaboration with all stakeholders are crucial for being able to provide highly efficient IT services and support. A new project has been launched with the goal of investigating the current communication solutions and based on that to propose a plan for general improvement of the communication between the ICT unit and its stakeholders.

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<sup>4</sup> For the details of the concept see document 2020-02-D-23-en-1.

## 2.4 IT and Information Security

From start in 2021 a new project will focus on the general IT and information security. This area has been pointed out by several different auditors as being at a considerable risk. During the project, the following steps will be carried out:

- General audit and assessment of the current IT security situation.
- GAP analysis of the IT security after which a new IT security roadmap will be formulated.
- Stepwise reinforcement and improvement of the general IT security at the ES and the OSG.

## 3. System and Networks Sub-Unit

In 2021, the System and Networks Sub-Unit will tackle the ongoing projects envisaged in accordance with the revised list of priorities. Major goal will be to finalise the projects which have been running for several years such as the migration to the EURSC.EU domain.

The migration to the Cloud, the Azure Roadmap, will continue, with the multiplication of services provided in the Azure environment and Office 365, which is the European Schools' main collaboration platform for education. Switching Federated Authentication, Azure Backup, Cloud Strategy Catalogue, and the migration of Exchange to the cloud are the projects with the highest priority.

In addition, for 2021 for the System and Network team, the assessment of the IT-service catalogue, the consolidation of the IT-services and the overall improvement of the IT-service management are of high priority in order to provide highly efficient and high-quality IT services to the OSG and the Schools.

## 4. Development and Statistics Sub-Unit

### 4.1 School management administrative application (SMS)

In the initial phase of the MDM project, only the Brussels schools are involved, and only for the pupils and parents. Initially, for all the schools, what needs to be done is to allow the creation of the other identities (staff, teacher, etc.) in SMS and of pupils and parents for the non-Brussels schools. A bi-directional interface between MDM and SMS will need to be established for identity management.



As the non-Brussels schools are gradually taken over into the MDM, creation of identities in SMS will no longer be possible.

In order to better respect the GDPR rules, in collaboration with the MySchool company, the security groups in SMS will need to be improved or redefined.

## **4.2 Statistics Platform – SAP Business Objects**

During the year 2021, an analysis of the statistical requirements will be carried out in order to determine whether BO is still the most appropriate tool and, if so, whether it will need to be updated or whether other alternatives should be envisaged.

## **4.3 Application of the Brussels Central Enrolment Authority (CEA)**

The existing application will be kept for as long as the solution has not become operational. As in previous years, this application was updated to comply with the new rules of the enrolment policy and to deal with the addition of a new site. The new application will be developed and deployed.

## **4.4 NEW ALTEE application**

After DOCEE has been updated, an analysis will be made to determine whether the New ALTEE application is still necessary or whether it needs to be replaced or to evolve in order to suit new requirements.

## **4.5 Identity synchronisation (MIM project)**

As the robot has been stabilised, we are not planning to implement new functionalities. The Predica company's assistance will be required to complete the 2021-2022 school year transition successfully.

## **4.6 MDM-CEA project**

The business rules' complexity is such that the project's scheduling had to be redefined. The OSG accepted an offer from Microsoft to allocate more resources to the project and thus enable all the functionalities expected to be implemented. The project is still in the process of development.

## 4.7 Pilot phase and deployment of the application for the differential adjustment: TaxBox

During the first few months of 2021, it is planned to launch the pilot phase with the Varese and Karlsruhe schools. We will then roll out the application for all the schools.

In a second phase, seconded staff will also have access to this application, which will allow every member of the seconded staff to download the necessary documents himself or herself and to monitor his or her own case file. This will result in time-saving for the administrative staff of the schools.

## 4.8 Replacement of *CIPAL*

The services of *CIPAL*, a Belgian inter-municipal ICT service provider for public authorities, are used to calculate the salaries of seconded staff. A project has been launched to replace the use of *CIPAL* with SAP. *CIPAL*'s replacement has an impact on a major existing application that will need to be adapted. We will also help the SAP team by providing technical and functional assistance, as well for migration of the data.

## 5. Servicedesk Sub-Unit

During 2021, the Service Desk Sub-Unit will conduct a project for improving the efficiency and the quality of the services provided by the Sub-Unit. The project will focus on the following tasks:

- Training the staff members in the employed ITIL methodology
- Overview and improvement of the routines and processes currently in use
- Introduction of a new, modern, user friendly ticketing system recently acquired.

