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ICT Report for 2016

Approved by the Board of Governors

(4-6 March 2017 – Berlin)

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Introduction

The purpose of this document is to provide a detailed ICT report on the year 2016, namely to give

- a status report on the main objectives defined for the year 2016 in the previous ICT Report: missions accomplished, uncompleted and/or non-initiated missions;
- an overview of the significant events in the year 2016 as part of the information system (IS) of the European Schools and its ICT resources.

It also gives information about

- short-term objectives (year 2017): objectives that are absolutely essential but achievable given the ICT resources available;
- long-term objectives (as from 2017) in accordance with the European Schools' IT strategy.

This document is aimed at a very wide readership: heads of delegations, IT specialists, schools' directors, bursars, colleagues, etc. Now IT is a very broad field, being a specialist area and highly technical. In addition, there is the complexity of the European Schools' IT infrastructure, plus its system of operation, which is unique in the world. This document has therefore been written, as far as possible, in accessible language, avoiding technical terms and explanations.

Note of the Budgetary Committee

The Budgetary Committee took note of the report and invited the Board of Governors also to take note of it, with the further information requested by the European Commission about the total IT budget and the pedagogical budget allocations.

The year 2016

It was undoubtedly a significant and historic year for ICT, in the broad sense of the term, in the European Schools, whether the developments were positive or negative. That will be seen from reading this document. But there is a significant risk that this year will prove to be the zenith of the ICT services provided by the Central Office of European Schools if

- the central ICT Unit is not significantly strengthened – in terms of human resources – at the earliest opportunity;
- better use of the schools' ICT resources is not made.

It goes without saying that this is not the only response possible to mitigate this highly probable risk. The fact is that the European Schools can decide at any time to downgrade their standards in terms of provision of services, service availability, service quality, data security, etc.

Only the major and significant projects, events and achievements are mentioned hereafter. This is therefore not an exhaustive list.

ICT Strategy: ICT Governance Group

At the end of the year 2016, the work of the ICT for administrative purposes Governance Group (IT-ADM WG) really started and intensified. The topics addressed are very large in number and diverse:

- Technological choices and requirements in terms of security
- Analysis of IT risks and action plans
- IT outsourcing policy (managed services)
- ICT Charters
- Analysis of the European Schools' current IT organisation chart: possible clarifications and recommendations
- Project methodology
- …

There is no longer any doubt whatsoever about the need for such a group. A real European Schools' IT strategy is emerging. This will need to be known and followed by all parties in the European Schools.

Unfortunately, the ICT Governance Group for pedagogical purposes (IT-PED WG) has only managed to meet once so far. However, it is absolutely essential for the IT-ADM Group to know the business requirements of the European Schools in order to propose an ICT strategic plan and to make recommendations to the Board of Governors.

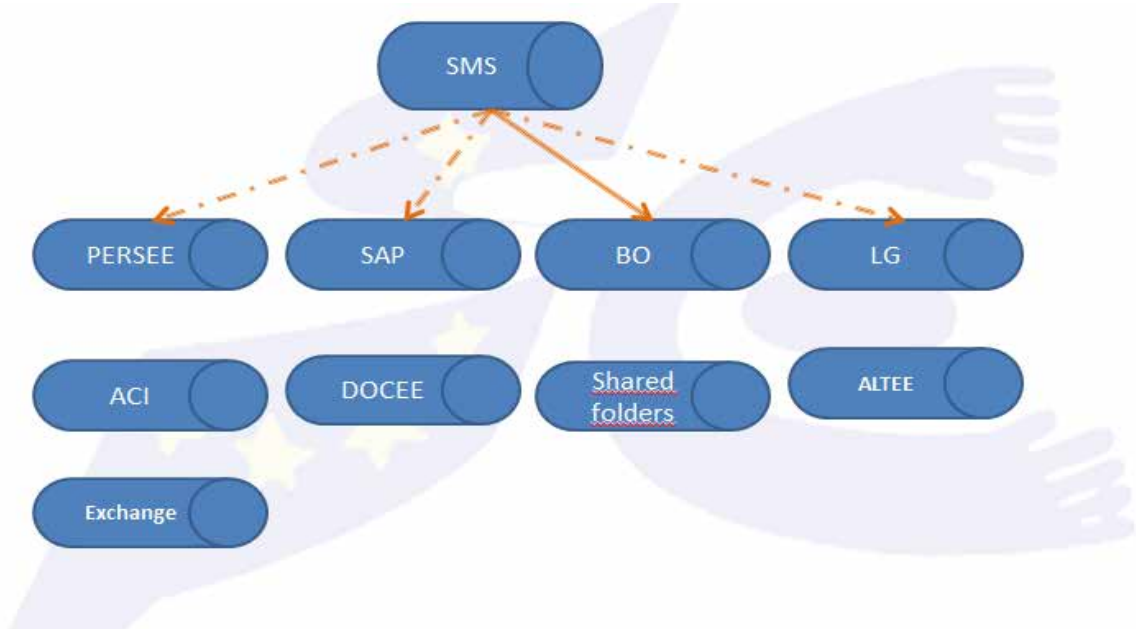
Purchases and IT Contracts

The ICT and Statistics Unit collaborates very closely with the 'Procurement' sub-unit of the Office of the Secretary-General of the European Schools (OSGES). The creation of this sub-unit provided the OSGES with the expertise in the field which is absolutely essential, but its requirements represent a huge change in practices, something which is time-consuming and has to be phased in. The ICT and Statistics Unit is very satisfied with this collaboration and hopes that in the future the schools will be able to benefit more from the services provided by the 'Procurement' sub-unit of the OSGES.

Master Data Management

Master Data Management is a branch of information technologies which defines a set of concepts and processes whose purpose is to define, store, maintain, distribute and impose a comprehensive, reliable and up-to-date view of the reference data in an information system, irrespective of communication channels, sector of activity or professional or geographical subdivisions.
The reference data underpin the entire information system, which explains why their management has become a crucial issue in all organisations over the past ten years or so.
Reference data management is regarded as a brick in a durable information system's architecture.

In 2012, given the critical situation of the servers hosting ELEE (the old school management application), the European Schools had to choose as a matter of urgency an application provided and managed by a third party for the management of the reference data on their students, parents, and all the members of the staff of the European Schools. This is the SMS (School Management System) application. There is an urgent need to replace this system architecture as seen in the diagram below, since it is contrary to all best practice:



Mention of this had already been made in previous ICT Reports and has been confirmed in the meantime by the IT-ADM Group. Unfortunately, as human resources are sorely lacking, it was not possible to make any significant progress on this critical and priority project.

In the previous ICT Report, it was announced that the Microsoft Dynamics application CRM (Customer Relationship Management) might be used for reference data management. A very large number of meetings on the subject were held with our MICROSOFT partner during the year 2016. Conceptually and technically, Microsoft convinced the European Schools of the feasibility of this choice. However, it turned out that this CRM tool would not be the ideal choice. Even though performance, stability and security demands would be met, simplification, customisation and exploitation of this tool would be highly/too resource-intensive (human and financial) in relation to the purpose defined by the European Schools and would not offer the expected flexibility either. That brought us back virtually to square one for this project. Fortunately, all the work done with MICROSOFT was not wasted, because it enabled the European Schools to clarify their requirements more satisfactorily and to engage in more thorough project analysis (perimeters, integration requirements, technological choices, etc.). The question which remains open is whether we should continue to seek a commercially available solution that (=> call for tenders) or develop a custom-made application for the European Schools. Either way, it will not be possible without an increase in the resources of the ICT and Statistics Unit.

Unlike the old applications (ELEE, COBEE, ALTEE, etc.), the new applications (SMS, SAP, PERSEE, etc.) require real rigour in encoding: the entry of incorrect data has a direct impact on users' access accounts (accounts not properly created, missing accounts, access removed, etc.). Now the European Schools were not used to this rigour in encoding. This largely accounts for the poor state of the reference databases (staff, students, parents, etc). For example:

- many colleagues had been registered many times (sometimes more than three times!) in the databases;
- a colleague could be encoded with different names in the same school or between different schools (case of married women, number of different first names, etc).
- …

All negative impacts visible to users were/are often wrongly assumed to be caused by IT projects provided by the OSGES (O365, SAP, etc.) which are flawed/not ready.
In parallel with the search for a Master Data Management tool, data cleansing continued and was stepped up in 2016, leading to the creation of a digital data management policy for the European Schools. Here again, this involves a big change in the European Schools' way of operating. Unfortunately, the lack of human resources in the ICT and Statistics Unit does not allow there to be sufficient investment in time terms in this major project, which requires a great deal of communication, guidance, procedures and checks.

School Management System (SMS) administrative application

In accordance with a recommendation of the IT-ADM Group which was followed by the Board of Governors (April 2016) and the absolute necessity of ensuring business continuity in the European Schools, a new three-year contract was signed with the MySchool company, owner of the SMS application, without a procurement procedure. An exception for this contract was entered in the OSGES's register of exceptions. The European Schools thus have until September 2019 to replace

the current school management software by launching a procurement procedure, adapting the product chosen to the European Schools' needs, training the stakeholders, etc. This means, however, that this deadline already does seems unrealistic, given the current state of the ICT Unit and of the resources available to it.

During the year 2016, only the changes to SMS that were required for it to be compliant with the new Baccalaureate regulations approved by the Board of Governors were requested of its owner (MySchool). However, much to the stakeholders' dismay, all requests for improvements to the application had to be blocked because of the lack of human resources. Yet this application is by far one of the most important in the system, because it allows the schools to be managed and to operate. There ought to be at least one full-time dedicated post in the 'Development' sub-unit to provide level 3 maintenance and support. That has been impossible to date.

Statistics Platform – Business Intelligence

It should be noted that most of the statistical reports generated by or for the OSGES are not compiled or validated by the ICT and Statistics Unit. Yet there ought to be a validation process, which is currently impossible to introduce because of lack of resources.

SAP Business Objects

As a reminder, this platform was created with the help of SAP Business Objects (BO) servers and is intended mainly for use by the administrative staff of the Central Office and of the European Schools. In 2016, it was undoubtedly the most neglected of the services in operation.

In 2015, training sessions had been organised at the OSGES for BO users in the different schools. Those training sessions had enabled use of this reporting tool to be revitalised.
Following the training sessions, numerous requests were made to the ICT Unit for the creation of official reports to be used as decision-making, statistical tools, etc.
Given the lack of resources, the 'Development' sub-unit had no choice other than to put those requests on hold or to refuse them, something which is very frustrating not only for the person or people making the request but also for the ICT and Statistics Unit.
Consequently, no major changes were made to this platform during the year 2016.
Only maintenance strictly necessary for the platform's proper operation was done. However, because of lack of time, the different upgrades to the BO servers proposed and recommended by SAP were not carried out.

Use of the platform

In several schools, this platform is under-exploited. For instance, it should be used to control and check the data entered by the different people involved in order to detect encoding errors or missing data as quickly as possible. In 2013, it was strongly recommended that the schools should designate a team of colleagues with responsibility for use of the BO servers in their school. According to the

application area (Secondary/Primary/Nursery Schools, Pedagogy, Finance, Signage), 'key users' profiles were defined with a list of tasks and responsibilities, such as:

- Creation of reports specific to the school's needs
- First level support for their colleagues
- Training of their colleagues
- Creation and updating of documentation about their functions, transfer of knowledge to a colleague in order to ensure business continuity.

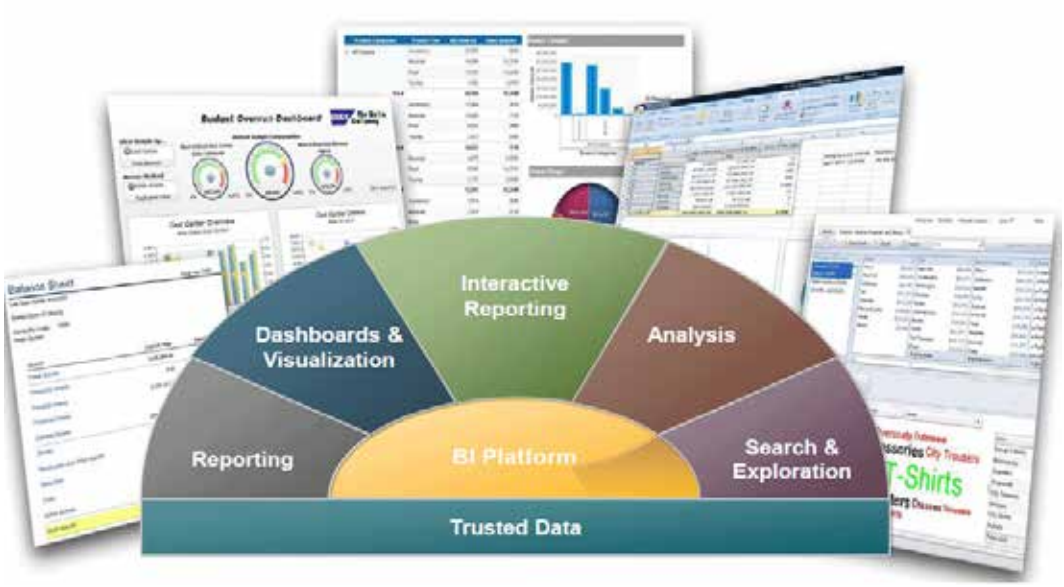
In addition to these 'key user' profiles, a 'super key user' profile was defined in order to be the sole contact point with the OSGES's Service Desk for all problems and requests concerning use of the statistics platform. This BO 'super key user' has the same profile as all the other 'key users', but must be able to intervene in all application areas and, more especially, have advanced knowledge of SAP Business Objects.

Unfortunately, in many schools, this BO team has not been set up or is not operating, because of lack of time and/or lack of knowledge of the BO tool, despite the training sessions provided by the OSGES. Here again, because of lack of human resources, the ICT and Statistics Unit is not able to ensure quality control or compliance with the rules introduced, to inform the schools and to raise awareness of this platform or to train the schools in its use to a greater extent.

Mandatory improvement of the platform

Following a special training session on exploitation of BO's servers, attended by ICT Unit members and delivered by SAP, in 2015, it emerged that the universes currently used should be reviewed for performance and end-user experience reasons. This has not yet been done. This caused a good deal of frustration amongst users, who were constantly blocked in their work.
Moreover, access to BO by any user whatsoever gives this user access to far too large a quantity of data, particularly so-called 'sensitive' data. In fact, because of lack of time, it was not possible to create a security system sophisticated enough to control access to data. For instance, a teacher who is in charge of timetabling in a secondary school receives a BO account and automatically has access to all the personal data of all the members of his or her school (staff, students, parents).

A tool for every purpose!



The current statistics platform does not meet the needs of all the stakeholders (Directors, Inspectors, etc.). In fact, there are many tools (even free ones) on the market which are tailored to users' specific needs. For instance, there are solutions aimed at managers to help them to produce activity reports easily, dashboards with performance indicators (Dashboard with KPI) or decision-making analysis. We are aware of this, but it is impossible for us to press ahead in the current context because of lack of resources.

The Central Enrolment Authority (CEA) for Brussels application

This application enables the policy on enrolment in the Brussels European Schools to be implemented. For each enrolment application, all the information provided by the parents in paper format has to be encoded. This involves a colossal amount of work. There is great demand from both the parents and the schools for an online form to be created, in order to improve the process, to reduce the workload in the schools, etc., but here again, it is currently impossible because of lack of resources.

Thus, as is the case every year, the application was updated to bring it into line with the enrolment policy's new rules. This year the rationale of award of places in priority cases was rethought so as to tie in as closely as possible with the new business rules.

This application was developed and has been maintained by the same member of staff since the very beginning. Over the years, the application's rationale and its implementation have become

highly complex and to date, only this member of staff is able to handle its development and provide support. Moreover, this colleague already has numerous other tasks and responsibilities. It is often difficult for him to find time to perform the tasks that are absolutely essential for the application's proper operation.

