



The order behind the creative chaos

The news that it seems to have detected a Higgs boson particle last year was certainly cause for celebration at CERN, but the work of the leading particle physics laboratory is far from over. **Matt Bailey** spoke to **Reinoud Martens**, service manager of general services at the site about how ITSM underpins the whole massive organisation.



CERN is the European Organisation for Nuclear Research. Headquartered in Geneva, Switzerland, it is the world's leading and largest laboratory for particle physics. Last year CERN announced that it had perhaps fulfilled part of its founding brief when a boson with mass around 125 GeV, consistent with long-sought Higgs boson or 'God particle' as it is sometimes more sensationally called, was detected.

CERN employs just under 2400 staff, 1500 other members of personnel (fellows, etc.), and hosts some 10,000 visiting scientists and engineers, representing 608 universities and research facilities and 113 nationalities. Its main function is to provide the particle accelerators and other infrastructure needed for high-energy physics research - as a result, numerous experiments have been constructed at CERN following international collaborations. It is also the birthplace of the World Wide Web. The main site at Meyrin has a large computer centre containing powerful data-processing and storage facilities, primarily for experimental-data analysis; because of the need to make these facilities available to researchers elsewhere, it has historically been a major wide area networking hub.

At the heart of CERN, The Large Hadron Collider (LHC) lies in a tunnel 27km in circumference, 175m beneath the Franco-Swiss border near Geneva. It was built to test various predictions about high-energy physics, including testing for the existence of the hypothesized Higgs boson and of the large family of new particles predicted by the supersymmetry theory.

Supporting the biggest experiment in the world

Reinoud Martens, a man with a background in IT services, is service manager general services at CERN. He explains how the service organisation facilitates the 'non-experimental' IT at the facility and much more besides. "Firstly," he says, "I am not strictly speaking in the IT department, my focus is general services. In 2008 I was in the IT department when we started down the ITIL road, but then I moved across to general services which covers facilities, logistics, the fire brigade, the library, the dedicated CERN hotel, cars and buses as well as all the applications including administrative software, workflow software, project management software PLM (product lifecycle management) software, CAD/CAM, computerised maintenance management etc. The IT scope covers all the data bases, all the hardware, all the IT infrastructure, the desktops and the network etc. We have tens of thousands of servers - CERN is the birthplace of the

World Wide Web - and we are in the process of starting up another computer centre in Hungary which already has 20,000 computing cores and 5.5 peta bytes of storage installed, remotely managed from CERN.

"CERN is big," adds Martens. "There are over 650 buildings and over thousand cars. The 10,000 people visiting and working here every day need wifi and they need to go to the toilet, they use the infrastructure. Where I think we are still unique is that our approach was to roll out Service Management best practise across the board. In 2009 when we started there was certainly a certain amount of chaos and room for improvement. We had not adopted best practise as an organisation. There was a lack of coherence, so the idea was to use ITSM best practise beyond IT. Why not strip off the IT from ITSM and introduce service management best practise across the board?"

That project started early in 2009 and the first job was to create an inventory of services - a business service catalogue. "We designed the catalogue with two sides," explains Martens. "On one side we have all the tools which help to provide the services (the 'how') and on the other we have all the customer services as defined in ITIL. With the help of an ITIL black belt consultant we ended up with something that can be understood by both the specialists that have 30 years of CERN experience and know the three letter acronyms by heart, and the non-specialist users that don't care about the details, but just want to use the services. After the initial version covering general services was prepared towards the end of 2009 it took another six months to load IT on-board with the same concepts and ideas in early 2010. During this period we also defined a common request and incident process that covers the needs of both IT and non-IT services.

Software as a Service

At this stage Martens' department started looking for a product to support their project. "I was always interested in Software as a Service," he said, "because I thought it would be quicker and easier than the alternatives, so we were happy to be able to sign a deal with ServiceNow. There were a lot of people having mixed feelings about the idea to run such a critical tool 'in the cloud', but we managed to get consent.

