What pro cycling can teach IT leaders about digital business

Seven experts share their views

Cycling into a digital world

Every industry today faces challenges and opportunities that come from new, rapidly evolving technologies. Some struggle to remain competitive in changing marketplaces. Others find new opportunities and new business by leveraging technical innovation. In all cases, adapting to change and innovation has become a journey taking businesses into a new, digital world.

This journey forces companies to rethink how they engage with customers, the experiences they offer, and how they manage their own operations. Although every organisation has its own culture, mission, and operational needs, they all have a common success factor. For digital transformation to be successful, it must be driven by business objectives, not by what's technically possible. You must begin with business goals, then architect a technology environment to deliver on those goals.

To illustrate these points, this e-book digs into what we can learn from two related, but also very different, business-critical digital transformations in an industry that's slow to adopt technology:

- Amaury Sport Organisation (A.S.O.), which organises the world's biggest cycling event, the Tour de France, used data to transform how audiences watch and experience the race. This was something A.S.O. had to do to stay relevant in today's world of digital media and changing audience viewing habits.

- Team Dimension Data for Qhubeka, a WorldTour team that competes in the Tour de France and many other races all over the world, was challenged to perform competitively on the world stage against much larger, better-funded teams. Digital transformation has given them tools to raise their game.

About Dimension Data

Founded in 1983, Dimension Data is a USD 8 billion global leader in designing, optimising, and managing today's evolving technology environments. This enables its clients to leverage data in a digital age, turn it into information, and extract insights.

Headquartered in Johannesburg, Dimension Data employs 28,000 people across 47 countries. The company brings together the world's best technology provided by market leaders and niche innovators with the service support that clients need for their businesses – from consulting, technical, and support services to a fully-managed service.

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The A.S.O. example shows how it's able to keep its product fresh by creating new and more engaging customer experiences, while the Team Dimension Data example illustrates how digital transformation can provide a competitive advantage through operational excellence. These are challenges shared by many businesses in all industries.

This e-book dives deeper into questions about driving business growth with better customer experience, keeping employees productive and engaged, safeguarding data without restricting business, and using business process automation to operate at a new level. One essay shows how data transformation in one business can transform another industry in the ecosystem.

Behind all these discussions lies the technology, which operates invisibly as the great enabler. It's the foundation on which digital business is built. Unlike past trends, which tended to be IT-led, digital transformation isn't a technology-driven strategy – it's a business strategy enabled by technology.

I hope you find this e-book both enjoyable and informative.

Best regards,
Scott Gibson
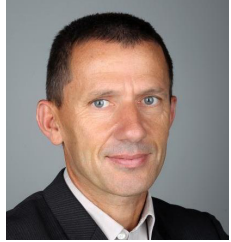Dimension Data

dimension data

accelerate your ambition

'**72%** of respondents rated improving their customer experience as the most important benefit of digital transformation'

Digital Means Business
Benchmark Report

■ For more insights on digital transformation visit
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The Tour de France needs to tell a story

Yann Le Moenner

Managing Director,
Amaury Sport Organisation

in

Linkedin

Yann Le Moenner has been Managing Director of Amaury Sport Organisation (A.S.O.) since October 2008. A.S.O. owns, designs, and organises top international sporting events. Specialised in the 'non-stadia' events, A.S.O. holds 250 days of competition per year, with 80 events in more than 25 countries. It's involved in five major sports, including cycling with the Tour de France, motor sports with the Dakar Rally, golf with the Alstom Open de France, sailing with the Tour de France à la Voile, and mass events with the Schneider Electric Marathon de Paris.

The success of the Tour de France, an event that was created to sell newspapers, has always been rooted in continually innovating new ways to tell its story and expand its audience. When radio came along, the race reached new fans, who avidly listened to the broadcaster's narrative, trying to imagine what was happening. Television changed the experience completely, enabling a larger audience to see the race in real-time. As the event evolved, audience viewing demands also changed. A whole new generation of fans who had grown up with digital channels expected a more compelling, data-driven experience alongside the traditional live view of the race. To stay relevant, the Tour de France and organiser Amaury Sport Organisation (A.S.O.) had to adapt by creating a 'second-screen' experience for fans.

> ' Even with new visibility into the race provided by television, *a lot of mystery remained about what was actually happening.* '

Television was instrumental in growing a global audience, but even with new visibility into the race, a lot of mystery remained about what was actually happening. What was the exact position of a rider, who was attacking, and how did the breakaway evolve? How fast were the riders going on the downhill? What was the force of the wind on the riders? It's one thing to look at the action and imagine what's going on, and another to understand deeply what's actually happening inside the peloton at each stage of the race. ❯

Those are the stories that can only come from the digital world, and that was our reason for partnering with Dimension Data, to use the statistics collected to tell a better story.