## Improving ICT Communication and Collaboration between the Schools and the OSG

To facilitate efficient and high-quality IT-services it is important to improve the cooperation with the 13 and their IT teams. Knowledge sharing and collaboration is essential for creating synergies, avoiding dependencies on individuals, and for increasing efficiency. During 2021 a specific communication project will be conducted by the ICT unit for investigating the needs for improved communication and for pinpointing the most efficient communication channels and methodologies.

As soon as this project will be finalized, the OSG will look together with the Directors and their IT experts in further possibilities of improving teamwork and delegation of powers towards the schools to allow the schools to provide the environment for a successful teaching and learning in an increasingly digitalized world.

### ICT and Data Protection

Being compliant with the GDPR requirements remains an objective of utmost importance in the ICT area since it came into force and will continue to do so in 2021.

The ICT Unit involves the Data Protection Officer (DPO) of the OSGES in new projects from the outset, in order to design new applications in line with the requirements of the GDPR. For continuously ensuring the GDPR compliance and the data governance, bi-weekly meetings are conducted between the DPO and the Head of Unit ICT and Statistics.

Moreover, in the context of the renewal of existing contracts and the drawing up of new contracts with external suppliers, it needs to be ensured, in cooperation with the DPO and the Procurement Sub-Unit, that these contracts comply with data protection standards required by the GDPR.

## Staff Situation of the OSG ICT Unit

### Head of Unit ICT

The vacant function of Head of Unit ICT has been successfully filled from September 2020 with secondment from the Swedish authorities.

### System and Networks Sub-Unit

The System and Network Sub-Unit is composed of one Head of Sub-Unit and three functions of System Engineer.

One of these three functions has been vacant for more than one year. During 2020 this function has been successfully filled. Currently the System and Networks Sub-Unit is fully staffed.

### Development Sub-Unit

The Development Sub-Unit is composed of one Head of Sub-Unit and in total four functions of Developer.

Out of these four functions, two were created in 2018 on a temporary basis. In April 2019, the Board of Governors decided that these positions are permanent functions as of 1 January 2020.

The current Head of Sub-Unit will leave the ES during 2021 for retirement. A recruitment process has been started for finding an adequate replacement for this critical position.

### Servicedesk Sub-Unit

The Service Desk is composed of one Head of Sub-Unit and three ICT technicians. The function of head of Sub-Unit was filled in spring 2019.

One of the three technician left in January 2021 for a one-year unpaid leave for private reasons. This position will be filled with temporary contract or external consultancy.

## ICT Secretariat

The ICT Secretariat is composed of two secretaries (1.5 FTE) who - besides their ordinary tasks - took over a lot of coordinating tasks and are deeply involved in the establishment and execution of the annual ICT budget.

The following table gives an overview on the current staffing of the ICT Unit:

Function	Organogram 01.01.202	Effectives 31.12.2020	Remarks
Head of Unit	1.0	1.0	
ICT Assistant to the SG	2.0	2.0	Head of Sub-Unit
ICT Assistant System	3.0	3.0	
ICT Assistant Development	4.0	4.0	
ICT Assistant Service Desk	1.0	1.0	Head of Sub-Unit
ICT Technician Service Desk	3.0	3.0	
Secretary	1.5	1.5	
<b>Total</b>	<b>15.5</b>	<b>15.5</b>	

## Distribution of ICT hardware in the schools on 31/12/2020

Table 1 – IT inventory of the schools on 31/12/2020

PC = number of personal computers; BEA. = number of beamers; IAW = number of interactive whiteboards