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The Makings of a Modern City

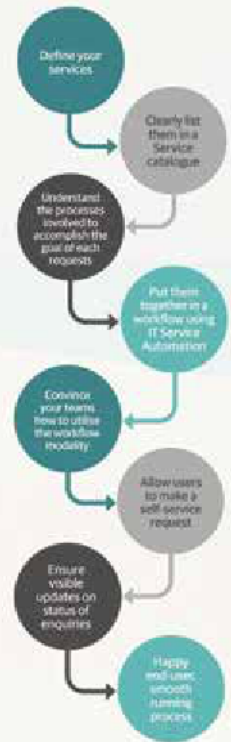
IT is increasingly playing a role in supporting business processes covering many functions of companies and organisations - HR and Finance to name just a couple. IT offers the means to create supporting tools for services that enable employees or customers to accomplish routine tasks, get information or deal with problems. And, once the framework and platform is available, tools to support the business, no longer always require the IT team for implementation. Business units are increasingly implementing their own solutions but IT Service Automation can act as the ideal system to manage the communication with the users and to business function requests together.

CERN is one of the most innovative organisations in the world and runs its entire city on ServiceNow. In the first 12 weeks of 2013, ServiceNow technology powers a range of requests across the CERN city:

Total Requests and Incidents:



How to Run a Modern City:



WE BUILT THIS CITY ON SERVICE AUTOMATION

Closing thoughts:

It's time for IT to focus on business services rather than infrastructure management. In order to drive efficiency and innovation, businesses and IT teams need to apply service automation to create self-service environments for employees, partners and customers, such as that delivered by ServiceNow.

service**now**

There was a certain level of distrust of anything 'not invented here' according to Martens, which is understandable given the formidable expertise on-site at CERN. Nevertheless the cloud-based approach was adopted and rolled out to all parts of the service organisation.

"Given the scope of the job, the Service Desk can't know everything about toilets, transport and IT upgrades for example, it's too much. Because of the Service Catalogue it works very well; we have over 300 services listed covering everything from the more traditional networks and video conferencing services to building facades and green space," says Martens.

"We need tools to hide all this complexity from the user," he explains. "So we have developed a service portal which allows users to do a

Google-like search so they go straight to where they need to go. They fill in a form for example if they want to rent a car and the request goes straight to a car rental service."

The organisation now has two and a half years of experience using the system. It went live with about 400 ITIL supporters, "Today we have over 900," says Martens, "so the scope has grown and we are alive a kicking today. It was a challenge but it works well."

The heart of the LHC

Like any other high technology undertaking, the data from CERN's experiments is processed often using custom software (after all, who better to write the number crunching programmes than the computer literate physicists running the experiments?) on a massive IT network. Reinoud Martens' general services team doesn't have responsibility for this part of CERN – the exotic software and hardware – "CERN is split into three parts," explains Martens. "There is the Physics part which is the core business of the organisation and runs the experiments; then we have an Accelerator and Technology sector which includes the technicians, engineers and the hardware of the accelerators. These are the two areas we do not cover. We bring order to the third sector which covers the total infrastructure: the buildings the roads and the commodity IT infrastructure, the networking and the desktop support.

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The CERN Computer Centre is in our scope, but not the very sophisticated hardware and computers that run next to the experiments.

"It isn't in our scope right now, but maybe one day it might be because it makes sense to have the one point of contact," predicts Martens. "Right now our scope is General Services, IT, Finance, HR and so on. The physicists are a group of 3,000 people and they have their own way of doing things, it's another culture. Some level of chaos with the Nobel Prize winning scientists is OK, probably necessary, they must be creative. Chaos in the Finance department is not so good. We try to introduce best practise across the CERN campus, but trying to introduce industry best practise to the physics research world is another challenge altogether!"

The underlying stability is much needed to allow the physicists the space and the freedom to do their work. "We don't want these guys wasting their time figuring out what to do if their toilet doesn't flush; they need to be spending their time doing their jobs, looking for the Higgs boson or whatever," says Martens.

Life with Service Automation

There are six operatives that take calls and receive tickets at the Service Desk they filter out the spam and check the tickets are correct and comprehensible before pushing them to the second line if they can't resolve them at the first line. "There is still a significant first line resolution," says Martens. "We also have a knowledge management system with 1500 articles which can also be consulted through the portal, so there is an element of self help too, but they run just like any other Service Desk really.