Management of HR and of payroll data

This is a critical and very important service for the European Schools. Full information about the member of staff (seconded, AAS, part-time teacher), his or her timetable (full-time, half-time), nationality, country of secondment, different contracts with the European Schools, calculation of time worked, etc., has to be collected.

However, during the year 2016, we lost the only member of staff who had been in charge of this service and who had no back-up in the central ICT Unit. Naturally, each member of staff has to produce and update the documentation required to ensure business continuity should a 'key' colleague leave. Despite this documentation, the loss of this member of staff was very problematic because the documentation was not complete and it had not been possible for it to be tested previously owing to lack of time.

PERSEE and its interfaces

This service is provided by the PERSEE application developed by the ICT and Statistics Unit. PERSEE automatically receives from SMS all the identification data concerning all staff members, as well as the number of hours worked with details of the classes given.
PERSEE also allows entry of all the data which *CIPAL* requires for calculation of seconded staff's salaries. At the end of the process, the net salaries to be paid to seconded staff are automatically sent to SAP. This means three interfaces in total, which allow the three services provided by third parties to meet the European Schools' needs in a fairly transparent way for the member of staff in charge of payroll management.

PERSEE & *CIPAL*

For years, the calculation of seconded staff's salaries has been handled by the *CIPAL* company (a Belgian inter-municipal ICT service provider for public authorities). However *CIPAL*'s work is often of very poor quality and gives rise to many incidents every month. Each month, recurrent problems associated with *CIPAL* occur during calculation of seconded staff's salaries. These problems are of various kinds, such as incorrect parameterisation, wrong file format, communication problem, etc.
Each time correction of these problems means that data have to be manipulated in *CIPAL* as well as in our database. This manipulation always has to be done in a hurry (otherwise the salaries are blocked for a whole school, sometimes even for all schools), hence a risk of errors that could cause even greater problems because this happens in the real production environment, without prior testing. Moreover, it should not be forgotten that these data (provided by *CIPAL*) are used by the 'Differential Adjustment' sub-unit for calculation of adjustments to the differential allowances to be paid to or received from seconded staff. In addition, there is the fact that support from *CIPAL* is insufficiently responsive or completely lacking when the only person in charge of this service at

CIPAL is absent. Despite a crisis meeting with *CIPAL*'s management, nothing has changed. Yet it is an expensive service.
A project to replace the service provided by *CIPAL* should undoubtedly be initiated as soon as possible, but without strengthening of the 'Development' sub-unit, that will be impossible.

Payroll management & SAP

Under the SAP project in 2014, an exchange interface between PERSEE and SAP had to be created as a matter of urgency, containing the net salaries to be paid to seconded staff. This underperformed and had to be improved in terms of security and stability. A new interface was created from scratch. It is far more reliable and stable. In the future it will enable audit logs and trails to be introduced, alerts to be triggered when an incident occurs, etc. Other interfaces between 'social secretariats' (which provide services relating to social security, etc., in Belgium) and SAP are still missing because of lack of time and ought to be implemented at the earliest opportunity.

SAP: HEC and interfaces with the banks

All SAP servers are hosted in Germany and are provided through the Hana Enterprise Cloud (HEC) contract, responsibility for the service lying solely with the ICT and Statistics Unit of the OSGES. However, the Unit does not have the necessary competences in sufficient quantity to collaborate effectively with the SAP HEC support provided. This requires use of specialist terms specific to SAP of which we do not have a command. In that context, for instance, the production run of the different interfaces with SAP has become a very challenging mission since the SAP project team has left the Central Office.

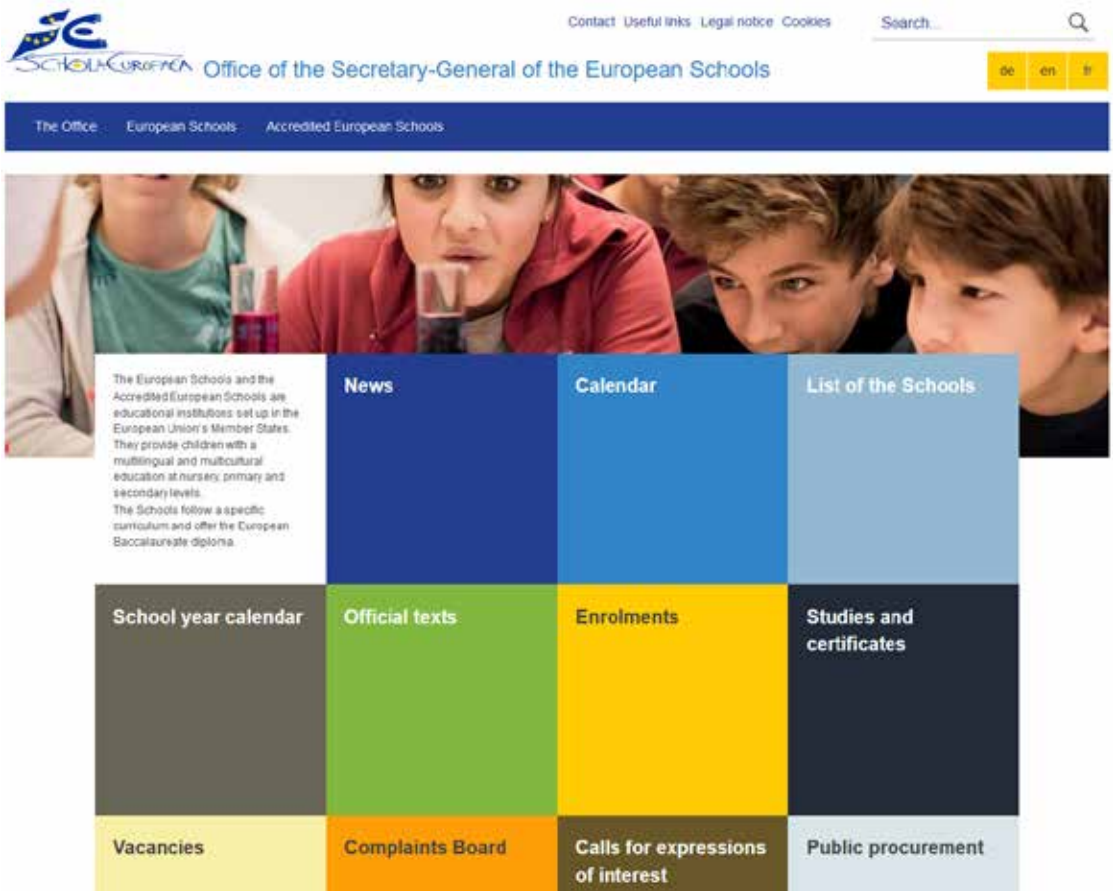
During the year 2016, very high priority was given to the creation of different interfaces to connect the SAP server to the various online payment solutions used by our schools. Each school located outside Belgium had to find a solution for automatic transfer of payments files to be implemented between the SAP server and their online payment solution. For each interface to be created, close collaboration between the European School concerned, the provider of the online payment solution chosen by the school in question and the SAP support of the Accounts Unit and the ICT Unit of the OSGES had/has to be established. Coordination was not always easy. The lack of project methodology, communication problems between all the stakeholders and the shortage of human resources led to considerable delay in the implementation of these interfaces. The good news is that a technically feasible solution has now been found for all the schools and all the interfaces still awaited are being implemented.

Again in that context, some interfaces created in a rush in 2014 during the implementation of SAP had to be readjusted for performance and audit purposes.

Our new website 'www.eursc.eu' and new graphic identity

As a reminder, the website 'www.eursc.eu' was hacked in 2014 and its security weaknesses were highlighted. It was thus decided to replace it as quickly as possible with a reliable, stable and high-

security solution. The creation of a new website with an online SharePoint on Microsoft Azure was decided. It was finalised in June 2016 and launched in September 2016.



A great deal of feedback was received and was very positive.

As regards the new graphic identity, as both the ICT Unit and the Secretary-General did not have the time, it was not possible to formalise it and thus to implement it. This calls for strong communication and proper aware-raising, reaching out to all the stakeholders.

Active Identity Management in the Active Directory (FIM project)

As a reminder, Microsoft Forefront Identity Manager (FIM) facilitates identity management, authentication and access strategies across heterogeneous platforms. In other words, according to the data entered in SMS and PERSEE, FIM creates new access accounts, deactivates some of them, sends notifications to users, updates hundreds of thousands of distribution lists, etc., daily! FIM thus allows a new IT environment, based on a strong and structured security (Active Directory), to be managed. In addition, it gives users the opportunity to reset their passwords themselves. Administrators benefit from powerful administration and authentication tools and developers have

extension capability based on .NET and web services. This tool is absolutely essential to respond to users' ever increasing needs in a secure way.

This project was undoubtedly the most human-resources intensive one undertaken by the ICT and Statistics Unit since 2015. Since its initiation, this project has constantly fallen behind schedule because, once again, just one member of staff had responsibility for it. The one who we lost in 2016 from the 'Development' sub-unit of the OSGES's ICT Unit. Thus, initially scheduled to launch by the end of 2015, its go-live was postponed until February/March 2016. In the end, it got off to a painful start in September 2016 when the FIM tool was not fully ready and still had some hidden defects which were difficult to detect without the presence of the colleague who was initially in charge of this project. Indeed, following the colleague's sudden departure:

- the Head of the ICT Unit, the head of the 'System' sub-unit and the only developer remaining spent the whole of August taking charge of this project and ensuring its completion;
- the project's perimeter was eventually reduced to the SCHOLAE.EU domain.

This major incident had serious adverse consequences for the project, inconveniencing both the schools and the members of the ICT and Statistics Unit and leading to their really suffering for several months.

We are still working hard on this product. The positive point is that implementation, albeit partial, enabled a system of provisioning and automatic management of accounts (more than 20000 accounts for students and teachers) and many distribution lists (automatically created and updated) to be launched.

In addition, there is a complete portal allowing delegation of account management (reset password, deactivation, etc.) at the level of each European School.

TRADEE becomes TRADIT

With the definitive end of the UNIX servers' activity, a solution for replacement of the TRADEE application had to be found. This application allowed members of the OSGES to send documents intended for the different meetings to translators for translation.
In August 2016, the 'Development' sub-unit had the opportunity to use the services of an intern who redesigned and developed a program for translation management. This new tool, called TRADIT, was quickly adopted by users and has proved a success.

Operational ICT system and IT infrastructure ('System' sub-unit)

In 2016, all the work done by the 'System' sub-unit was based on predominantly efficient, high-performance, stable, simple and modern infrastructure.

Achievements and situation of the 'System' sub-unit

The ICT situation in the European Schools in 2012 was archaic. The production environment was no longer supported by Microsoft and the network was completely overloaded. The services (email, BO, etc.) were reduced to a minimum every weekend. Security was unacceptably poor (website hacked with pornographic content, security of the Learning Gateway and DOCEE not managed, remote access to our servers, administrator rights used improperly, etc.).
Several new domains were created:

- EURSC.EU for administration
- SCHOLAE.EU for pedagogy
- ADNUBEM.EU for the website

Each domain represents several devices to be installed, monitored and updated.
However, the old domains (ADM EURSC.ORG, LEARNING GATEWAY LD.ADM.ORG) have to be maintained because migration is a gradual process. In parallel, a new network infrastructure was deployed to replace VERIZON (15 sites across Europe) with a significant improvement in communication between sites, up to 250 times faster!
The new Data Centre (more than 100 servers) located at Rue de la Science and a second Data Centre located at Ixelles enabled there to be a heightened level of security and of availability, with the establishment of a security barrier against internet attacks (DMZ – Demilitarised Zone) divided between the sites. During the move to different premises, relocation of the server room, the services, the client stations and the network were handled by the 'System' sub-unit. In addition, a new technology for telephony, 'Skype for Business', had to be hastily studied and implemented.
The list of projects and tasks managed by the 'System' sub-unit is quite impressive (see below 'From a more technical viewpoint').

For the European Schools' smooth operation, the services must now be available 24/7. The 'System' sub-unit engineers frequently have to intervene outside working hours to keep the system operational. This also happens when they are on leave/abroad. In 2016, some members of the team were no longer able to work overtime as the maximum quota had been reached.
This excessively heavy workload, whilst acceptable if exceptional and temporary, cannot continue, and the parameters have changed since 2012 (explosion in and quality of services).
IT IS IMPORTANT TO NOTE that these services were not launched at the instigation of the ICT and Statistics Unit but were mandatory for the European Schools' smooth operation and as responses to the IAS's recommendations. The present situation should not be compared with the lax approach to ICT taken in the past. We are starting to see the positive effects of the work done.
However, it is not sufficient just to carry out new projects and to deploy new services. Managing their life cycle and maintaining them is of prime importance. Unfortunately this requires resources, which are inadequate today.
With the current resources, the 'System' sub-unit can just about manage to respond to emergencies.
In fact, broadly speaking, it is unable to:

- Create documentation
- Transfer/exchange knowledge
- Proactively monitor the services (and detect intrusions, attacks, etc.)
- Respond within an appropriate time period
- Move forward with the migration process
- Handle back-up and restoration
- Carry out tests in the development environment

- Test the Disaster Recovery Plan
- Attend training sessions
- Communicate with the schools

From a more technical viewpoint

The ICT infrastructure includes computer (fixed and wireless) and telephony networks (universal wiring and optical fibre links), mobile telephony, network operation services (DNS, DHCP, NTP, IP routing, etc.), the servers, the data storage system (including back-ups), virtualisation, access management aspects, operational security, the computer hardware, the installed software base and basic ICT services.

The EURSC.EU domain, based on Active Directory (Windows Server 2012 R2), successfully passed RAP (Risk and Health Assessment Program) testing. The RAP is a method of evaluation of the remote environment. The data collected are encrypted then transmitted to Microsoft's RAP servers in order to be analysed and safely stocked. This allows the results of the analysis to be consulted securely online through the Microsoft portal at any time.

A certified Microsoft engineer analysed the results and made recommendations and provided a knowledge transfer. The remedial plan did not reveal any critical deficiency. The Active Directory is kept up-to-date and meets the common requirements of the European Schools and Microsoft so that it can receive adequate support if needed. This remains one of our imperatives.

Migration to Exchange 2013 was completed, meaning that all the accounts are now in production in the new environment. Unfortunately, two applications (Learning Gateway and DOCEE) do not allow the old environment to be shut down permanently.

The SQL 2012 servers were not extended to the second Data Centre because they have to be completely upgraded and migrated to SQL 2016. The member of staff who was in charge of this job unfortunately left the Central Office.

A second Data Centre was also deployed on the Ixelles site.

The new operating system Windows 10 with End Point Protection (Antivirus) started to be deployed through the Configuration Manager server. Reinforced by a catalogue of services, the end user can directly install the applications validated by the Central Office.

The 'System' sub-unit was unable to progress on the new domain's extension project in each European School because of lack of resources. Consequently, the DPs (Distribution Points) that were supposed to ensure harmonisation of the ICT hardware could not be deployed.

The DFS (Data Files Servers) which are ready to accommodate the new file structure have not been used yet, again because of lack of resources.

Various platforms were updated, such as ADFS authentication upgraded to version 3.0, DirSync was replaced by WAAD and the synchronisation tool Quest Software was replaced by MIM.

A second OMS (Operations Management Suite) monitoring platform was deployed on the Cloud in conjunction with SCOM On-Premises (System Centre Operations Management). OMS is the IT management solution based on the Microsoft Cloud that allows the On-Premises and Cloud Structure infrastructure to be managed and protected. OMS and SCOM work together to offer a complete hybrid management experience. But lack of resources does not allow these tools to be used proactively, i.e. to avoid and detect system failures or cyber-attacks.