Ecole	Niveau	Matériel dans les classes			Matériel dans les classes ICT et hors classes			Pédagogique			Administratif			TOTAL		
		PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI
Alicante	Mat. & Prim.	56	26	90	11	0	0	67	26	90	55	2	0	222	84	180
	Secondaire	71	46	90	29	10	0	100	56	90						
	<b>Total</b>	<b>127</b>	<b>72</b>	<b>180</b>	<b>40</b>	<b>10</b>	<b>0</b>	<b>167</b>	<b>82</b>	<b>180</b>	<b>55</b>	<b>2</b>	<b>0</b>			
Bergen	Mat. & Prim.	25	1	0	52	1	49	77	2	49	25	0	2	273	9	60
	Secondaire	103	5	8	68	2	1	171	7	9						
	<b>Total</b>	<b>128</b>	<b>6</b>	<b>8</b>	<b>120</b>	<b>3</b>	<b>50</b>	<b>248</b>	<b>9</b>	<b>58</b>	<b>25</b>	<b>0</b>	<b>2</b>			
Brussels I	Mat. & Prim.	230	228	0	43	1	0	273	229	0	140	5	0	840	423	0
	Secondaire	355	189	0	72	0	0	427	189	0						
	<b>Total</b>	<b>585</b>	<b>417</b>	<b>0</b>	<b>115</b>	<b>1</b>	<b>0</b>	<b>700</b>	<b>418</b>	<b>0</b>	<b>140</b>	<b>5</b>	<b>0</b>			
Brussels II	Mat. & Prim.	270	78	0	15	2	0	285	80	0	89	2	0	686	181	30
	Secondaire	257	97	30	55	2	0	312	99	30						
	<b>Total</b>	<b>527</b>	<b>175</b>	<b>30</b>	<b>70</b>	<b>4</b>	<b>0</b>	<b>597</b>	<b>179</b>	<b>30</b>	<b>89</b>	<b>2</b>	<b>0</b>			
Brussels III	Mat. & Prim.	116	0	105	8	0	5	124	0	110	45	5	0	491	45	195
	Secondaire	249	40	80	73	0	5	322	40	85						
	<b>Total</b>	<b>365</b>	<b>40</b>	<b>185</b>	<b>81</b>	<b>0</b>	<b>10</b>	<b>446</b>	<b>40</b>	<b>195</b>	<b>45</b>	<b>5</b>	<b>0</b>			
Brussels IV	Mat. & Prim.	197	27	102	13	12	1	210	39	103	70	0	0	707	120	110
	Secondaire	360	76	0	67	5	7	427	81	7						
	<b>Total</b>	<b>557</b>	<b>103</b>	<b>102</b>	<b>80</b>	<b>17</b>	<b>8</b>	<b>637</b>	<b>120</b>	<b>110</b>	<b>70</b>	<b>0</b>	<b>0</b>			
Francfort	Mat. & Prim.	157	20	40	9	1	0	166	21	40	47	1	3	459	72	63
	Secondaire	177	48	20	69	2	0	246	50	20						
	<b>Total</b>	<b>334</b>	<b>68</b>	<b>60</b>	<b>78</b>	<b>3</b>	<b>0</b>	<b>412</b>	<b>71</b>	<b>60</b>	<b>47</b>	<b>1</b>	<b>3</b>			
Karlsruhe	Mat. & Prim.	73	22	15	21	0	90	94	22	105	80	3	12	390	70	202
	Secondaire	125	42	85	91	3	0	216	45	85						
	<b>Total</b>	<b>198</b>	<b>64</b>	<b>100</b>	<b>112</b>	<b>3</b>	<b>90</b>	<b>310</b>	<b>67</b>	<b>190</b>	<b>80</b>	<b>3</b>	<b>12</b>			
Luxembourg I	Mat. & Prim.	174	81	108	59	7	0	233	88	108	88	4	0	738	293	285
	Secondaire	355	198	177	62	3	0	417	204	177						
	<b>Total</b>	<b>529</b>	<b>279</b>	<b>285</b>	<b>121</b>	<b>10</b>	<b>0</b>	<b>650</b>	<b>289</b>	<b>285</b>	<b>88</b>	<b>4</b>	<b>0</b>			
Luxembourg II	Mat. & Prim.	255	82	0	11	12	40	266	94	40	162	11	4	836	239	174
	Secondaire	364	130	120	44	4	10	408	134	130						
	<b>Total</b>	<b>619</b>	<b>212</b>	<b>120</b>	<b>55</b>	<b>16</b>	<b>50</b>	<b>674</b>	<b>228</b>	<b>170</b>	<b>162</b>	<b>11</b>	<b>4</b>			
Mol	Mat. & Prim.	112	29	1	6	2	0	118	31	1	33	4	0	269	78	5
	Secondaire	104	42	4	14	1	0	118	43	4						
	<b>Total</b>	<b>216</b>	<b>71</b>	<b>5</b>	<b>20</b>	<b>3</b>	<b>0</b>	<b>236</b>	<b>74</b>	<b>5</b>	<b>33</b>	<b>4</b>	<b>0</b>			
Munich	Mat. & Prim.	269	110	0	48	1	489	317	111	489	113	0	4	864	242	526
	Secondaire	293	115	0	141	16	33	434	131	33						
	<b>Total</b>	<b>562</b>	<b>225</b>	<b>0</b>	<b>189</b>	<b>17</b>	<b>522</b>	<b>751</b>	<b>242</b>	<b>522</b>	<b>113</b>	<b>0</b>	<b>4</b>			
Varese	Mat. & Prim.	88	38	16	3	1	0	91	39	16	33	0	3	305	114	24
	Secondaire	141	74	0	40	1	5	181	75	5						
	<b>Total</b>	<b>229</b>	<b>112</b>	<b>16</b>	<b>43</b>	<b>2</b>	<b>5</b>	<b>272</b>	<b>114</b>	<b>21</b>	<b>33</b>	<b>0</b>	<b>3</b>			
Totals	Mat. & Prim.	2022	742	477	299	40	674	2321	782	1151	1960	74	28	7080	1970	1854
	Secondaire	2954	1102	614	825	49	61	3779	1154	675						
	<b>Total</b>	<b>4976</b>	<b>1844</b>	<b>1091</b>	<b>1124</b>	<b>89</b>	<b>735</b>	<b>6100</b>	<b>1936</b>	<b>1826</b>						

