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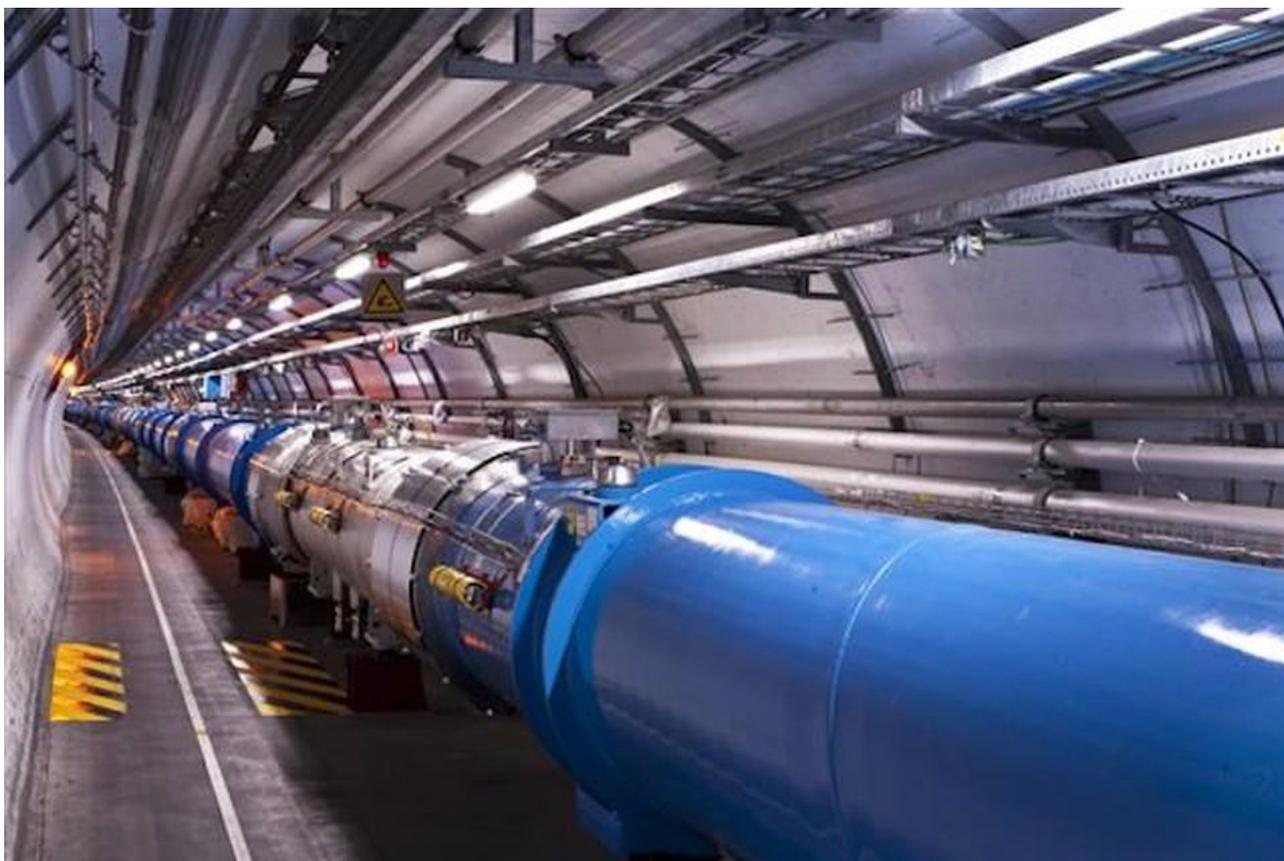
What Can 'Normal' Business Learn From CERN?



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A section of the Large Hadron Collider at CERN. WIKIPEDIA

Located somewhere on the outskirts of the Swiss city of Geneva, the CERN facility is known to most of us as the home of the Large Hadron Collider. This is the massive underground structure that particle physicists use to mimic the aftermath of the Big Bang in our quest to examine the origins of matter... and perhaps life itself.

CERN stands for Conseil Européen pour la Recherche Nucléaire in French, but it is also officially known as the European Organization for Nuclear Research. But (EONuR) obviously didn't make quite as good an acronym.

The facility has a wide operational remit, but so far it has famously discovered the **Higgs Boson** particle. We are truly on the way to unravelling just that little bit more of the elementary make up that composes our own planet and the rest of the universe.

So with all that operational excellence under its undeniably huge belt, what can CERN teach the business world?

Shorter, sharper... services

One of the defining characteristics of CERN is its staff base. While the facility has a good number of full time employees, many of the people found working at CERN on any given day are visiting postdoctoral researchers and other specialists brought on short-term contracts.

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In many ways, this short-term approach reflects the changing nature of work. Along with outsourcing and the so-called gig economy, there is a worldwide trend for freelancers and the self-employed to supply *just the work levels required* for any given project or task.