The domain names were transferred from Verizon to Belnet, and the 'System' sub-unit acquired a certification platform through Digital Certificates Service. This means that the 'System' sub-unit is the sole administrator of the organisation's certificates and, thanks to an interface offering great

flexibility and optimal management, it guarantees customised security for the organisation's network, emails, websites and web-based applications.

Removal of the OSGES

The removal of the OSGES's seat to new premises was a real success despite the technical challenge which it represented, thanks to the infinite and remarkable commitment of the 'System' sub-unit's two remaining members (the OSGES also lost a member of the 'System' sub-unit in 2016), backed up at times by the 'Service Desk' sub-unit. This relocation went almost unnoticed by most of the European Schools' stakeholders (Schools, Inspectors, etc.). It should be noted that this relocation required the new Data Centre to be set up 'from scratch' and Skype for Business for telephony to be introduced. This required the 'System' sub-unit team to learn this new technology and to implement it without delay, with the help of consultants of course. That was yet another feat.

Strengthening of the security and communication platform

As a reminder, this involved replacing the old MPLS network, which connected all the European Schools to the OSGES and was inefficient and very expensive (VERIZON), through leased lines and/or VPN tunnels, and also decentralisation of internet access.
To put these secure VPN tunnels in place, the schools located outside Belgium acquired a new sufficiently high-performance internet connection (with SLA). The carrying out and launch of this project was finalised at last for all the European Schools. The schools are now connected to the Central Office through a connection with a bandwidth ranging between 100 Mbps and 1000 Mbps. By comparison, before and at similar cost, the European Schools were connected to the OSGES by a 4 Mbps bandwidth. This is a considerable improvement.

Service Desk of the ICT and Statistics unit

In 2016, the 'Service Desk' sub-unit also lost a member of staff, who has been on sick leave since February 2016 and who has been temporarily replaced.

Request management and associated workload

In order to give an idea of this sub-unit's workload, some figures are presented below. The period from 1 June 2016 to 1 February 2017 is taken as the baseline. Deducting a month for the summer holidays (the period from mid-July to mid-August is always very quiet), seven months remain. On average, 22 working days per month can be counted.
For the OSGES, 1000 tickets were received (1 ticket = 1 request for problem solving or 1 request for service), not counting the requests without a ticket (telephone calls, direct requests to the Office's Service Desk), of which there is no trace.
In the case of the schools, there were 6300 tickets relating to various problems and requests.

This equates to an average of 47 emails per day! However, each ticket does not require the same amount of time to be resolved, with some taking more than half a day.
The following are some example of ticket topics:

- Office 365
- FIM (Forefront Identity Manager)
- SMS
- PERSEE
- DOCEE
- LG
- SCCM
- SCSM (console + portal)
- Exchange server
- Skype for Business and setting up of conferences
- The users in the different domains (EURSC.EU, ADM.ORG, SCHOLAE, etc.)
- PFSense and WiFi Portal
- Setting up of new devices
- Beamer and laptop reservations and preparation of meeting rooms
- Requests for adapters and chargers demands for smart phones and other devices
- DMO
- Distribution list and security group
- Business Objects
- SAP
- Switch management (activation of ports, etc.)
- Training of the Office's end users in some new applications (Office 2016, the ticketing portal).

This is a non-exhaustive list and some less frequent topics also come up:

- Isabel
- CEA
- Checking of email non-delivery reports
- Management of authorisations for badges giving access to the Office
- …

Ongoing projects: SCSM and DMO

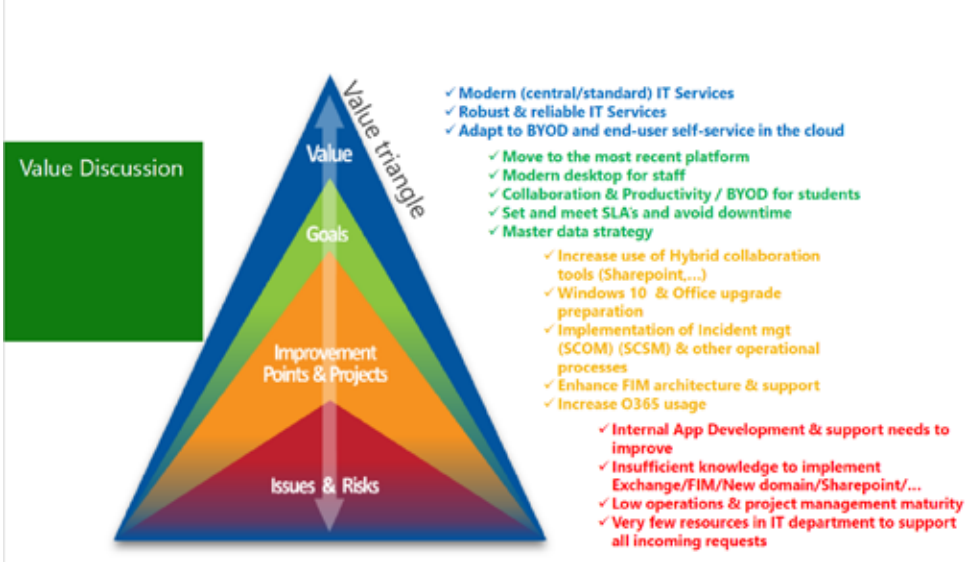
Besides ticket management, the 'Service Desk' sub-unit is in charge of producing a service catalogue and a knowledge base and of development and implementation of a real ticketing service (IAS recommendation) that will be provided by SCSM (Microsoft's System Centre Service Manager).

An identity management program, called DMO (Delegate My OU), was also developed to delegate increasing numbers of tasks to the schools' ICT teams, to make them increasingly independent, and to reduce the workload of the 'Service Desk' sub-unit. For example, creation of a new user, password reset, creation of a distribution list specific to the school, etc. There was strong demand for this tool from the schools' ICT technicians and it is a modest start to delegation to the schools. Delegation to the schools is a solution designed to mitigate the problem of the Central Unit's lack of resources but it needs to be done in a well controlled way and be approved by the schools' different managements.

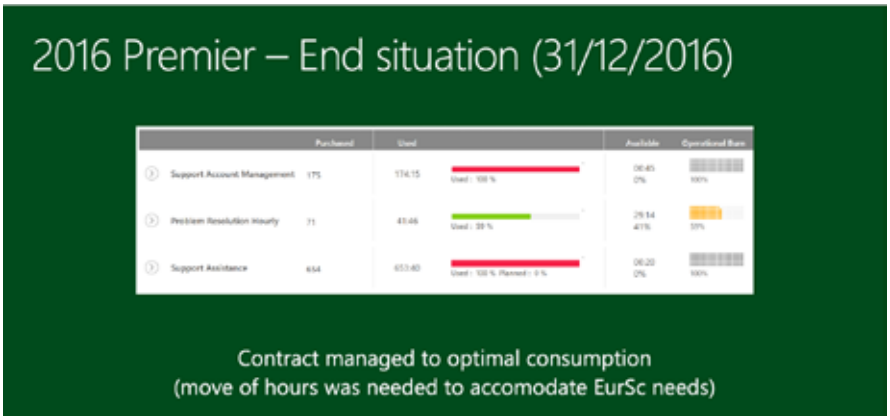
In order to make progress with these projects, the staff of the 'Service Desk' sub-unit had to work a great deal of overtime.
It should be noted that in order to cope with this sub-unit's ever increasing workload, the OSGES is increasingly hiring interns at zero financial cost to the European Schools, but also temporary staff.

Microsoft Support Premier TIER 5 contract

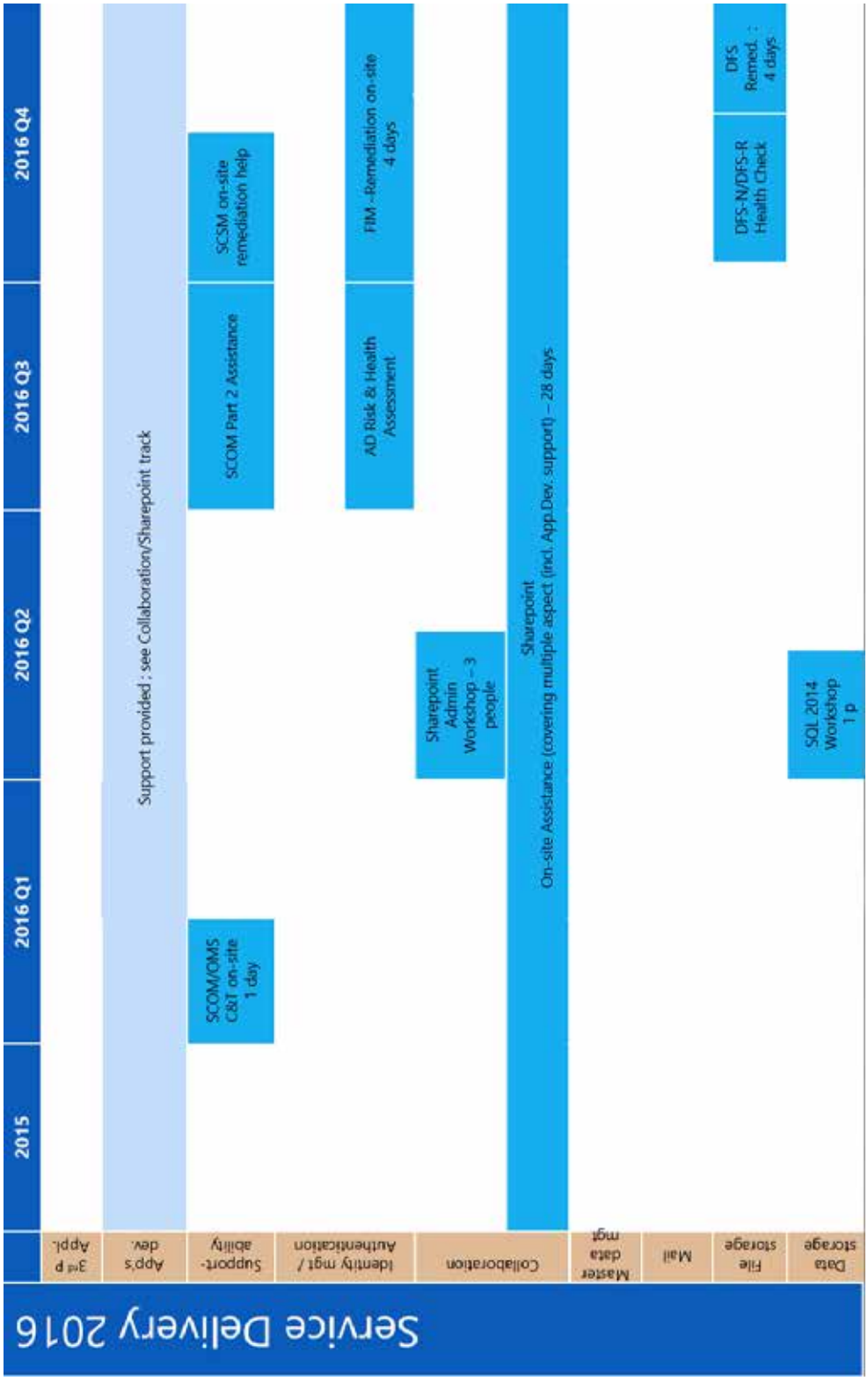
Since 2014, use of Microsoft's consultancy services has become significant. This enables the shortage of human resources in the ICT and Statistics Unit to be made up for and provides expertise in many specialist areas, something which the European Schools need to meet their constantly increasing and ever more demanding requirements in terms of performance, reliability and security. Thus, 900 hours of consultancy are purchased each year, at a cost of approximately €190 000.



Strengths and weaknesses of the European Schools according to Microsoft



Consumption of Microsoft Support Premier TIER 5 contract



Consumption - MICROSOFT Support Premier contract – planning for 2015

Microsoft Office 365

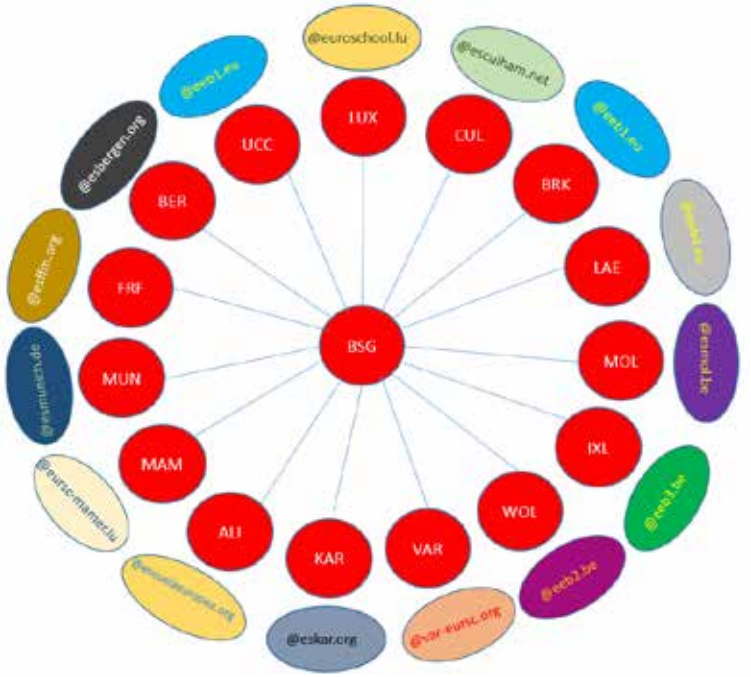
In the previous report, several pages were devoted to explaining this ambitious project, awaited by a large number of the parties involved in the European Schools. As a reminder, this project came into being, firstly, because of increasing pressure from several schools which wished to provide their students also with an email address and secondly, because of the urgent need to comply with the legislation in force on personal data protection. Indeed, in the absence of the necessary IT service from the Central Office, many schools had over the years implemented local solutions that did not comply with that legislation (Google apps, commercial Microsoft O365, etc).

Its launch was very difficult, because this project depends directly on the FIM project and the Master Data Management project. However, those two projects were also problematic in 2016. This O365 project requires sound and rigorous management of IT identities within the European Schools. That is the reason why in late 2015, the schools received clear and precise instructions on the subject in order to be prepared. During the year 2016, several reminders and updates of these instructions were issued (Memorandum on IT Identity Management). Unfortunately, at the time of the launch of the O365 accounts, the numerous identity data errors or missing data had adverse effects on the production environment. Many schools complained about this project's deployment. It is true that many problems stemmed from the FIM project in September 2016 and October 2016. But there were even more problems stemming from the data entered (or not) by the schools themselves. The schools thus realised the importance of compliance with the Memorandum.
Hence, an excellent piece of news connected with this project was that the schools were thus forced to clean up their identity databases. This encourages us to believe that, for instance, statistics produced from those data will be more reliable in the future.

This project is a gigantic step forward for the European Schools in the digital field. That is to be welcomed, but sight should not be lost of the fact that in comparison with many national education systems, the European Schools are not at the leading edge in this field.

For the first time, all the European Schools' pedagogical staff have a real common communication and collaboration platform. This O365 platform, connected in hybrid mode to the communication platform used by all the administrative staff of the schools (Exchange servers On-Premises *@eursc.eu*), also allows easy communication between all the administrative and pedagogical staff of the schools, as well as the students. However, the European Schools' security requirements included in its IT strategy do not allow all the administrative staff to benefit from all the Cloud services on the same basis as the pedagogical staff. This also caused huge frustration amongst the administrative staff and led the O365 project to be criticised again despite all the reasons to be happy with it.