Table 2 - Pedagogical hardware rates on 31/12/2020

Table 2 ICT Pedagogical equipment ratios

Ecole	Niveau	Nombre d'élèves 2020	Equipement pédagogique 2020			Nombre d'élèves par appareil 2020		
			PCs	Beam.	TBI	PCs	Beam.	TBI
Alicante	Mat. & Prim.	448	67	26	90	6.7	17.2	5.0
	Secondaire	599	100	56	90	6.0	10.7	6.7
	<b>Total</b>	<b>1047</b>	<b>167</b>	<b>82</b>	<b>180</b>	<b>6.3</b>	<b>12.8</b>	<b>5.8</b>
Bergen	Mat. & Prim.	249	77	2	49	3.2		5.1
	Secondaire	327	171	7	9	1.9	46.7	36.3
	<b>Total</b>	<b>576</b>	<b>248</b>	<b>9</b>	<b>58</b>	<b>2.3</b>	<b>64.0</b>	<b>9.9</b>
Brussels I	Mat. & Prim.	2211	273	229	0	8.1	9.7	0.0
	Secondaire	2097	427	189	0	4.9	11.1	0.0
	<b>Total</b>	<b>3424</b>	<b>700</b>	<b>418</b>	<b>0</b>	<b>4.9</b>	<b>8.2</b>	<b>0.0</b>
Brussels II	Mat. & Prim.	1323	285	80	0	4.6	16.5	0.0
	Secondaire	1885	312	99	30	6.0	19.0	62.8
	<b>Total</b>	<b>3208</b>	<b>597</b>	<b>179</b>	<b>30</b>	<b>5.4</b>	<b>17.9</b>	<b>106.9</b>
Brussels III	Mat. & Prim.	1343	124	0	110	10.8	0.0	12.2
	Secondaire	1971	322	40	85	6.1	49.3	23.2
	<b>Total</b>	<b>3314</b>	<b>446</b>	<b>40</b>	<b>195</b>	<b>7.4</b>	<b>82.9</b>	<b>17.0</b>
Brussels IV	Mat. & Prim.	1293	210	39	103	6.2	33.2	12.6
	Secondaire	1809	427	81	7	4.2	22.3	0.0
	<b>Total</b>	<b>3102</b>	<b>637</b>	<b>120</b>	<b>110</b>	<b>4.9</b>	<b>25.9</b>	<b>28.2</b>
Francfort	Mat. & Prim.	754	166	21	40	4.5	35.9	18.9
	Secondaire	846	246	50	20	3.4	16.9	42.3
	<b>Total</b>	<b>1600</b>	<b>412</b>	<b>71</b>	<b>60</b>	<b>3.9</b>	<b>22.5</b>	<b>26.7</b>
Karlsruhe	Mat. & Prim.	448	94	22	105	4.8	20.4	4.3
	Secondaire	464	216	45	85	2.1	10.3	5.5
	<b>Total</b>	<b>912</b>	<b>310</b>	<b>67</b>	<b>190</b>	<b>2.9</b>	<b>13.6</b>	<b>4.8</b>
Luxembourg I	Mat. & Prim.	1567	233	88	108	6.7	17.8	14.5
	Secondaire	1738	417	204	177	4.2	8.5	9.8
	<b>Total</b>	<b>3305</b>	<b>650</b>	<b>289</b>	<b>285</b>	<b>5.1</b>	<b>11.4</b>	<b>11.6</b>
Luxembourg II	Mat. & Prim.	1173	266	94	40	4.4	12.5	29.3
	Secondaire	1468	408	134	130	3.6	11.0	11.3
	<b>Total</b>	<b>2641</b>	<b>674</b>	<b>228</b>	<b>170</b>	<b>3.9</b>	<b>11.6</b>	<b>15.5</b>
Mol	Mat. & Prim.	273	118	31	1	2.3	8.8	273.0
	Secondaire	447	118	43	4	3.8	10.4	111.8
	<b>Total</b>	<b>720</b>	<b>236</b>	<b>74</b>	<b>5</b>	<b>3.1</b>	<b>9.7</b>	<b>144.0</b>
Münich	Mat. & Prim.	805	317	111	489			
	Secondaire	1322	434	131	33	3.0	10.1	40.1
	<b>Total</b>	<b>2127</b>	<b>751</b>	<b>242</b>	<b>522</b>	<b>2.8</b>	<b>8.8</b>	<b>4.1</b>
Varese	Mat. & Prim.	577	91	39	16	6.3	14.8	36.1
	Secondaire	756	181	75	5	4.2	10.1	151.2
	<b>Total</b>	<b>1333</b>	<b>272</b>	<b>114</b>	<b>21</b>	<b>4.9</b>	<b>11.7</b>	<b>63.5</b>
Totals	Mat. & Prim.	12464	2321	782	1151	5.4	15.9	10.829
	Secondaire	15729	3779	1154	675	4.2	13.6	23.302
	<b>Total</b>	<b>28193</b>	<b>6100</b>	<b>1936</b>	<b>1826</b>	<b>4.6</b>	<b>14.6</b>	<b>15.4</b>