Our goal was to serve the general public's enjoyment of the race and to facilitate a better understanding of both the team tactics and individual efforts. We wanted a simple story that would engage those fans, but also give more to fans who wanted to go deeper into what was happening inside the race. This required providing more information to fans, the press, and commentators. Our ultimate goal, or course, was to grow the audience.

To do this, we had to come up with a way of collecting critical data from each rider while adding very little weight to the bikes, because weight is critical. Dimension Data became instrumental in collecting the data, then later presenting and analysing it to provide richer consumption experiences for fans. In subsequent years, Dimension Data added machine learning and predictive analytics to tell better stories and make the viewing experience even richer.

The results have been outstanding, with the social media audience nearly doubling between 2014 and 2016, and a significant growth in fan engagement on other digital platforms. There has been a nearly tenfold increase in video views on digital platforms during the same period, and another 28% growth in 2017 to more than 70 million. >

' We wanted a simple story that would engage fans, but also *give more to fans who wanted to go deeper* into what was happening inside the race. '

The live-tracking website has also been successful, with a 33% growth in traffic from 2016 to 2017, and the global television audience has also grown. We've been able to deliver a rich race story that includes real-time performance details about each rider, and we've provided that information to local and international broadcasters. This has greatly increased the quality of the viewing experience and the audience's understanding of what the race is all about.

As Managing Director of A.S.O. I'm also a tremendous fan of the sport, and I believe we're only at the beginning of all the stories we could tell to make the general public realise what it is to perform in the Tour de France. This has given us a chance not only to provide a better view and facilitate a deeper understanding of the race, but also to better serve the Tour de France as a global sporting event. ■

Key points

1 The goal was to serve the general public's enjoyment of the race and to facilitate a better understanding of both the team tactics and individual efforts.

2 The results have been outstanding, with a significant growth in fan engagement on all digital platforms. The live-tracking website has also been successful, with 33% growth in traffic from 2016 to 2017.

Doug Ryder

Team Principal, Team Dimension Data for Qhubeka

in

Linkedin

Ryder by name and rider by nature, Douglas Ryder is a South African cycling icon. In addition to captaining the national team from 1993 to 2002 and competing in the Olympics (Atlanta, 1996) and multiple World Championships, he won the Boland Bank Tour in 1995 and the Cape Argus Cycle Tour in 2001. Having raced for professional teams as well as working for corporate businesses, Douglas brings passion and experience to his role as Team Principal.

Team Dimension Data for Qhubeka is a WorldTour cycling team sponsored by Dimension Data. We ride for Qhubeka, a charitable organisation dedicated to providing bicycles to schoolchildren and entrepreneurs in Africa as a basic means of transport, and we're Africa's first professional team to race in the WorldTour. There are only 18 teams in the top tier of cycling, and we're Africa's only team at that level. We started as a small team that raced in South Africa, and we now compete in events all over the world, including the WorldTour's premier cycling event, the Tour de France.

Our goal is to succeed at the highest level of cycling while helping to mobilise children on bicycles through our support and involvement with the Qhubeka charity. Fulfilling that mission depends on Team Dimension Data winning races. To compete successfully on a global scale, we must be a thriving, efficient, digital business. Our business operations support all the activities required by the race schedule and our greatly dispersed team, including:

> If you aren't in the first division of world cycling, *you lose your sponsors, you lose your investment, and you could lose your team.*

- **Satisfying sponsor expectations.** Sponsors are our big investors. We have to understand their goals and what they expect in return for their support. We also have to build and manage a team that performs well and delivers results that satisfy our sponsors and partners. A key reason for their support is the exposure they receive when we compete around the world. Having partners that believe in the direction we're taking is incredibly important to our success. ❯

- **Team logistics.** Competitive cycling presents a logistical nightmare. We have 70 people in Team Dimension Data, distributed around the world and travelling continuously from January to October, running two or three race programmes to compete in 273 race days. In a race like the Tour de France where there are eight riders in a team, each competitor will have multiple bikes for different segments of the race, and each bike will have extra sets of wheels. There will be two vehicles and two to three support staff per rider, including coaches and doctors. There are additional supplies too, bike parts, clothing for each rider, nutritional supplies, and more. And then there's travel. We booked 990 airplane tickets last year.

  For Team Dimension Data, technology plays a critical role in logistics management to make sure the right equipment and supplies arrive at the right locations at the right times for each rider. Team management and mechanics are able to track their gear on mobile apps, seeing where any piece of equipment or vehicle is at any time.

- **Managing the health and wellness of the riders.** Work-life balance is key in any organisation, and even more so in a cycling team when mechanics and riders and staff are working 15 to 20 hours a day. We use technology to manage training and race schedules, and to monitor health. Riders use mobile apps to report on their health daily, no matter where in the world they happen to be. Doctors monitor those reports remotely and compare them to actual performance and training data to continuously assess rider health.