Thus, previously, there were 15 different communication platforms:



Now there are only two interconnected platforms:

Before O365's deployment, a kick-off meeting was organised in almost every school (some schools were grouped together) with the school management, the ICT technicians and other colleagues chosen by the school's management.
Subsequently, several 'Introduction to O365' training sessions were provided for the schools, using 'Train the trainer' methodology. Thus, members of staff who had already been trained were assigned the task of training their colleagues in their schools or of possibly coordinating their training with an outside company. The sole purpose of these training sessions was to enable colleagues to learn how to use the tool. To date, there is great demand for O365 training sessions and for guidelines for use. It is totally impossible at the moment for the OSGES to cater for this demand, again because of lack of resources.

Objectives for 2017

In view of the situation, which became very critical in 2016 for the ICT and Statistics Unit, it is highly likely that in 2017, work will focus solely on maintenance and consolidation of the current IT environment.

ICT Strategy: ICT Governance Group

The IT ADM Strategy Group needs to continue its work intensively in order to devise an IT strategy for the European Schools as quickly as possible. The IT PED Strategy Group should also step up its work.

A new ICT strategic plan needs to be created to replace the previous one, which ended in 2014.

An IT risk register needs to be defined and regularly updated. An action plan in response to those risks also needs to be drawn up in accordance with the decisions of the IT ADM Strategy Group.

SAP: HEC and interfaces with the banks

High priority is given to interconnections between the European Schools' SAP server and the different automatic payment systems used by the different schools.

Active Identity Management in the Active Directory (FIM project)

This complex project still needs some adjustments and requires sound databases that match the reality. Thus, particular attention will need to be given to those databases. More checks will need to be made and if necessary, new instructions or rules will need to be issued through a Memorandum.
The European Schools do not have a great deal of expertise in Forefront Identity Manager (FIM) and are therefore still highly dependent on a Microsoft partner. The ICT and Statistics Unit will need to acquire not so much perfect FIM expertise but sufficient knowledge to be able to deal with most routine problems itself.

The ICT and Statistics Unit's Service Desk

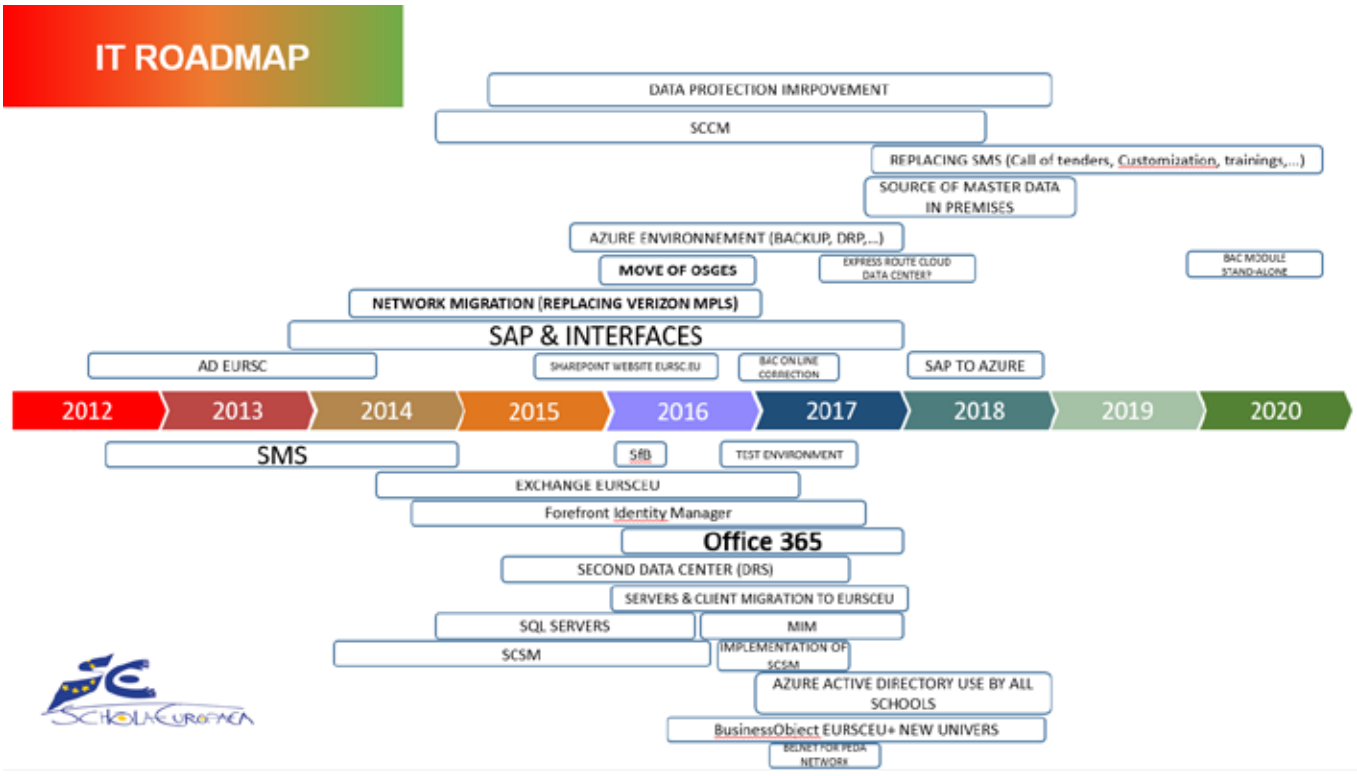
The SCSM (System Centre Service Manager) professional system of management of requests for incident handling or for services, which is ready to be used, will need to be deployed to collaborate with all the colleagues in the schools who solicit the OSGES's ICT Service Desk. This should enable communication and collaboration with the schools to be improved.

Migration to the EURSCEU domain

For reasons of safety and loss of control of the EURSC.ORG domain, there is an urgent need to migrate all computers and servers to the new EURSCEU environment. This migration also involves the deployment of WINDOWS 10 and Office 2016 on the European Schools' administrative network computers and hence, staff training.
In addition, the Learning Gateway, DOCEE, ALTEE, etc., will need to be decommissioned, replacing them with comparable new services. It is not certain, therefore, that it will be possible for the EURCS.ORG domain to be shut down in 2017.

Objectives as from 2017

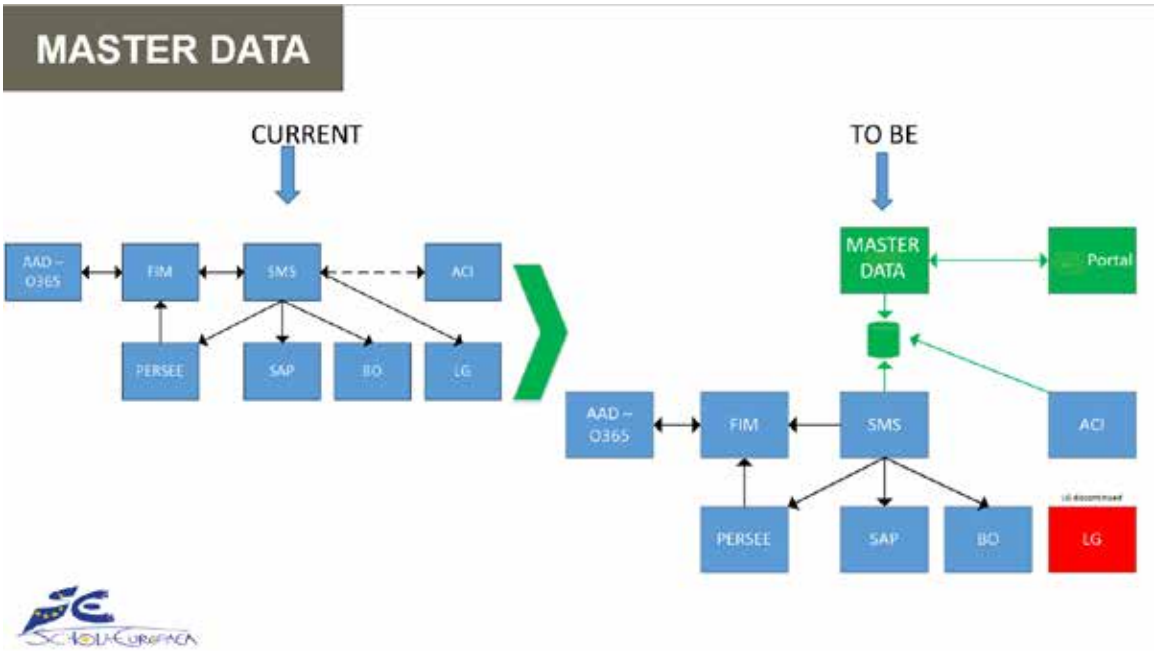
In addition to the continuation of ongoing projects, many others are on the waiting list. The diagram below gives an overview of the main ones.



This roadmap as planned will become realistic only if the ICT and Statistics Unit has the human resources required.

Master Data Management

A proprietary application for reference data management needs be installed in the European Schools' servers and 100% managed by the OSGES. A third-party application (SMS) cannot remain the source of the majority of the European Schools' sensitive data. Thus, the priority would be to use our current School Management System (SMS) only for the perimeter for which it was designed, namely school management. This means that the first phase of the Master Data Management project would involve moving SMS's position in the current IT architecture.
This proprietary application would either be an existing commercially available solution or an application to be developed by or for the European Schools.



Administrative application for school management (SMS)

A new call for tenders should have been issued years ago to replace the current school management software used by the schools. However, severe shortage of time means that this has been impossible so far despite all the considerable energy that has already been invested in producing new specifications, which have still not been finalised. As a reminder, the new deadline for replacement of SMS is September 2019. In order to meet that deadline, the call for tenders ought to be issued in June 2017. Nevertheless, because of the ICT and Statistics Unit's current state, that unfortunately seems unlikely to be the case

Statistics Platform – Business Intelligence

As explained previously, this platform ought to be reviewed in its entirety for performance, security and end-user experience reasons. Far more regular training sessions, specific to the European

Schools, ought to be provided for the OSGES and the schools. Quality assurance processes ought to be put in place to validate the numerous statistical reports produced by the European Schools.

A minimalist Data Warehouse ought also to be created and managed.

Payroll management: replacement of PERSEE

The current application also ought to be reviewed for performance and security reasons.
However, the new application should:

- be able to calculate the salaries of the seconded staff of the European Schools, which would allow the costly and unsatisfactory collaboration with *CIPAL* to be terminated
- incorporate the 'Differential Adjustment' sub-unit's needs so as not to duplicate the data unnecessarily and to enable there to be more effective checking of the data entered for payroll management purposes.

Collaboration Platform for administrative purposes

A collaboration platform for administrative staff ought to be created. It should replace many current applications (Learning Gateway, DOCEE, Public Folders, Shared Folders, etc.). It should also:

- allow there to be easy collaboration with the pedagogical staff
- have a powerful search engine
- be reliable and highly secure;
- ...

For this purpose, it is planned to deploy Microsoft SharePoint. The outstanding question is: do we need an on-premises version or an in the cloud version?

ICT infrastructure (Hardware)

Here is a non-exhaustive list of projects of which the ‘System’ sub-unit of the OSGES’s ICT Unit is in charge:

- Migration to EURSC.EU in all the European Schools
- Migration of file servers (DFS)
- Exchange 2016
- Skype for Business extension (OSGES’s telephony)
- Migration to SQL 2016
- Creation of a test environment modelled on production
- Strong or multifactor authentication
- IPv6
- Firewalls to be improved with checks and prevention technologies
- WiFi access at the OSGES to be strengthened
- VDI (Virtual Desktop Infrastructure) in order to reduce VPN use

- Hyper-V based on Windows Server 2016 Nano
- New infrastructure for Business Objects

ICT and Statistics Unit of the OSGES and its resources

A little background...

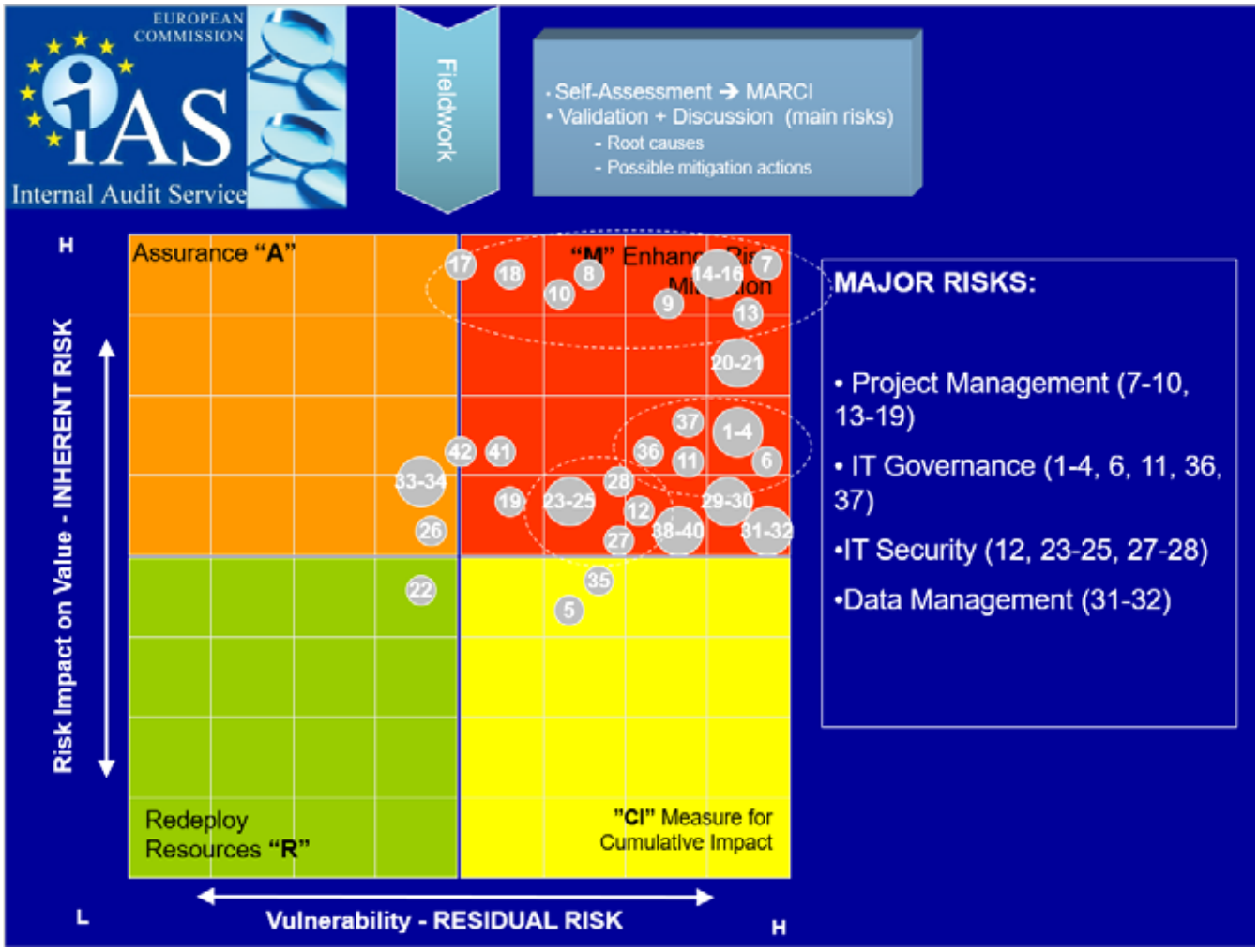
For years and years, the ICT services provided by the OSGES were totally neglected. In the end, all the administrative IT infrastructure of the European Schools ended up in a parlous state in 2012: that was the case with respect to the network, to the software provided, to the ICT and Statistics Unit's human resources, etc. Moreover, this critical situation incited the European Schools to make overhasty choices in order to ensure the continuity of operation of the European Schools (choice of the SMS in the Cloud solution).
The analysis of IT risk made by the Commission's Internal Audit Service (IAS) in 2012 gave an overview of this very problematic situation...