Table 3 (schools classified according to the number of pupils per device) classifies the schools according to their pupils per PC, pupils per beamer and pupils per interactive whiteboard ratios.

Ecole	Elèves par PC	Ecole	Elèves par beamer	Ecole	Elèves par TBI
Bergen	2.3	Bruxelles I	8.2	Munich	8.5
Munich	2.8	Munich	8.8	Bergen	9.9
Karlsruhe	2.9	Mol	9.7	Karlsruhe	10.4
Mol	3.1	Luxembourg I	11.4	Luxembourg II	11.2
Francfort	3.9	Luxembourg II	11.6	Mol	11.3
Luxembourg II	3.9	Varese	11.7	Luxembourg I	11.4
<b>Average</b>	<b>4.4</b>	Alicante	12.8	Alicante	12.8
Bruxelles I	4.9	Karlsruhe	13.6	<b>Average</b>	<b>15.0</b>
Bruxelles IV	4.9	Bruxelles II	17.9	Bruxelles I	15.3
Varese	4.9	Francfort	22.5	Varese	15.3
Luxembourg I	5.1	<b>Average</b>	<b>23.2</b>	Bruxelles II	18.5
Bruxelles II	5.4	Bruxelles IV	25.9	Francfort	21.1
Alicante	6.3	Bergen	64.0	Bruxelles III	21.9
Bruxelles III	7.4	Bruxelles III	82.9	Bruxelles IV	27.2