"We introduced a single point of contact for any problem. We have a number, the portal website and a physical location in a building where people can come, although not many do that," says Martens. "The process is coherent across all these routes and in the portal you can see how your ticket is progressing, whether it is an IT ticket or not. We are about 50:50 IT and non-IT at the moment. The strength of this is that we can pass tickets across boundaries whether

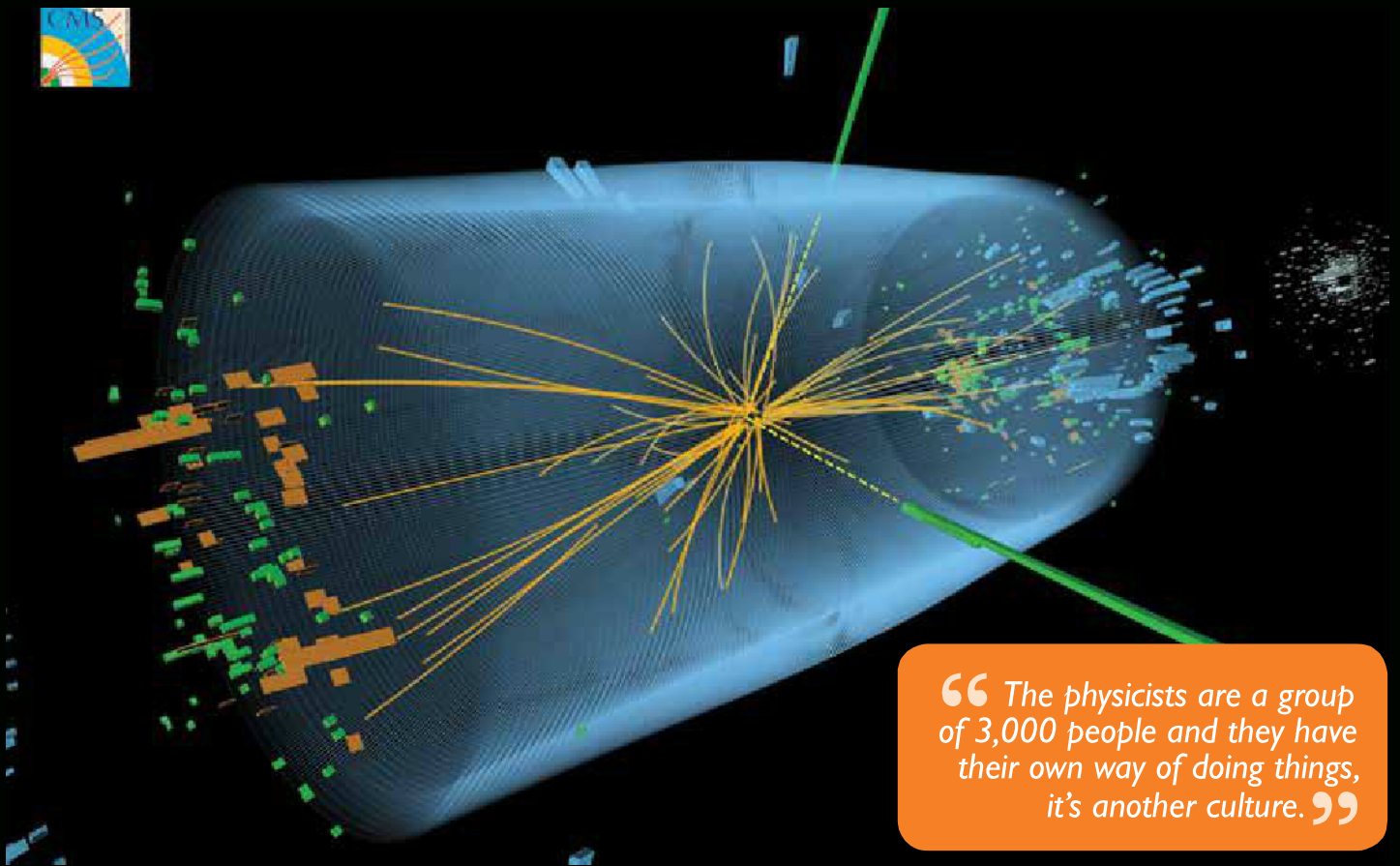
it's a mechanical problem or an electronic problem or an IT problem or whatever. If you have a single process and everybody uses the same tool then this kind of cooperation becomes possible.

"Everything goes through the same channel and this is why the Service Catalogue is at the heart of what we do," says Martens, "and that's why we insisted it was there from day one, fully supported, so we could use it to automate the assignment and reassignment of tickets."

BYOD

Just as in every other area of the IT world, bring your own device (BYOD) is bringing benefits and challenges to CERN, especially when the organisation has – at first glance at least – such tech-savvy people. "Some devices are supported and some are not supported," says Martens. "And that's where the scope definition has to be very clear – there are things we do and things we don't do. But if people come in with requests for a special device or particular equipment and we do not support it, we still register it and compile the statistics so we know that there have been so many requests to support a particular device and maybe we should think of supporting it. It is not necessarily true though that the staff are tech-savvy. The IT support staff certainly know their way around a PC, but the cleaning support staff or the bus drivers are not necessarily at all technically inclined and may need additional support and hand-holding."