IT risks detected by the IAS in 2012

PROCESSES	OBJECTIVES DESCRIPTION	INHERENT RISKS	impact	likelihood
29 - IT Governance	(4) IT Budgeting	Inadequate allocation of financial resources for IT services	3	4
	(5) Personal competencies	Inability to find qualified personnel and maintain the IT competency requirements	2	3
	(6) Dependence on Individuals	Knowledge concentrated on key individuals	3	4
	(11) Technological Infrastructure Acquisition Plan	Infrastructure not able to adequately support the business needs	3	4
	(36) Performance Assessment	Inefficient IT function	3	4
	(37) Evaluation of Compliance with external requirements	Non-compliance with legal and other external requirements	3	4
30 - IT Project Management	(7) Project Management Framework	IT projects not delivering expected results	4	4
	(8) Stakeholder Commitment	IT projects not aligned with the expectations of the stakeholders	4	3
	(9) Project Per-formance Measure-ment, Reporting and Monitoring	IT project progress not controlled	4	4
	(10) Applications Requirements Management	Business requirements not met by the IT solutions	4	3
	(13) Knowledge Transfer to Agencies or (new) contractors	Dependency on contractors	4	4
	(14) Manage changes in IT projects	Uncontrolled changes in applications	4	4
	(15) Change prioritisation for changes in IT projects	Inadequate allocation of resources causing delays	4	4
	(16) Emergency changes for regarding changes of IT projects	Uncontrolled changes in IT applications due to emergency	4	4
	(17) Testing of changes in IT projects	Unreliable IT applications due to improper testing	4	2.5
	(18) Promotion to Production for IT projects	Loss of control on IT systems due to unauthorised changes in the production environment	4	3
	(19) Training	Inefficient use of IT resources due to lack of training	3	3
31 - IT Security	(12) Infrastructure Resource Protection and Availability	Security breaches and disruption in the IT services	3	4
	(23) Disaster Recovery Plans (DRP)	Disrupted services/operations due to inadequate DRP	3	3
	(24) Business Impact Analysis	Ineffective/Inefficient resources allocation in case of disaster	3	3
	(25) Testing of the DRP	Inability to timely recover IT systems	3	3
	(26) Offsite Backup Storage	Loss of data	3	2
	(27) Management of IT Security/IT Security Plan	Ineffective/Inefficient IT security management	3	4
	(28) User Account Management	Unauthorised access to data due to inadequate accounts management	3	4
	(33) Physical Security and Access Measures	Unauthorised access to data centre	3	2
	(34- Protection Against En-vironmental Factors	Undetected issues in the data centre	3	2
36 - Data Management	(32) Security Re-quirements for Data Management		3	4
	(31) Data Management Framework		3	4
32 - IT Services Delivery	(38) Manage changes in IT services/environment	Uncontrolled changes in other IT services (desktop, network, servers, etc.)	3	4
	(39) Change prioritisation for changes in IT services/environment	Inadequate allocation of resources causing delays	3	4
	(40) Emergency changes for regarding changes of IT services/enviroment	Uncontrolled changes in IT services due to emergency	3	4
	(41) Testing of changes in IT services	Unreliable IT Systems due to improper testing	3	3
	(42) Promotion to Production for IT services/ennvironment	Loss of control on IT systems due to unauthorised changes in the production environment	3	2.5
	(20) Service Level Agreement	Ineffective/Inefficient delivery of IT services due to misunderstanding of business needs.	4	4
	(21) Monitoring Service Level Agreements	Ineffective/Inefficient delivery of IT services	4	4
	(22) Supplier Performance Monitoring	Suppliers not providing adequate value for money	2	2
	(30) Incident Handling	Disrupted services/operations	3	4
	(29) Service Desk		3	4
	(35) IT Infrastructure Monitoring	Undetected performance degradation or future issues in the IT infrastructure	2	3

The IT risks analysis made by the IAS in 2012 had identified 35 risks divided into 5 areas: IT Governance, Project Methodology, IT Security, Data Management, Provision of IT Services.

The MARCI (Mitigate, Assure, Redeploy, and Cumulative Impact) methodology had been chosen by the IAS to classify them:



As stated in the previous three ICT reports (2013, 2014 and 2015), mitigation of these risks has been and remains a priority for the European Schools, which, in 2012, immediately responded by producing an ICT strategic plan focusing on three main areas:

Strategic key area 1: Governance and project management

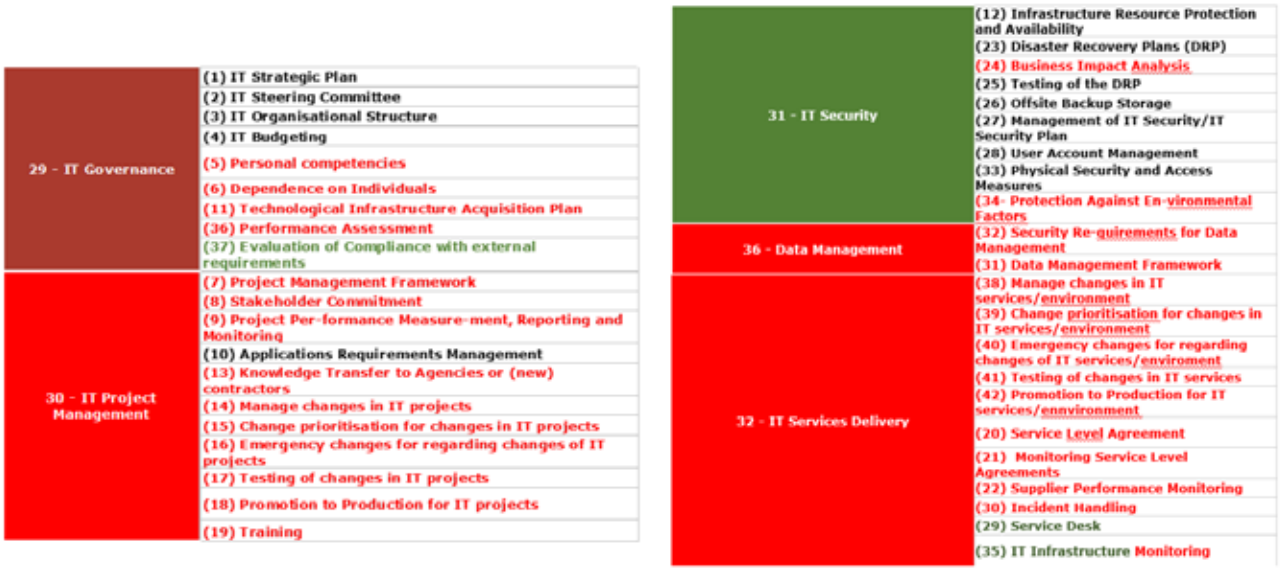
Strategic key area 2: Business continuity

Strategic key area 3: Service delivery and support service

Progress has of course been made on these three strategic key areas, but remains manifestly inadequate at the moment.

IT risks: current situation

The majority of risks are still present and still require mitigation.



The IT risks in red are still problematic.
IT risks in black have seen a lowering of their level (Impact*Probability), but further measures remain to be taken.
IT risks in green have been brought down to an acceptable level.

IT Governance

The IT Strategy Group has been set up and its initial work is promising, but we are still only at the beginning. Moreover, this group's work demands huge investment on the part of the Head of the ICT Unit, who will not be able to continue working under such pressure for much longer.

Project methodology

An attempt at implementation of PRINCE2 project methodology was made within the ICT and Statistics Unit only, meaning that it was directly confronted with the rest of the business, which did not understand or accept this new formalism and was therefore opposed to it. The decision on implementation of such a methodology must come from the European Schools' top management, and not from the ICT Unit. It must also be accepted by everyone. This issue is currently being addressed by the IT ADM Strategy Group.

IT Security

This is undoubtedly the area in which the most progress has been made, as alongside the disastrous IT infrastructure of 2012 (eursc.org domain), a new professional, reliable, stable and secure IT

infrastructure was created from scratch (EURSCEU domain). However, the ORG environment is still in production and represents a major security vulnerability for the EURSCEU domain. In fact, several applications and servers have still not been migrated.

Data management

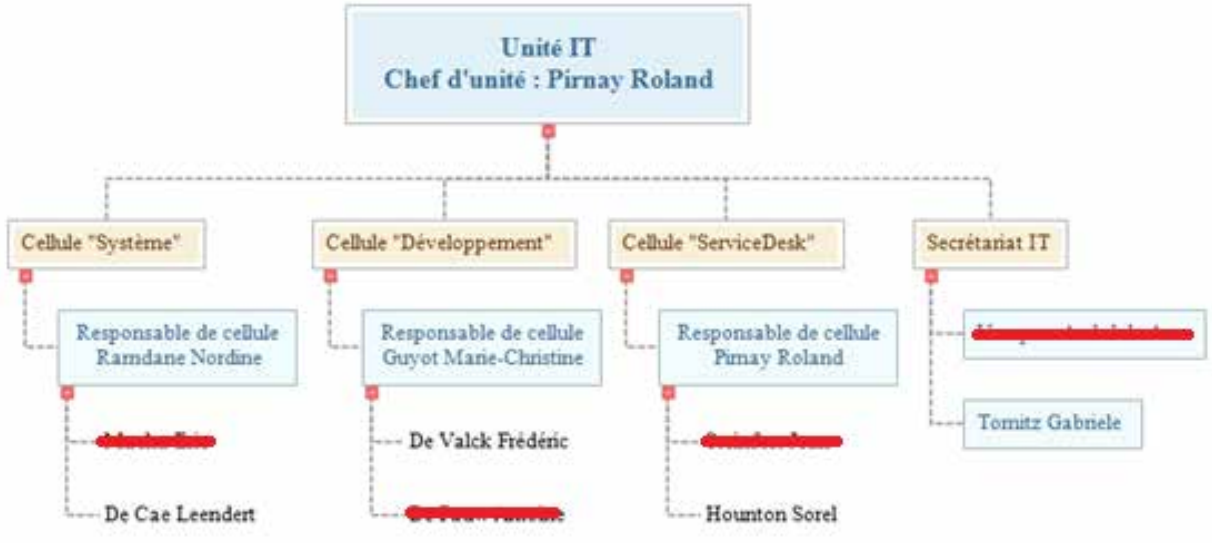
The amount of work still to be done is huge, despite the efforts made previously (Memo on data protection, Memo on IT identity management of the European Schools, etc.). A classification of data should be produced, followed by the formulation of clear rules about data management according to their classification.

Provision of ICT services

In 2015, the ICT and Statistics Unit was reorganised in order to create a 'Service Desk' sub-unit. The positive effects of this reorganisation were quickly felt but there are still many objectives to be achieved in this area in order to be able to provide an acceptable service.

ICT and Statistics Unit in 2016

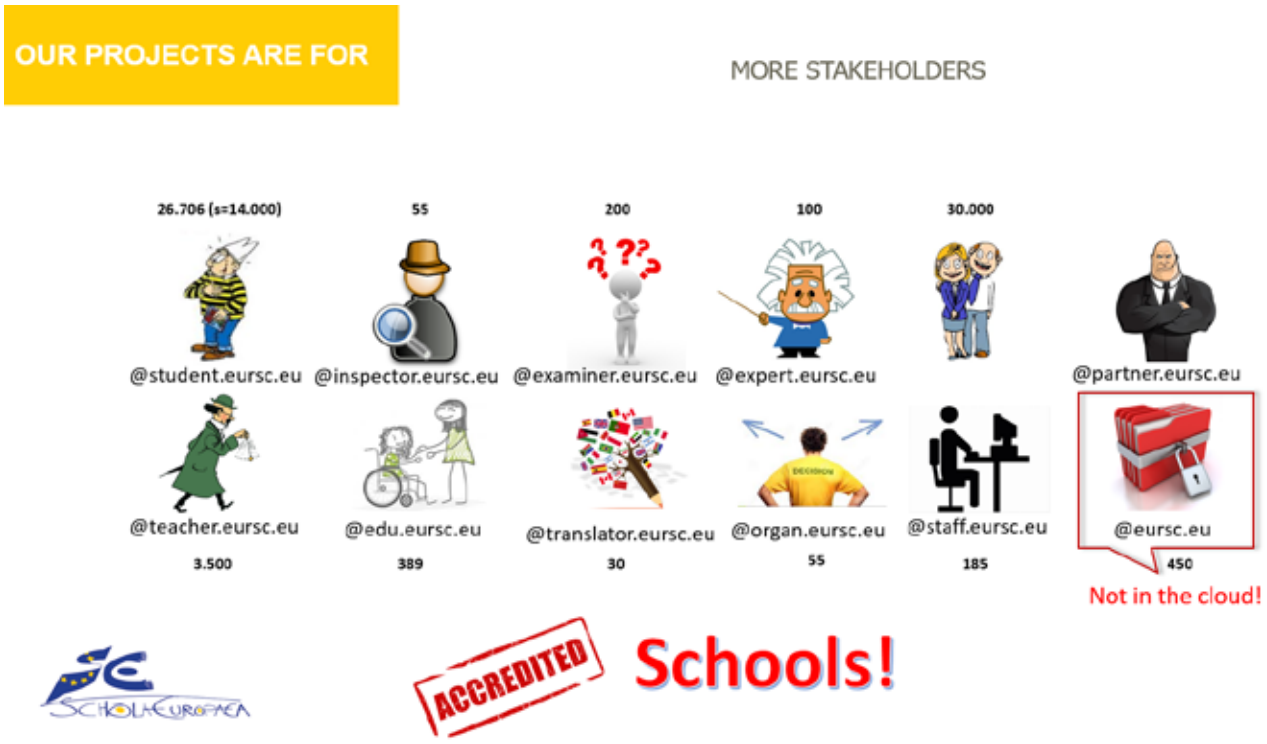
As a reminder, the unit comprises eight computer engineers, 1.3 secretaries and the head of unit.



Year after year, the workload has grown steadily and well-being at work has steadily worsened. The pressure has become huge and unsustainable. The ICT and Statistics Unit lost four of its members in 2016! That amounts to almost 40% of its staff. Naturally, in each case, emergency cover was found, in the form of temporary staff, interns, students, etc., all of whom proved to be efficient

workers. But we have now reached the point where other engineers will leave unless we respond quickly by announcing in the very short term a better future for all. The European Schools naturally rely on their staff's maximum commitment, but unacceptable limits were exceeded, some ICT and Statistics Unit members feeling exploited by the system as it operates today (see Risk 5 of the IAS analysis, the level of which has risen significantly). It should be pointed out that the remaining members of staff each have professional expertise which is also specific to the European Schools and which only they have. In fact, there is virtually no back-up in the ICT and Statistics Unit. Dependence on individuals is very great (this is an IT risk, whose level has steadily increased – see Risk 6 of the IAS analysis). There is a willingness to produce documentation, but it remains incomplete each time and is never tested because of lack of time.

The 'clients' of the ICT and Statistics Unit have steadily increased in number. Approximately 35 000 people use the services provided by or through the ICT and Statistics Unit. The local ICT teams (about 28 ICT colleagues) provide first level support for the administrative staff, the pedagogical staff, the students and the parents. But this is still clearly inadequate.



Delegation to the schools' local ICT teams

The ICT projects developed and deployed by the OSGES aim to provide consistent, standardised, secure, regulation-compliant services common to all the schools. One of the particular consequences of provision of these services will be to reduce the workload at local level. There should be reflection on the feasibility of making use of that extra time to include the schools' ICT technicians in the management and maintenance of these services and/or in the devising and development of new projects.