**Table 3** - Schools classified according to the number of pupils per device



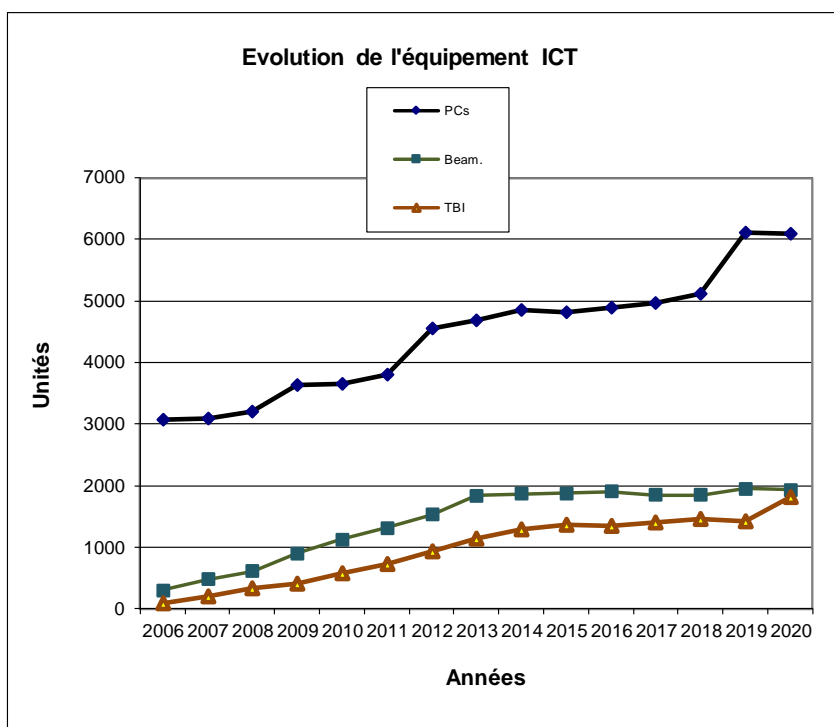
Table No 4 shows the development of pupils per PC ratio over the last few years

<b>Ecole</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Alicante</b>	5.4	5.2	4.8	4.7	4.4	4.1	4.1	4.2	4.3	4.5	4.2	6.3
<b>Bergen</b>	3.7	3.5	3.2	3.8	5.1	2.6	3.1	2.6	2.5	2.9	2.2	2.3
<b>Bruxelles I</b>	7.6	7.1	7.0	6.8	3.1	7.4	7.5	7.2	7.0	6.9	7	4.9
<b>Bruxelles II</b>	7.4	7.5	6.6	6.8	6.5	5.7	5.7	5.6	7.2	5.7	5.3	5.4
<b>Bruxelles III</b>	9	8.4	8.3	8.2	6.3	7.9	8.2	8.1	7.2	6.7	7.3	7.4
<b>Bruxelles IV</b>	7.8	6.1	6.4	6.5	8.1	6.8	6.9	9.8	5.4	6.6	5.9	4.9
<b>Francfort</b>	6.4	6.5	6.8	6.4	4.2	5.9	5.9	4.8	4.5	4.3	4	3.9
<b>Karlsruhe</b>	3.8	3.2	3.6	3.1	6.0	2.6	2.3	2.4	3.1	3.0	3.1	2.9
<b>Luxembourg I</b>	7	6.6	6.7	5.1	3.0	5.9	6.1	6.5	6.4	6.3	6	5.1
<b>Luxembourg II</b>	8.1	8.3	16.2	3.5	5.1	3.8	4.0	4.0	4.3	4.4	4.4	3.9
<b>Mol</b>	4.5	4.5	4.7	4.0	3.4	3.2	4.3	3.5	3.5	3.7	2.8	3.1
<b>Munich</b>	3.7	6.6	6.1	5.4	4.0	4.7	4.8	5.0	5.3	4.7	5.3	2.8
<b>Varese</b>	6.6	6.3	6.6	6.1	4.8	6.2	5.8	5.4	5.3	5.2	5.1	4.9
<b>Average</b>	<b>6.2</b>	<b>6.2</b>	<b>6.5</b>	<b>5.3</b>	<b>5.1</b>	<b>5.0</b>	<b>5.1</b>	<b>5.2</b>	<b>4.7</b>	<b>4.6</b>	<b>4.8</b>	<b>4.4</b>

**Table 4 - Development of the pupils/PC ratio**

Table No 5 shows the development of ICT hardware since 2006.