  Technology is also critical in keeping Team Dimension Data members connected to each other and to family and friends. This connectivity is important in sustaining the Team. For a rider who has to cycle seven hours a day in sometimes the worst conditions, having that connected support system around them of coaches, doctors, and other riders, and the knowledge that there's care and intimacy between the rider and management help them do their best under the most difficult conditions. ❯

With the digital dashboard, we're able to pre-empt illness and other issues that might interfere with rider performance. After all, those riders are the talent and inspiration at the heart of the Team, and the entire Team's success depends on them. If we can give them less downtime and maximise their brands, it's good for them and it's good for the Team.

- **Building a competitive edge.** If you aren't in the first division of world cycling, then you run the risk of losing your sponsors, your investment, and you could lose your team. To stay at the top, Team Dimension Data has used technology to a much greater degree than other teams, to link high-performance coaches and our riders around the world, to monitor and manage rider health, to optimise rider performance, and to build an audience for the sport. We also use technology in recruiting new riders.

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Riders are the talent and inspiration of the Team. If we can maximise their brands, it's good for them and it's good for the Team.
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We use historical data and performance analytics to understand the talent we have today and to anticipate the need for new talent, applying a statistical approach to identifying the talent that will help us transform the Team. We're able to put the right riders in the right races with the right support to get a better outcome, so that they can grow as individuals, create a brand for themselves, and become relevant in the Team. That helps keep us in the first division of WorldTour cycling. Our focus for the next few years is to prepare and strategise towards winning the Tour de France with an African rider. That has never been done before, but our Team seems to regularly do things that have never been done before. ❯

Team Dimension Data is a different type of a business. People don't clock in at work, and they don't leave every afternoon. We work together in a global virtual space that connects us and enables us to build our Team culture. That virtual space is the foundation of a business whose mission it is to win races all over the world, mobilise people in Africa with bicycles, and meet our stakeholder expectations. It's the purpose and relevance of this mission, and our success in fulfilling it, that pulls everyone together. ■

Key points

1 For Team Dimension Data, technology plays a critical role in logistics management to make sure the right equipment and supplies arrive at the right locations at the right times for each rider.

2 Team Dimension Data uses historical data and performance analytics to understand the talent we have today and to anticipate the need for new talent, applying a statistical approach to identifying the talent that will help us transform the Team.

Scott Gibson

Group Executive – Digital Business Solutions

in
Linkedin

Scott Gibson was appointed Britehouse Group CEO in April 2007, a position he held until September 2015 when Britehouse became a wholly-owned subsidiary of Dimension Data. In October 2015, Scott was appointed Group Executive of Dimension Data's newly established Digital Practice, now Digital Business Solutions. In this role, Scott oversees Dimension Data's digital advisory and application competencies, which accelerate clients' digital transformation journey.

Like many businesses, both Amaury Sport Organisation (A.S.O.) and Team Dimension Data for Qhubeka face competitive challenges and opportunities related to their core business. In working with both organisations these past few years, we've found ways to help them apply digital infrastructure, applications, and data to further their goals. The way we've done this, and the outcomes they've achieved, provide valuable insights for other companies embarking on their own digital journeys.

As with all our clients, we began with business objectives. This is important, because successful digital transformation must be business driven, not technology driven.

In the case of A.S.O., it owns a magnificent product called the Tour de France, a three-week race that plays out in 21 seven-hour stages. The question for A.S.O. was how to remain relevant to audiences who are dividing ever-shorter attention spans between more types of sport, consuming events in smaller snippets through a variety of digital media, and showing a preference for shorter events. The answer was clear: A.S.O. needed to revolutionise the audience's viewing experience. With this understanding, we showed A.S.O. how they could digitally transform their product: the race itself. ❯

> As with all our clients, *we began with business objectives.* Successful digital transformation must be business driven, not technology driven.

By using data to tell a better race story, A.S.O. could reach modern audiences accustomed to consuming information whenever, and wherever they happened to be. The goal for the organisation wasn't only to remain relevant, but also to grow the audience, which would strengthen their business model and unlock new sources of revenue. That became the basis for their digital business strategy.

We helped A.S.O. collect and package data for delivery through multiple channels including Twitter, the live-tracking website, and traditional broadcast media. This enhanced the entire fan experience with detailed real-time information never available before, deeper insights, and greater understanding of a complex sport. Not only has the use of digital media as a source of race information grown dramatically, but commentators reporting on the race talk about it differently. Data has even changed how fans talk among themselves about what's happening.

'Dimension Data for Qhubeka's challenge became *how to compete successfully* against much larger, better-funded teams.'