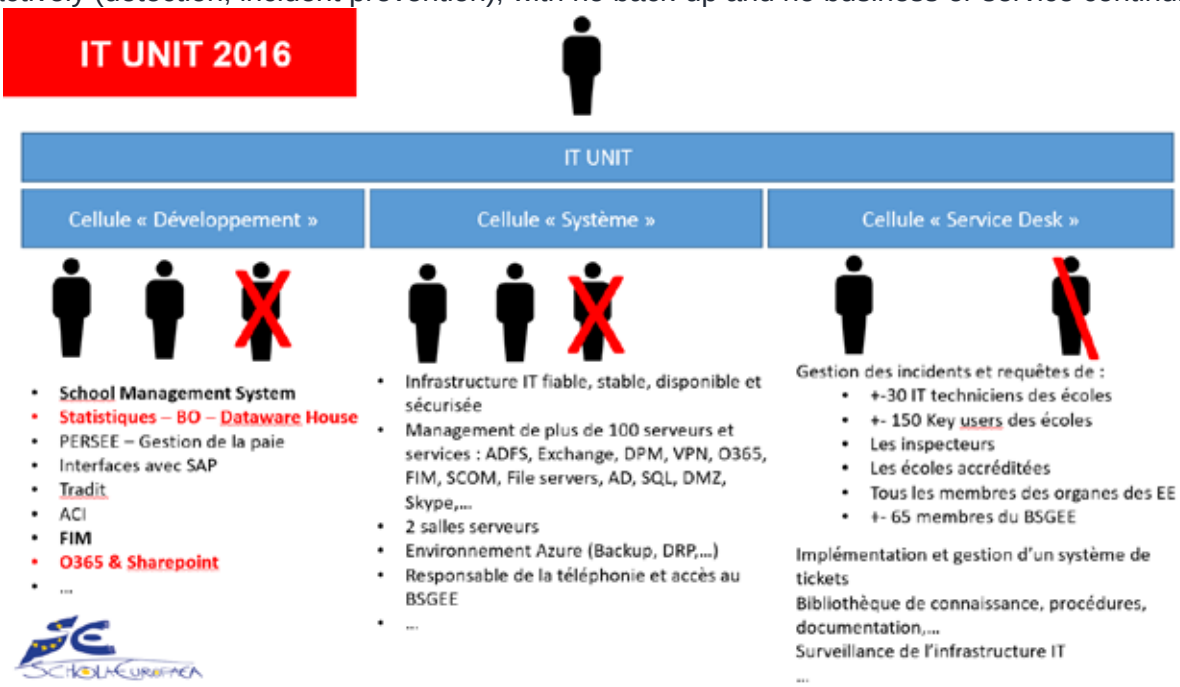
There should also be greater delegation to the schools to enable them become more independent and autonomous in routine day-to-day management of their IT infrastructure (Services, Network, Hardware, etc.). This would also enable the central ICT Unit's workload to be reduced. But as matters stand at present, delegation can only be very limited because the European Schools' current system is not ready for such a change.

These reflections are the subject of another document which will be presented to the Board of Governors by the IT ADM Strategy Group.

Application for the creation of additional posts for the ICT and Statistics Unit

The official structure of the ICT and Statistics Unit is currently as follows:

Two of the Unit's eight computer engineers are heads of sub-units. That means that they have managerial tasks to perform within their sub-unit. But the truth is that they are so overloaded with work that they simply do not have the time to take on those tasks and responsibilities. Thus, instead of being the right-hand men and women of the Head of Unit, they work 100% on operational tasks. That is also the case of the Head of Unit, who regularly has to replace a member of staff from the 'Development' or the 'Service Desk' sub-unit, at the expense of his own duties. Hence, there is a team that works almost solely on operational and response (incident handling) tasks and not at all proactively (detection, incident prevention), with no back-up and no business or service continuity.



Strengthening of the 'Development' sub-unit

At the moment it comprises a sub-unit and two developers.
Bearing in mind that management and maintenance of the SMS application is a full-time job;
that the active management of identities in the Active Directory (FIM) project and use and development of O365 also take up one full-time post;
that management of the applications for seconded staff's payroll management, for the SAP and banks interfaces, for the CEA, etc., also easily take up one full-time post,
it is currently very difficult to find time (unless overtime is worked) to deal with the statistics platform, deployment of the administrative collaboration platform, to manage and control the databases, etc

Within the framework of the 'Master Data Management' and the 'Statistics Platform' projects, two additional and closely related posts are required and therefore requested:

- **A 'Data Administrator'** who will be in charge of devising the performance, the control, the use and the security of all the databases (mainly the SQL databases). He or She would also need to work in close cooperation with the sub-unit's developers on the carrying out of new projects.
  What is involved in particular is bringing the European Schools' data protection into line with the national legislation on the subject (see Risk 37).
- **A 'Business Analyst/Data Warehouse specialist'** to manage the statistics platform, which calls on its own for a full-time post. This is about meeting the needs of the European Schools (see Risk 10), to ensure that members of staff have access only to the data that they need to work (see Risks 28 and 37) and to provide the training sessions required for the different stakeholders (see Risk 19)

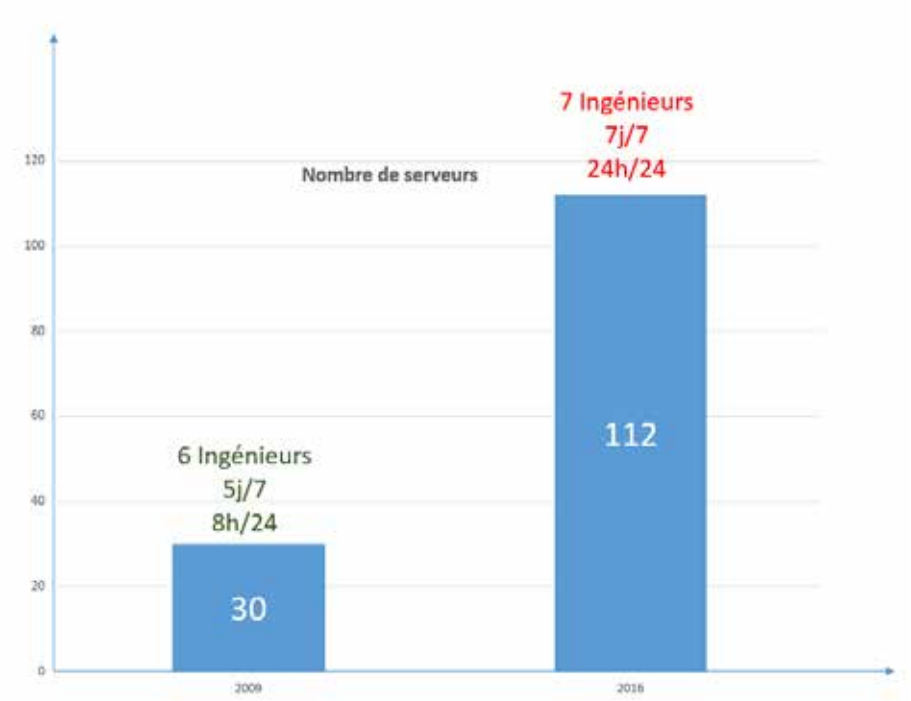
Moreover, in order to respond to the risks related to project management (Risks 9, 10, 17, etc.) and also Risk 6 (Dependence on individuals) and Risk 36 (IT performance evaluation), it is requested that the following additional post be granted:

- A '**Development Lead & Technical Analyst**' whose main tasks will be to coordinate and manage the two developers, to ensure that schedules are respected, that the projects really deliver what is expected, etc. He or She will also need to choose the technologies best suited to the needs expressed during the initiation of a project by the business analyst (head of sub-unit) and to transcribe the needs in a technical way, which he or she will then convey to the developers. He or She will need to be a developer himself or herself. This post should also enable the head of the sub-unit to have more time, so that she would thus be better able to perform her managerial tasks and responsibilities.

Strengthening of the 'System' sub-unit

It is currently composed of one head of sub-unit and two 'Networks and System Administrators', each with their own specialities. At the present time the European Schools use new technologies that we do not have and it is impossible in the current circumstances to ask the team to learn and manage them. It is mainly a question of Skype for Business, ForeFront identity Manager (FIM) and Microsoft SharePoint.
The management and monitoring of Microsoft SharePoint (collaboration platform, website www.eursc.eu) alone will require a full-time post when all the stakeholders start using this platform.

The number of servers is steadily increasing and now exceeds 120 units. In addition, there is the fact that the staff have to be available 24/7 to handle incidents.



In order to respond to

- Risk 5 (personal competencies), so as to retain in the European Schools true IT specialists who can no longer tolerate this situation,
- Risk 6 (dependence on individuals), as numerous technologies are used by the European Schools and cannot be mastered by everyone,
- Risks 20 (Service Level Agreement) and 38 to 42 (provision of services),
- the many risks related to project management calling for more formalism and time,

it is requested that the 'System' sub-unit be granted a post of '**Networks and System Administrator**', specialising in two of the following technologies: Skype for Business, SharePoint and FIM.
This strengthening would also allow the head of the 'System' sub-unit to perform his managerial tasks and responsibilities.

Strengthening of the 'Service Desk' sub-unit

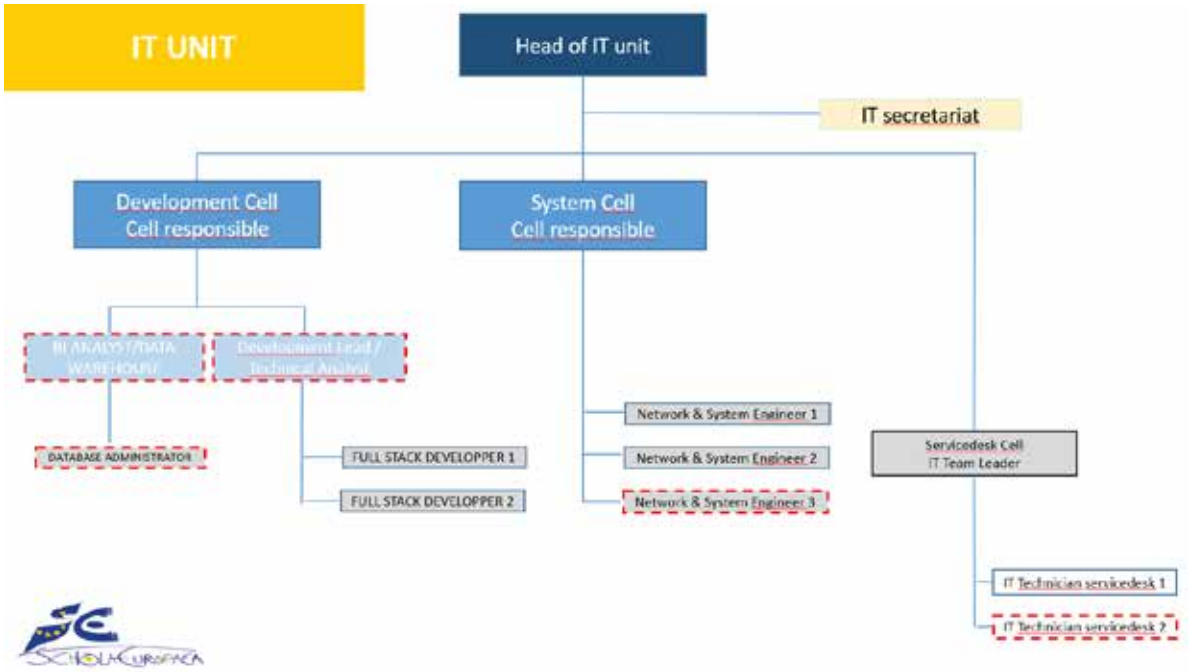
It is currently composed of two members. This is obviously insufficient to cope with this sub-unit's workload, whether it be incident handling or service provision. At present, the sub-unit works almost solely by responding (incident handling, request management) and never by monitoring and checking the IT infrastructure.

It is therefore a question mainly of the following real risks:

- 20 and 21 as regards Service Level Agreements,
- 30 regarding incident handling,
- 35 for IT infrastructure monitoring, which is non-existent to date despite the tools in place (SCOM, OMS) because of a lack of staff to use them..

It is also a question of improving communication with the schools, which complain a great deal about the quality of the services provided by this sub-unit (no response, too long to resolve an issue, lack of documentation, etc.).

It is requested that an additional post of '**Service Desk technician**' be granted for the 'Service Desk' sub-unit of the OSGES's ICT Unit.



Financial impact

Despite the current unfavourable climate, five additional posts are requested to prevent the worst from happening and to enable the ICT and Statistics Unit to respond to the requirements and needs of the European Schools, whether in terms of services or of IT security. Until 2012, the European Schools' IT was neglected. Subsequently, major investments were made in order to rebuild a proper IT infrastructure. But at present, the human resources available are no longer sufficient to cope with the workload, to provide a decent service and to guarantee an acceptable level of IT security.

Name of post		**Annual cost**
1 'Data administrator'		+- €75 000
1 'Business Analyst/Data Warehouse specialist'		+- €75 000
1 'Development Lead & Technical Analyst'		+- €75 000
1 'Network and System administrator'		+- €75 000
1 'Service Desk technician'		+- €65 000
	Total	+- €365 000

Distribution of ICT hardware in the schools on 31/12/2016

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

		Matériel dans les classes			Matériel dans les classes ICT			Matériel hors classes			Pédagogique			Administratif			TOTAL		
Ecole	Niveau	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI	PC	BEA	TBI
Alicante	Mat. & Prim.	41	26	24	43	2	24	11	0	0	*95*	*28*	*48*						
	Secondaire	46	43	42	68	3	2	29	5	0	*143*	*51*	*44*				275	81	93
	Total	**87**	**69**	**66**	**111**	**5**	**26**	**40**	**5**	**0**	**238**	**79**	**92**	**37**	**2**	**1**			
Bergen	Mat. & Prim.	35	17	16	52	1	0	1	0	0	*88*	*18*	*16*						
	Secondaire	44	41	32	42	2	0	26	0	0	*112*	*43*	*32*				224	61	48
	Total	**79**	**58**	**48**	**94**	**3**	**0**	**27**	**0**	**0**	**200**	**61**	**48**	**24**	**0**	**0**			
Brussels I	Mat. & Prim.	131	69	92	34	8	8	21	0	0	*186*	*77*	*100*						
	Secondaire	181	137	63	90	0	4	28	0	0	*299*	*137*	*67*				550	215	167
	Total	**312**	**206**	**155**	**124**	**8**	**12**	**49**	**0**	**0**	**485**	**214**	**167**	**65**	**1**	**0**			
Brussels II	Mat. & Prim.	105	105	65	100	1	1	15	2	1	*220*	*108*	*67*						
	Secondaire	110	110	45	165	3	0	49	1	0	*324*	*114*	*45*				595	224	112
	Total	**215**	**215**	**110**	**265**	**4**	**1**	**64**	**3**	**1**	**544**	**222**	**112**	**51**	**2**	**0**			
Brussels III	Mat. & Prim.	81	59	59	30	1	1	6	1	1	*117*	*61*	*61*						
	Secondaire	131	103	27	89	4	4	37	1	0	*257*	*108*	*31*				419	170	92
	Total	**212**	**162**	**86**	**119**	**5**	**5**	**43**	**2**	**1**	**374**	**169**	**92**	**45**	**1**	**0**			
Brussels IV	Mat. & Prim.	70	68	68	0	0	0	16	0	0	*86*	*68*	*68*						
	Secondaire	101	101	0	73	0	0	16	0	0	*190*	*101*	*0*				298	171	68
	Total	**171**	**169**	**68**	**73**	**0**	**0**	**32**	**0**	**0**	**276**	**169**	**68**	**22**	**2**	**0**			
Culham	Mat. & Prim.	0	0	0	0	0	0	0	0	0	*0*	*0*	*0*						
	Secondaire	47	47	18	34	2	4	40	1	0	*121*	*50*	*22*				141	54	22
	Total	**47**	**47**	**18**	**34**	**2**	**4**	**40**	**1**	**0**	**121**	**50**	**22**	**20**	**4**	**0**			
Francfort	Mat. & Prim.	77	20	27	49	1	1	7	0	0	*133*	*21*	*28*						
	Secondaire	72	35	33	55	3	1	43	0	0	*170*	*38*	*34*				340	60	62
	Total	**149**	**55**	**60**	**104**	**4**	**2**	**50**	**0**	**0**	**303**	**59**	**62**	**37**	**1**	**0**			
Karlsruhe	Mat. & Prim.	60	7	26	25	1	1	60	2	0	*145*	*10*	*27*						
	Secondaire	91	41	22	56	3	2	51	5	0	*198*	*49*	*24*				383	62	51
	Total	**151**	**48**	**48**	**81**	**4**	**3**	**111**	**7**	**0**	**343**	**59**	**51**	**40**	**3**	**0**			
Luxembourg I	Mat. & Prim.	101	67	68	50	2	0	11	6	4	*162*	*75*	*72*						
	Secondaire	158	180	95	149	7	1	32	3	0	*339*	*190*	*96*				565	269	170
	Total	**259**	**247**	**163**	**199**	**9**	**1**	**43**	**9**	**4**	**501**	**265**	**168**	**64**	**4**	**2**			
Luxembourg II	Mat. & Prim.	116	78	78	101	4	4	9	12	12	*226*	*94*	*94*						
	Secondaire	135	122	122	184	8	8	44	4	2	*363*	*134*	*132*				712	239	227
	Total	**251**	**200**	**200**	**285**	**12**	**12**	**53**	**16**	**14**	**589**	**228**	**226**	**123**	**11**	**1**			
Mol	Mat. & Prim.	30	30	22	31	1	1	20	1	0	*81*	*32*	*23*						
	Secondaire	48	48	33	56	3	3	25	2	0	*129*	*53*	*36*				234	88	61
	Total	**78**	**78**	**55**	**87**	**4**	**4**	**45**	**3**	**0**	**210**	**85**	**59**	**24**	**3**	**2**			
Münich	Mat. & Prim.	113	51	48	48	3	2	13	2	0	*174*	*56*	*50*						
	Secondaire	93	73	56	69	4	4	130	7	3	*292*	*84*	*63*				549	144	114
	Total	**206**	**124**	**104**	**117**	**7**	**6**	**143**	**9**	**3**	**466**	**140**	**113**	**83**	**4**	**1**			
Varese	Mat. & Prim.	58	38	39	15	1	0	4	3	0	*77*	*42*	*39*						
	Secondaire	85	64	31	55	3	0	27	0	0	*167*	*67*	*31*				282	109	70
	Total	**143**	**102**	**70**	**70**	**4**	**0**	**31**	**3**	**0**	**244**	**109**	**70**	**38**	**0**	**0**			
Totals	Mat. & Prim.	1023	640	612	643	28	42	228	28	17	1790	690	693						
	Secondaire	1,342	1,145	619	1,185	45	33	577	29	5	3104	1219	657	673	38	7	5567	1947	1357
	Total	**2365**	**1785**	**1231**	**1828**	**73**	**75**	**805**	**57**	**22**	**4894**	**1909**	**1350**						