Inventaire de décembre	PCs	Beam.	TBI
2006	3074	300	95
2007	3100	482	209
2008	3196	615	330
2009	3630	907	417
2010	3652	1126	587
2011	3812	1317	721
2012	4553	1535	945
2013	4689	1837	1149
2014	4862	1866	1300
2015	4822	1877	1367
2016	4894	1909	1350
2017	4974	1853	1401
2018	5125	1854	1468
2019	6109	1949	1427
2020	6100	1936	1826
Augmentation 2006-2020	98.4%	545.3%	1822.1%
Augmentation annuelle moyenne sur 2006-2020	7.6%	41.9%	140.2%

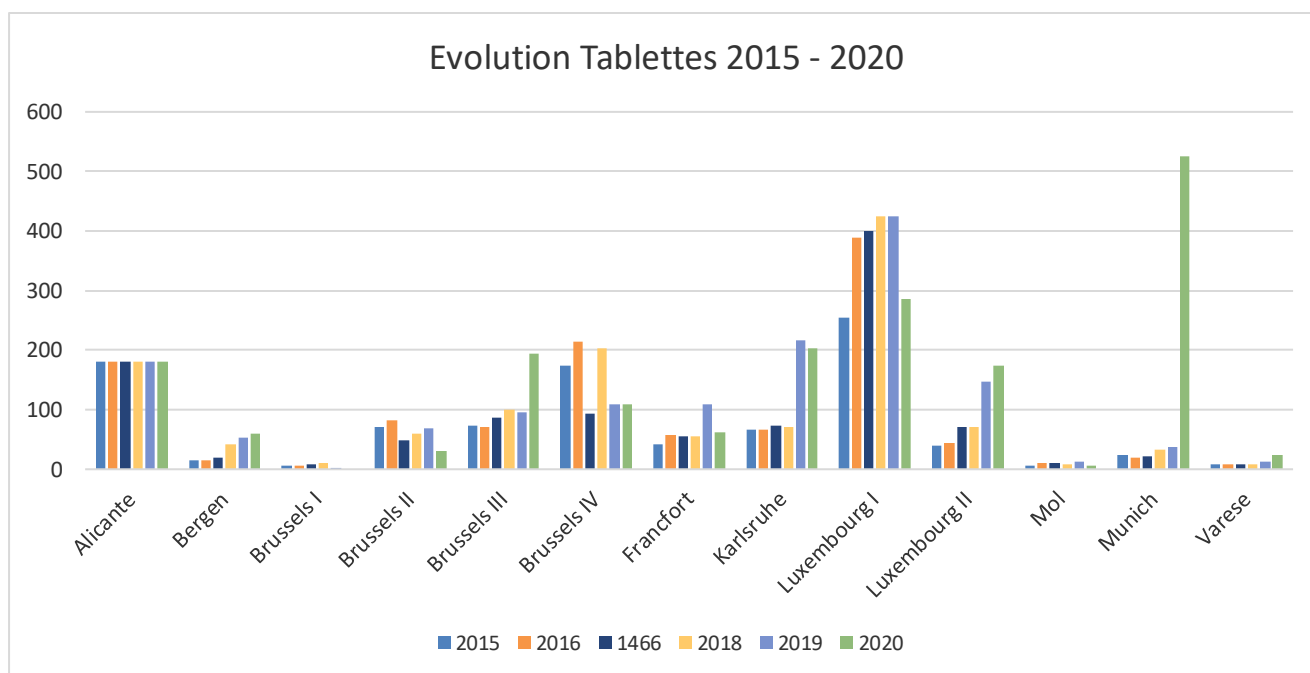


**Table 5** - Development of the number of computers, beamers and interactive whiteboards

Table No 6 shows the availability of tablets per school and cycle and for the administration of the schools.