This is the service-centric economy that is also responsible for the birth of cloud computing. Why spend capital when you can hire it and remove that cost after the work is completed? Answer: you don't always have to now.

Agility for the unknown

There are business lessons around every corner at CERN. Not least of which is the proposition that we humans don't know much that much yet... so we should always prepare for the unexpected.

“What is visible when we look at stars, planets and galaxies only represents 5% of the universe. The other 95% is made up of matter and energy that we do not

know,” said Fabiola Gianotti in her role as director general of CERN, when [speaking at the World Economic Forum](#) in 2017.

This appreciation for the unknown factor is redolent of the thinking that has given rise to the [Agile manifesto](#). Created originally and primarily as a software application development methodology for to drive programmers, Agile has also been applied to wider business use cases. In the always-on world of web connected commerce we know that markets change more dynamically than ever before; being able to embrace change is fundamental.

“ According to the Agile manifesto itself, “[We should] welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.”

What if every business started to operate with an innate appreciation for the fact that 95% of market opportunity lies unknown? What if all business were run with a mission statement dedicated to finding the dark matter that exists in the unknown outer reaches of commerce? Then perhaps we could start to really ‘boldly’ go for once.

In practical real world terms, CERN works with many of the planet’s big name technology vendors to try and create IT systems to support its research. The CERN openlab is a research framework in which scientists and IT companies can work together.

Future-proofing the future

Of note is CERN openlab’s work database vendor Oracle to develop a high-performance cloud infrastructure capable of storing and analyzing vast quantities of data, such as that generated by the gigantic research infrastructures used at the laboratory to probe the origin of the universe.

Oracle says it is a symbiotic relationship. It can also make use of insights gained from the program to provide its customers with powerful future-proof cloud technologies.

“CERN openlab is a win-win project for everyone involved. It gives our collaborators a way to get valuable feedback by testing their solutions in one of the most complex and demanding technology environments,” said Eric Grancher, leader of CERN’s database services group. “We at CERN can assess the potential that new technologies have for future applications during the early phases of their development. In addition, CERN openlab provides a neutral scientific environment where businesses can engage in dialogue.”

If only all business relationships worked like this. As competing businesses, Company A could be testing its systems against Company B as both firms work together to create unity, secure interconnections and best practices. Yes so called [coopetition](#) exists, but not at every level.

Data management challenges

“For me, the CERN-centric lesson for business comes down to how to make data work for everyone across an organization. Data engineers, data scientists and business leaders all have different requirements when looking to derive value out of data, but data is usually siloed in different teams and systems creating a bottleneck,” said [David Wyatt](#), vice president for EMEA at big data processing company [Databricks](#).

Wyatt explains that CERN uses Apache Spark to process distributed data sets so that everyone can get value out of the data that the Large Hadron Collider provides.

Beyond Apache Spark, companies can use unified analytics platforms to make it easier to handle and derive insight out of data, regardless of where those individuals are across the organization. Are we hiding all the technical processes and data extraction and getting to the value in the data itself? Yes, it’s a good thing and that’s where all companies are looking to get to, says Wyatt.

CERN has also used Enterprise Asset Management (EAM) technologies from enterprise software company [Infor](#). Applied at CERN in the same way it is used in ‘normal’ business operations, Infor EAM is used to connect equipment, systems, and locations with an asset hierarchy

According to the company, Infor and CERN worked together to centralize both detailed records of a wide range of maintenance activities and procurement processes across an organization the size of a small town, including retail- and employee-centric stores, hotels and restaurants.

By working with Infor, CERN sought to minimize unscheduled accelerator downtime by effectively maintaining high tech equipment. The organization also needed a solution for maintaining technical infrastructure, including tunnels, caverns, roads, parking lots, electricity, water, cooling and ventilation systems, access control, machine tools, lifting equipment etc.

“ "Infor's asset management software helps CERN manage all maintenance activities for a wide array of equipment, from the Large Hadron Collider's magnets, to everyday infrastructure like elevators and fire extinguishers," said David Widegren, head of engineering process support, CERN.

The message from Infor is: if your business relies upon one or two pieces of main equipment 'kit' (and the Large Hadron Collider is one hell of a piece of main kit), then uptime is EVERYTHING.

A template for best practice?

So there's a lot of business-born technology being deployed at CERN. Does that mean - just because these guys are rocket scientists - that we should view all CERN's tech deployments as shining examples of best practice and product excellence?

The answer is no, not necessarily.

Although the tech vendors fortunate enough to win contracts with CERN will all look to create marketing materials out of their deals, the devil will always rest in the implementation detail. Good technology applied badly is bad technology, or a bad use case at the very least.

Don't let that stop you following what CERN does, what CERN buys and what CERN discovers... just remember to look to the stars for your own inspiration too.

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