Table 1 – ICT inventory of the schools on 31/12/2016

School	Level	Number of pupils 2016	Pedagogical hardware 2016			Number of pupils per device 2016		
			PCs	Beamers	IWB	PCs	Beamers	IWB
Alicante	Nurs. & Prim.	475	*95*	*28*	*48*	*5.0*	*17.0*	*9.9*
	Secondary	535	*143*	*51*	*44*	*3.7*	*10.5*	*12.2*
	Total	**1010**	**238**	**79**	**92**	**4.2**	**12.8**	**11**
Bergen	Nurs. & Prim.	224	*88*	*18*	*16*	*2.5*	*12.4*	*14*
	Secondary	302	*112*	*43*	*32*	*2.7*	*7.0*	*9.44*
	Total	**526**	**200**	**61**	**48**	**2.6**	**8.6**	**11**
Brussels I	Nurs. & Prim.	1652	*186*	*77*	*100*	*8.9*	*21.5*	*16.5*
	Secondary	1846	*299*	*137*	*67*	*6.2*	*13.5*	*27.6*
	Total	**3498**	**485**	**214**	**167**	**7.2**	**16.3**	**20.9**
Brussels II	Nurs. & Prim.	1391	*220*	*108*	*67*	*6.3*	*12.9*	*20.8*
	Secondary	1665	*324*	*114*	*45*	*5.1*	*14.6*	*37*
	Total	**3056**	**544**	**222**	**112**	**5.6**	**13.8**	**27.3**
Brussels III	Nurs. & Prim.	1418	*117*	*61*	*61*	*12.1*	*23.2*	*23.2*
	Secondary	1623	*257*	*108*	*31*	*6.3*	*15.0*	*52.4*
	Total	**3041**	**374**	**169**	**92**	**8.1**	**18.0**	**33.1**
Brussels IV	Nurs. & Prim.	1364	*86*	*68*	*68*	*15.9*	*20.1*	*20.1*
	Secondary	1339	*190*	*101*	*0*	*7.0*	*13.3*	*0*
	Total	**2703**	**276**	**169**	**68**	**9.8**	**16.0**	**39.8**
Culham	Nurs. & Prim.	0	*0*	*0*	*0*	*0.0*	*0.0*	*0*
	Secondary	390	*121*	*50*	*22*	*3.2*	*7.8*	*17.7*
	Total	**390**	**121**	**50**	**22**	**3.2**	**7.8**	**17.7**
Frankfurt	Nurs. & Prim.	774	*133*	*21*	*28*	*5.8*	*36.9*	*27.6*
	Secondary	691	*170*	*38*	*34*	*4.1*	*18.2*	*20.3*
	Total	**1465**	**303**	**59**	**62**	**4.8**	**24.8**	**23.6**
Karlsruhe	Nurs. & Prim.	410	*145*	*10*	*27*	*2.8*	*41.0*	*15.2*
	Secondary	427	*198*	*49*	*24*	*2.2*	*8.7*	*17.8*
	Total	**837**	**343**	**59**	**51**	**2.4**	**14.2**	**16.4**
Luxembourg I	Nurs. & Prim.	1764	*162*	*75*	*72*	*10.9*	*23.5*	*24.5*
	Secondary	1496	*339*	*190*	*96*	*4.4*	*7.9*	*15.6*
	Total	**3260**	**501**	**265**	**168**	**6.5**	**12.3**	**19.4**
Luxembourg II	Nurs. & Prim.	1245	*226*	*94*	*94*	*5.5*	*13.2*	*13.2*
	Secondary	1133	*363*	*134*	*132*	*3.1*	*8.5*	*8.58*
	Total	**2378**	**589**	**228**	**226**	**4.0**	**10.4**	**10.5**
Mol	Nurs. & Prim.	325	*81*	*32*	*23*	*4.0*	*10.2*	*14.1*
	Secondary	415	*129*	*53*	*36*	*3.2*	*7.8*	*11.5*
	Total	**740**	**210**	**85**	**59**	**3.5**	**8.7**	**12.5**
Munich	Nurs. & Prim.	1035	*174*	*56*	*50*	*5.9*	*18.5*	*20.7*
	Secondary	1278	*292*	*84*	*63*	*4.4*	*15.2*	*20.3*
	Total	**2313**	**466**	**140**	**113**	**5.0**	**16.5**	**20.5**
Varese	Nurs. & Prim.	594	*77*	*42*	*39*	*7.7*	*14.1*	*15.2*
	Secondary	727	*167*	*67*	*31*	*4.4*	*10.9*	*23.5*
	Total	**1321**	**244**	**109**	**70**	**5.4**	**12.1**	**18.9**
Totals	Nurs. & Prim.	12671	1790	690	693	7.1	18.4	18.3
	Secondary	13867	3104	1219	657	4.5	11.4	21.1
	Total	**26538**	**4894**	**1909**	**1350**	**5.4**	**13.9**	**19.7**

Table 2 – Pedagogical hardware rates on 31/12/2016

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. These three averages seem to have stabilised.

School	Pupils per PC
Karlsruhe	2.5
Bergen	3.2
Culham	3.5
Luxembourg II	3.7
Mol	4.2
Alicante	4.2
Munich	4.8
Average	**5.2**
Brussels II	5.6
Luxembourg I	5.8
Frankfurt	5.9
Varese	5.9
Brussels IV	6.2
Brussels I	7.3
Brussels III	8.0

Schools	Pupils per beamer
Bergen	8.6
Mol	9.2
Culham	9.7
Luxembourg II	9.8
Luxembourg I	11.0
Alicante	12.8
Brussels IV	13.0
Varese	13.2
Average	**13.7**
Brussels II	14.1
Karlsruhe	14.6
Brussels I	15.8
Munich	17.3
Brussels III	17.4
Frankfurt	24.1

School	Pupils per IWB
Luxembourg II	9.8
Alicante	11.0
Bergen	11.5
Mol	12.6
Luxembourg I	17.5
Brussels III	18.1
Karlsruhe	18.4
Average	**20.2**
Varese	20.4
Culham	21.4
Munich	21.5
Brussels I	22.9
Frankfurt	25.8
Brussels II	28.0
Brussels IV	32.1

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

Table 4 shows the development of pupils per PC ratio over the last 11 years

	Development of the pupils/PC ratio										
School	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Alicante	7.2	5.6	5.4	5.4	5.2	4.8	4.7	4.4	4.1	4.1	**4.2**
Bergen	4	3.5	3.7	3.7	3.5	3.2	3.8	5.1	2.6	3.1	**2.6**
Brussels I	9.3	8.7	8.7	7.6	7.1	7.0	6.8	3.1	7.4	7.5	**7.2**
Brussels II	8.7	8.9	8	7.4	7.5	6.6	6.8	6.5	5.7	5.7	**5.6**
Brussels III	8.1	7.8	7.8	9	8.4	8.3	8.2	6.3	7.9	8.2	**8.1**
Brussels IV		4.7	7.7	7.8	6.1	6.4	6.5	8.1	6.8	6.9	**9.8**
Culham	4	5.3	5.6	4.7	4.5	4.2	4.2	4.9	3.4	3.0	**3.2**
Frankfurt	5.6	6.6	6.5	6.4	6.5	6.8	6.4	4.2	5.9	5.9	**4.8**
Karlsruhe	4	4.1	4	3.8	3.2	3.6	3.1	6.0	2.6	2.3	**2.4**
Luxembourg I	6.6	7.9	7.2	7	6.6	6.7	5.1	3.0	5.9	6.1	**6.5**
Luxembourg II	7.6	7.4	7.3	8.1	8.3	16.2	3.5	5.1	3.8	4.0	**4.0**
Mol	3.6	3.8	4.3	4.5	4.5	4.7	4.0	3.4	3.2	4.3	**3.5**
Munich	7.4	6.5	7.5	3.7	6.6	6.1	5.4	4.0	4.7	4.8	**5.0**
Varese	7.1	7	7.1	6.6	6.3	6.6	6.1	4.8	6.2	5.8	**5.4**
Average	**6.4**	**6.3**	**6.8**	**6.2**	**6.2**	**6.5**	**5.3**	**5.1**	**5.0**	**5.1**	**5.2**

Table 4 – Development of the pupils/PC ratio

December inventory	PCs	Beamers	IWB
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

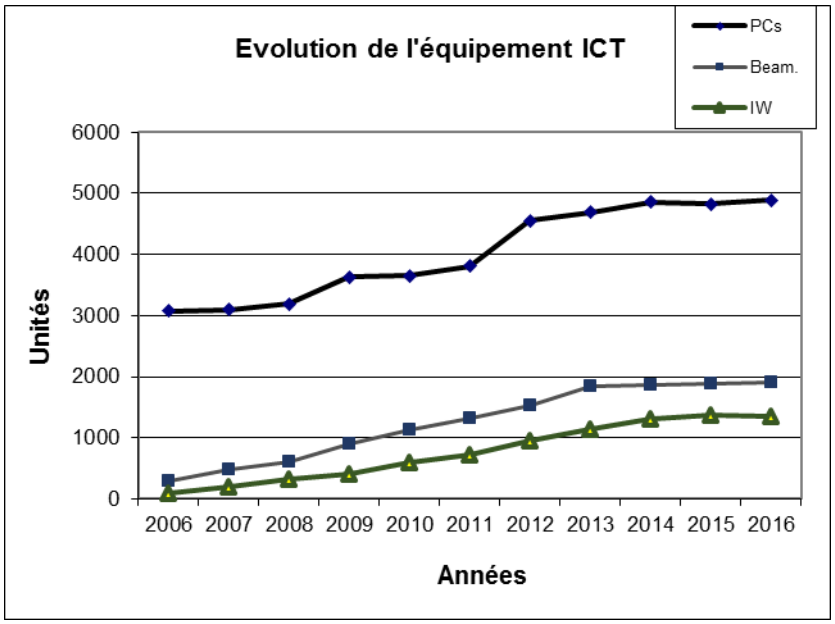
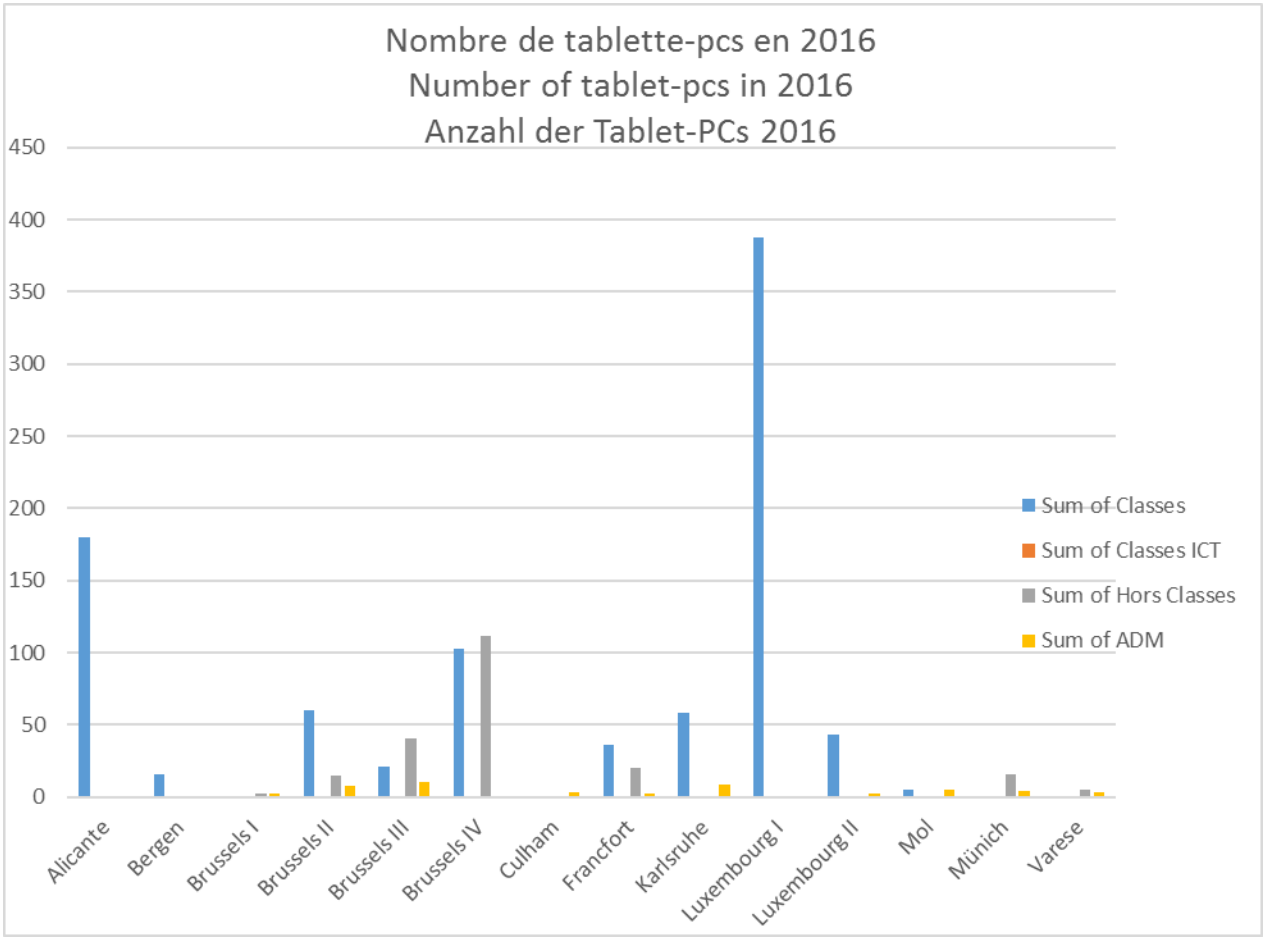