Ecole	Niveau	2018				2019				2020			
		Matériel dans les classes	Matériel dans les classes ICT	Matériel hors classes	Administration	Matériel dans les classes	Matériel dans les classes ICT	Matériel hors classes	Administration	Matériel dans les classes	Matériel dans les classes ICT	Matériel hors classes	Administration
Alicante	Mat. & Prim.	90	0	0	0	90	0	0	0	90	0	0	0
	Secondaire	90	0	0		90	0	0		90	0	0	
	<b>Total</b>	<b>180</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>180</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>180</b>	
Bergen	Mat. & Prim.	42	0	0	0	50	0	0	0	0	0	49	2
	Secondaire	0	0	1		2	0	1		8	0	1	
	<b>Total</b>	<b>42</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>52</b>	<b>0</b>		<b>1</b>	<b>0</b>	<b>8</b>	
Brussels I	Mat. & Prim.	1	0	2	5	0	0	0	2	0	0	0	0
	Secondaire	0	2	0		0	0	0		0	0	0	
	<b>Total</b>	<b>1</b>	<b>2</b>	<b>2</b>		<b>5</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>2</b>	<b>0</b>	
Brussels II	Mat. & Prim.	30	0	0	0	30	0	0	1	0	0	0	0
	Secondaire	0	0	30		0	0	37		30	0	0	
	<b>Total</b>	<b>30</b>	<b>0</b>	<b>30</b>		<b>0</b>	<b>30</b>	<b>0</b>		<b>37</b>	<b>1</b>	<b>30</b>	
Brussels III	Mat. & Prim.	80	0	0	0	73	0	0	0	105	0	5	0
	Secondaire	21	0	0		22	0	0		80	0	5	
	<b>Total</b>	<b>101</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>95</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>185</b>	
Brussels IV	Mat. & Prim.	86	0	0	0	107	0	0	2	102	0	1	0
	Secondaire	117	0	0		0	0	0		0	0	7	
	<b>Total</b>	<b>203</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>107</b>	<b>0</b>		<b>0</b>	<b>2</b>	<b>102</b>	
Francfort	Mat. & Prim.	16	0	0	0	40	0	0	2	40	0	0	3
	Secondaire	0	20	20		0	0	0		20	0	0	
	<b>Total</b>	<b>16</b>	<b>20</b>	<b>20</b>		<b>0</b>	<b>16</b>	<b>20</b>		<b>20</b>	<b>2</b>	<b>60</b>	
Karlsruhe	Mat. & Prim.	0	38	0	9	5	85	0	10	15	0	90	12
	Secondaire	25	0	0		117	0	0		85	0	0	
	<b>Total</b>	<b>25</b>	<b>38</b>	<b>0</b>		<b>9</b>	<b>122</b>	<b>85</b>		<b>0</b>	<b>10</b>	<b>100</b>	
Luxembourg I	Mat. & Prim.	140	0	0	0	140	0	0	0	108	0	0	0
	Secondaire	272	12	0		272	12	0		177	0	0	
	<b>Total</b>	<b>412</b>	<b>12</b>	<b>0</b>		<b>0</b>	<b>412</b>	<b>12</b>		<b>0</b>	<b>0</b>	<b>285</b>	
Luxembourg II	Mat. & Prim.	0	0	40	1	0	0	40	6	0	0	40	4
	Secondaire	0	0	30		90	0	10		120	0	10	
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>70</b>		<b>1</b>	<b>90</b>	<b>0</b>		<b>50</b>	<b>6</b>	<b>120</b>	
Mol	Mat. & Prim.	0	0	1	3	0	0	1	3	1	0	0	0
	Secondaire	0	0	4		4	0	0		4	0	0	
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>5</b>		<b>3</b>	<b>4</b>	<b>0</b>		<b>5</b>	<b>3</b>	<b>5</b>	
Münich	Mat. & Prim.	0	0	0	0	0	0	0	4	0	0	489	4
	Secondaire	0	0	34		0	0	34		0	0	33	
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>34</b>		<b>0</b>	<b>0</b>	<b>0</b>		<b>34</b>	<b>4</b>	<b>0</b>	
Varese	Mat. & Prim.	1	0	0	3	5	0	0	3	16	0	0	3
	Secondaire	0	0	5		0	0	5		0	0	5	
	<b>Total</b>	<b>1</b>	<b>0</b>	<b>5</b>		<b>3</b>	<b>5</b>	<b>0</b>		<b>5</b>	<b>3</b>	<b>16</b>	
Totals	Mat. & Prim.	486	38	43	21	540	85	41	33	477	0	674	28
	Secondaire	525	34	124		597	12	87		614	0	61	
	<b>Total</b>	<b>1,011</b>	<b>72</b>	<b>167</b>		<b>21</b>	<b>1,137</b>	<b>97</b>		<b>128</b>	<b>33</b>	<b>1,091</b>	

Table 6 – Number of tablets-PCs per school from 2018 to 2020

**Table 7** – Graph showing the development of the number of tablets per school from 2015 to 2020

## Proposal

The Board of Governors is invited to express an opinion on document 'ICT Report for 2020'.

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## Conclusion

The Board of Governors took note of and approved the Annual ICT Report of the Head of the ICT/Statistics Unit for the year 2020.