The beauty of the CERN deployment of ServiceNow is that the technology allows the people to provide better support without them having to jump through so many hoops according to Michael Dortch, senior product marketing manager at the Software as a Service specialist. "It enables those users that are more technically savvy to support themselves more, but if someone needs to talk to a human being that same technology enables the person providing that support to find what they need quickly and to deliver a better experience. One way or another when the user accesses the Service Desk or goes to the portal directly the same underlying technology makes that experience more efficient and makes the user happier sooner, whether they go through a human being or not. That is



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something that we are seeing more and more of our clients taking advantage of. Our clients tell us over and over again that whether the support goes through a person or is provided directly, the users walk away feeling empowered."

Facing the future

Although Martens has the experimental hardware and software support in his long term sights, what other areas does he see for expansion of the General Services department?

"We have grown from 400 to the 950 supporters today and we intend to see if we can double this figure over the next three to four years," says Martens. "We want to grow in scope too, but not necessarily to the experimentalists – not unless they are eager to adopt our framework anyway. Maybe we will move first in to the accelerator part, they use electricity and they have cooling and heating equipment that needs to be supported, but it's more specific and maybe less standard equipment, they also have their own contracts right now, but the framework could very well be used to support them.

"We also want to grow the maturity of the individual support groups," adds Martens. "With hundreds of support teams, not all have the same maturity in terms of Service Management best practise so we have to coach these people to a higher level which is a lot of work. Finally we want to extend the number of processes we support from the library of best practise."

According to Martens no one has yet sent in the ticket 'Can you help me find the Higgs boson.' "That's why you need the Service Catalogue," he says, "so you can explain what you can expect and what you will not get. That's where it all started, with an inventory of what you are supposed to do so the expectations are clear."

This also absolves Martens for when the call comes through asking what to do about the wormhole that has just been created in the fabric of space/time; he can have a clear conscience when he passes it back to the physicists because it's not in the Service Catalogue.

Business Support or IT Support

Are you support the IT or the business? According to **Steve White** it is a crucial distinction...



“ You could define a very small set of Wildly Important Goals (which will be business support related) with your team. ”

the IT. They suggest that in five years, between 50 percent and 75 percent of the current support organisations will fold, support moved to people who support business.

One of the garages that I have used to get my cars repaired and serviced has stopped lending a pool car, which they say it's too expensive and awkward to run. Their ability to provide excellent mechanical and electrical expertise, and years of experience on that make of vehicle is still unquestioned. However, their decision has consequences...

What are the tell-tale signs of an IT department supporting IT and not the business? If success is measured in business terms, then they are on the right lines. If success is measured in internal, automatically calculated metrics, then they are not supporting the business - they are measuring their internal efficiency but not their value.

Some of the support clients I see are measured in business revenue, client or customer satisfaction, uptime availability, transaction volume support, support of the business through periods of peak trading or unexpectedly high volume processing.

Some are measured by number of rings before pickup, time to restore, cost per transaction. This is not wrong necessarily, but measuring only quantitatively will not drive business-supportive behaviour.

At a recent itSMF Round Table an industry expert suggested that while some support organisations understand how to support the business, some are continuing to support

Since January this year, my department has been experimenting with the concept from 'The 4 Disciplines of Execution' book. This is not a book review; I have not read the book. I am living through an implementation of the principals involved, which is being driven by a colleague of mine. Some aspects I found intensely annoying, and I could easily have disconnected from it in the early stages as it's a quite different way of being managed. I chose to grit my teeth and live through the 'change', and six months on I have seen the benefits in terms of engagement, clarity, focus and business results.

If you are currently supporting the IT for the company you are working for and you are in a position of power; and you care about the people who work for you, then I offer you something different. You could define a very small set of Wildly Important Goals (which will be business support related) with your team. Generate a causal tree of Lead Indicators (which will be quality and quantity indicators of supportive behaviours). Drive the game differently.

My local garage has chosen to support the vehicle and not the customer; and their value to me has dramatically reduced. Instead I'll be taking my vehicle to a garage further away which lends me a car. Their loss...

Contact Steve White at: stevescolumn@vital-mag.net