Table 5 – Development of the number of PCs, beamers and interactive whiteboards

		2015				2016			
School	Level	Classes	ICT classes	Outside Classes	ADM	Classes	ICT classes	Outside Classes	ADM
Alicante	Nurs. & Prim.	90	0	0	0	90	0	0	0
	Secondary	90	0	0		90	0	0	
	Total	**180**	**0**	**0**	**0**	**180**	**0**	**0**	**0**
Bergen	Nurs. & Prim.	16	0	0	0	16	0	0	0
	Secondary	0	0	0		0	0	0	
	Total	**16**	**0**	**0**	**0**	**16**	**0**	**0**	**0**
Brussels I	Nurs. & Prim.	1	0	2	0	1	0	2	2
	Secondary	0	0	2		0	0	0	
	Total	**1**	**0**	**4**	**0**	**1**	**0**	**2**	**2**
Brussels II	Nurs. & Prim.	30	0	0	7	30	0	0	8
	Secondary	33	0	0		30	0	15	
	Total	**63**	**0**	**0**	**7**	**60**	**0**	**15**	**8**
Brussels III	Nurs. & Prim.	0	0	32	10	0	0	29	10
	Secondary	0	0	32		21	0	12	
	Total	**0**	**0**	**64**	**10**	**21**	**0**	**41**	**10**
Brussels IV	Nurs. & Prim.	81	0	0	0	75	0	0	0
	Secondary	35	22	35		28	0	112	
	Total	**116**	**22**	**35**	**0**	**103**	**0**	**112**	**0**
Culham	Nurs. & Prim.	0	0	0	3	0	0	0	3
	Secondary	0	0	0		0	0	0	
	Total	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**
Frankfurt	Nurs. & Prim.	20	0	0	2	16	0	0	2
	Secondary	0	0	20		20	0	20	
	Total	**20**	**0**	**20**	**2**	**36**	**0**	**20**	**2**
Karlsruhe	Nurs. & Prim.	38	0	0	9	38	0	0	9
	Secondary	20	0	0		20	0	0	
	Total	**58**	**0**	**0**	**9**	**58**	**0**	**0**	**9**
Luxembourg I	Nurs. & Prim.	68	0	0	0	103	1	0	0
	Secondary	187	0	0		285	0	0	
	Total	**255**	**0**	**0**	**0**	**388**	**1**	**0**	**0**
Luxembourg II	Nurs. & Prim.	20	0	0	4	25	0	0	2
	Secondary	16	0	0		18	0	0	
	Total	**36**	**0**	**0**	**4**	**43**	**0**	**0**	**2**
Mol	Nurs. & Prim.	0	0	0	5	1	0	0	5
	Secondary	0	0	0		4	0	0	
	Total	**0**	**0**	**0**	**5**	**5**	**0**	**0**	**5**
Munich	Nurs. & Prim.	4	0	0	4	0	0	0	4
	Secondary	0	0	16		0	0	16	
	Total	**4**	**0**	**16**	**4**	**0**	**0**	**16**	**4**
Varese	Nurs. & Prim.	1	0	0	3	1	0	0	3
	Secondary	0	0	5		0	0	5	
	Total	**1**	**0**	**5**	**3**	**1**	**0**	**5**	**3**
Totals	Nurs. & Prim.	372	0	34	47	396	1	46	48
	Secondary	381	22	110		516	0	180	
	Total	**753**	**22**	**144**	**47**	**912**	**1**	**226**	**48**

Table 6 – Number of tablets-PCs per school in 2015 and 2016

For the first time, statistics on the purchase of tablets-PCs by the schools are being presented.



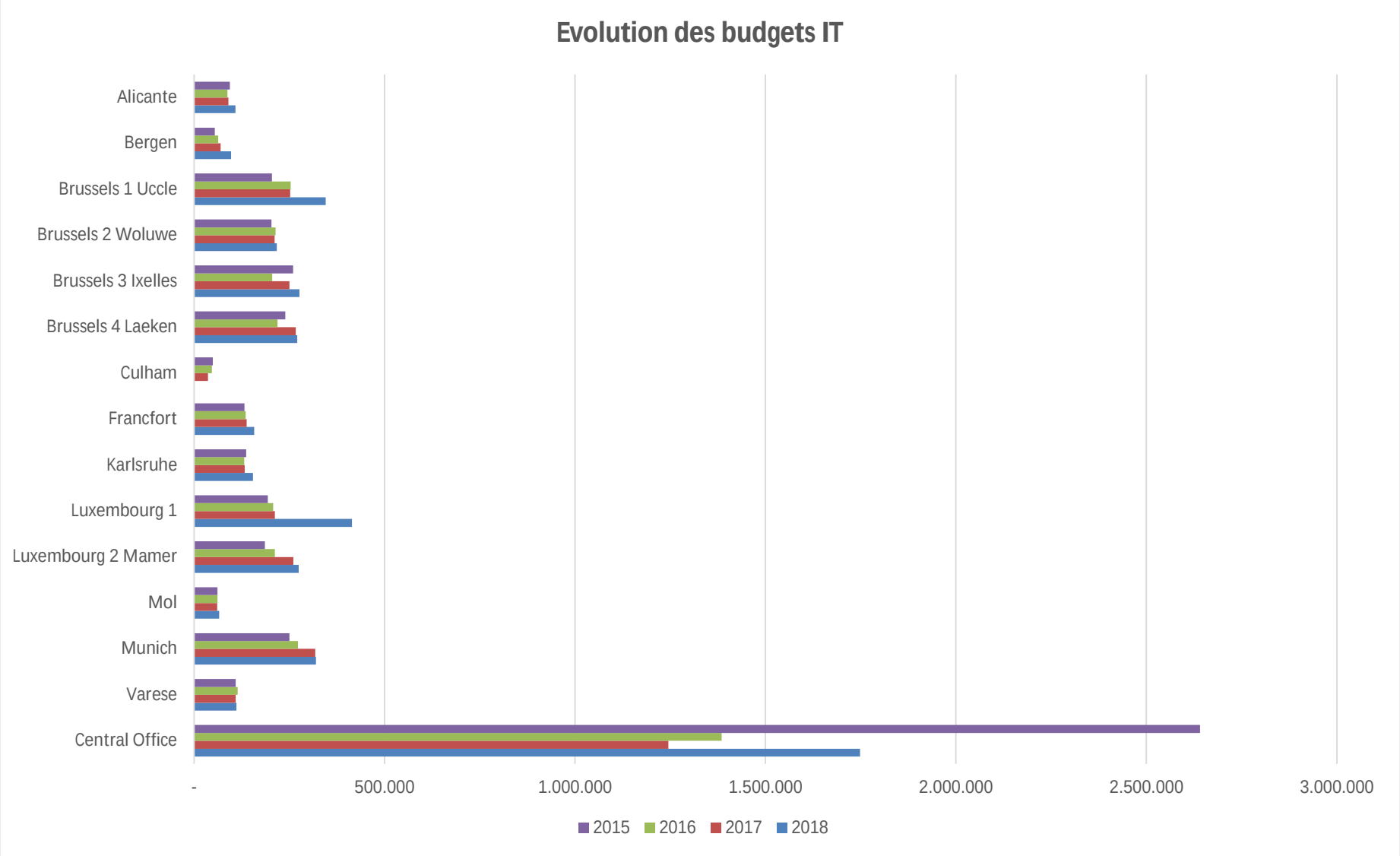
It can simply be noted that there are substantial differences between the schools.

Development of IT budgets

		2015		2016		2017	2018	
School	IT budget sub-categories	Budget	Committed Budget	Budget	Committed Budget	Budget	Requested Budget in Admin Board	Requested Budget in Budgetary Committee
Alicante		94,280	66,041	88,000	69,844	90,200	108,472	108,472
	ICT Pedagogy	68,300	54,218	67,500	60,375	66,700	67,250	67,250
	ICT Administration	18,000	2,793	18,500	8,009	18,500	35,222	35,222
	ICT Training	7,980	9,030	2,000	1,460	5,000	6,000	6,000
Bergen		54,187	60,257	63,137	115,493	69,887	97,000	97,000
	ICT Pedagogy	40,300	49,135	43,250	76,578	50,000	49,000	49,000
	ICT Administration	10,000	10,411	16,000	38,915	14,000	35,000	35,000
	ICT Training	3,887	711	3,887	-	5,887	13,000	13,000
Brussels 1 Uccle		204,650	117,488	253,800	246,012	252,100	345,750	345,750
	ICT Pedagogy	194,350	107,757	203,800	200,450	221,400	232,250	232,250
	ICT Administration	10,300	9,731	42,000	34,212	20,700	93,500	93,500
	ICT Training	-	-	8,000	11,350	10,000	20,000	20,000
Brussels 2 Woluwe		202,950	196,361	213,900	207,399	211,650	222,916	217,416
	ICT Pedagogy	192,000	191,321	197,400	197,400	186,950	190,150	184,650
	ICT Administration	5,450	5,040	6,500	-	14,700	15,000	15,000
	ICT Training	5,500	-	10,000	9,999	10,000	17,766	17,766
Brussels 3 Ixelles		259,780	151,487	205,008	157,695	250,800	276,950	276,950
	ICT Pedagogy	239,950	137,987	161,108	145,384	205,400	222,000	222,000
	ICT Administration	17,330	11,115	38,900	12,311	40,400	45,950	45,950
	ICT Training	2,500	2,385	5,000	-	5,000	9,000	9,000
Brussels 4 Laeken		239,692	190,156	219,005	212,821	267,206	270,688	270,688
	ICT Pedagogy	227,124	179,767	198,916	148,032	227,095	150,034	150,034
	ICT Administration	8,568	5,828	16,089	64,789	40,111	108,654	108,654
	ICT Training	4,000	4,561	4,000	-	-	12,000	12,000
Culham		49,630	37,778	47,050	25,816	36,800	-	-
	ICT Pedagogy	47,050	37,637	44,050	24,547	34,300	-	-
	ICT Administration	1,380	141	1,500	1,026	1,500	-	-
	ICT Training	1,200	-	1,500	243	1,000	-	-

		2015		2016		2017	2018	
School	IT budget sub-categories	Budget	Committed Budget	Budget	Committed Budget	Budget	Requested Budget in Admin Board	Requested Budget in Budgetary Committee
Francfort		132,650	111,949	135,550	111,525	138,350	174,622	157,822
	ICT Pedagogy	115,550	96,000	115,550	92,000	115,350	141,622	124,822
	ICT Administration	17,100	15,949	20,000	19,525	23,000	31,000	31,000
	ICT Training	-	-				2,000	2,000
Karlsruhe		137,000	158,220	132,000	144,750	133,000	155,000	155,000
	ICT Pedagogy	59,000	81,600	54,000	67,800	55,000	55,000	55,000
	ICT Administration	75,000	76,300	75,000	74,700	75,000	96,000	96,000
	ICT Training	3,000	320	3,000	2,250	3,000	4,000	4,000
Luxembourg 1		193,982	193,982	207,867	207,867	211,967	414,863	414,863
	ICT Pedagogy	155,720	155,720	196,967	196,967	196,967	367,593	367,593
	ICT Administration	23,262	23,262	-	-	15,000	20,150	20,150
	ICT Training	15,000	15,000	10,900	10,900	-	27,120	27,120
Luxembourg 2 Mamer		185,753	166,770	212,490	232,658	260,461	314,441	274,891
	ICT Pedagogy	138,850	138,392	150,650	162,585	194,883	243,923	204,373
	ICT Administration	29,903	27,428	53,340	69,393	56,865	58,518	58,518
	ICT Training	17,000	950	8,500	680	8,713	12,000	12,000
Mol		61,300	61,300	61,550	61,550	60,750	66,150	66,150
	ICT Pedagogy	54,300	54,300	54,550	54,550	53,750	53,900	53,900
	ICT Administration	3,000	3,000	3,000	3,000	3,000	8,250	8,250
	ICT Training	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Munich		250,250	248,340	273,000	265,255	318,000	320,000	320,000
	ICT Pedagogy	231,000	234,640	258,000	244,053	302,000	297,100	297,100
	ICT Administration	14,250	13,700	10,000	21,097	11,000	10,900	10,900
	ICT Training	5,000	-	5,000	105	5,000	12,000	12,000
Varese		109,536	109,536	114,744	114,744	109,420	111,500	111,500
	ICT Pedagogy	87,216	87,216	92,424	92,424	87,100	86,000	86,000
	ICT Administration	17,056	17,056	17,400	17,400	15,000	18,000	18,000
	ICT Training	5,264	5,264	4,920	4,920	7,320	7,500	7,500
Central Office		2,640,708	2,614,277	1,385,000	1,378,455	1,244,900	1,244,900	1,748,500
	ICT Administration	2,585,708	2,557,374	1,325,000	1,362,895	1,184,900	1,184,900	1,698,500
	ICT Training	55,000	56,903	60,000	15,560	60,000	60,000	50,000
TOTAL ALL ICT BUDGETS		4,816,348	4,483,942	3,612,101	3,551,884	3,655,491	4,123,252	4,565,002

		2015		2016		2017	2018	
School	IT budget sub-categories	Budget	Committed Budget	Budget	Committed Budget	Budget	Requested Budget in Admin Board	Requested Budget in Budgetary Committee
Alicante		94,280	66,041	88,000	69,844	90,200	108,472	108,472
Bergen		54,187	60,257	63,137	115,493	69,887	97,000	97,000
Brussels 1 Uccle		204,650	117,488	253,800	246,012	252,100	345,750	345,750
Brussels 2 Woluwe		202,950	196,361	213,900	207,399	211,650	222,916	217,416
Brussels 3 Ixelles		259,780	151,487	205,008	157,695	250,800	276,950	276,950
Brussels 4 Laeken		239,692	190,156	219,005	212,821	267,206	270,688	270,688
Culham		49,630	37,778	47,050	25,816	36,800	-	-
Francfort		132,650	111,949	135,550	111,525	138,350	174,622	157,822
Karlsruhe		137,000	158,220	132,000	144,750	133,000	155,000	155,000
Luxembourg 1		193,982	193,982	207,867	207,867	211,967	414,863	414,863
Luxembourg 2 Mamer		185,753	166,770	212,490	232,658	260,461	314,441	274,891
Mol		61,300	61,300	61,550	61,550	60,750	66,150	66,150
Munich		250,250	248,340	273,000	265,255	318,000	320,000	320,000
Varese		109,536	109,536	114,744	114,744	109,420	111,500	111,500
Central Office		2,640,708	2,614,277	1,385,000	1,378,455	1,244,900	1,244,900	1,748,500
TOTAL ALL ICT BUDGETS		4,816,348	4,483,942	3,612,101	3,551,884	3,655,491	4,123,252	4,565,002


Evolution des budgets IT
Alicante
Bergen
Brussels 1 Uccle
Brussels 2 Woluwe
Brussels 3 Ixelles
Brussels 4 Laeken
Culham
Francfort
Karlsruhe
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Luxembourg 2 Mamer
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