Using data to transform brand experiences is something many businesses are trying to do, especially in retail and service industries. Doing this successfully depends on understanding customer behaviour, consumer trends, people's buying patterns, and how to use data to build experiences that influence customer preferences and behaviour. It also requires a fast and secure technology environment that reliably delivers what customers want, when they want it.

Team Dimension Data's challenge was different. In their model, survival depends on competing effectively. As one of the WorldTour's smaller teams, their challenge became how to compete against much larger, better-funded teams. Many businesses face a similar situation where they're competing against giant enterprises in their vertical. ❯

Team Dimension Data recognised that to beat the competition, they needed to work smarter. They needed to be smarter about how they recruited talent, how they ran training programmes, how they kept riders healthy, how they managed the very complex problem of global logistics for a team that was now competing in 273 race days a year in the WorldTour, and how to function as a motivated unit when they were scattered all over the world. We helped the Team put together applications and infrastructure that made all these things work better, and it has strengthened their cohesion and competitive effectiveness.

Operational transformations like this have their own challenges, because team members (or employees) often need to learn to work differently. Sometimes there's internal resistance to change. For instance, at first, the Team's riders weren't excited about using a mobile app to report daily on their health. But this information was critical in optimising their training programmes and assembling squads for races. As it turned out, it may have saved the life of one rider who crashed in a race.

It was a rough crash, and the rider was unable to complete the race. Following normal protocol, he went through a concussion test. Everything seemed fine, and he was sent home to rest. Soon after he resumed his training, data showed that his training performance began to decline. Then on several consecutive days he reported through the health app that he had headaches. This set off alerts. The medical team looked at the data and concluded there was a problem. They got that rider to a hospital for an MRI. Doctors found a life-threatening brain hemorrhage and immediately sent him for surgery, saving his life.

This experience underscored for the Team in a dramatic way the value of having and using technology that connected them to a medical team no matter where they were located. One of the challenges in any business-driven digital transformation is showing how important change is to the core business mission. A key success factor in any transformation is getting buy-in across the business. >

It's also important to recognise that no one person or group owns digital transformation. The entire business owns the digital transformation journey, and because of changing technology, it's always a work in progress. Research shows most businesses are involved in some kind of digital transformation, but few believe they've completed it. That's certainly true for A.S.O. and Team Dimension Data. For them, the journey has just begun. ◾

Key points

1 Transforming customer experiences depends on understanding customer behaviour, trends, buying patterns, and how to use data to build experiences that influence customer preferences and behaviour. It also requires a fast and secure technology ecosystem that reliably delivers what customers want.

2 Team Dimension Data's survival depends on winning races. As one of the WorldTour's smaller teams, their challenge became how to compete successfully against much larger, better-funded teams.

Kevin Leahy

Group Principal Director –
Hybrid IT

in

Linkedin

Kevin Leahy leads the end-to-end strategy for data centre and cloud, driving the services and solutions with underpinning technologies across Dimension Data's digital infrastructure go-to-market. An industry veteran based in New York, Kevin joined Dimension Data after an extensive career at IBM, where he led the cloud sales strategy for service.

One of the greatest lessons learnt from Team Dimension Data for Qhubeka and the Tour De France is the power of data to transform customer experiences in ways that drive business growth.

In the case of the Tour De France, the availability of real-time data about each rider's position and performance changed not only how spectators observed the race, but also their understanding of what exactly was happening. They gained insight into the tactics and strategies employed by individual riders at every stage. This changed viewing patterns and increased the audience. It also enabled Amaury Sport Organisation (A.S.O.) to cultivate a more loyal global audience. For Team Dimension Data, it impacted everything from logistics management to the health and well-being of riders, training programmes, managing and coaching riders during race events, and even recruiting new talent to build and maintain the Team's competitive edge. This helped them build a world-class Team with a global following in only five years.

The keys to leveraging and monetising data are collecting it, analysing it, visualising it, and then acting on it. This is true for any business intending to realise value from data it owns or shares. That may sound simple, but it's never quite that easy. Useful data comes from multiple sources. You must analyse it to decide what matters to the business, and then it must be correlated to other data to provide context and meaning. ❯

> *The key to leveraging and monetising data depends on collecting it, analysing it, visualising it, and then acting on it.*

It must be structured so that people and processes can consume it. Increasingly there's a predictive aspect that brings historical data into the mix and applies predictive analytics.

Healthcare is an excellent example of an industry that's using data to increase service delivery while improving patient services. It begins with the collection of data from various kinds of monitoring devices and making it immediately available to medical practitioners. This streamlines operations in simple ways that make patient visits more pleasant and productive, for instance, by having correct medical information automatically displayed for a doctor when he or she arrives in the patient exam room. It allows medical practitioners to handle more patients, such as radiologists remotely examining more images than would be possible if they had to be physically present. Team Dimension Data's use of rider health reports in combination with historical performance data and real-time monitoring of WorldTour points, is giving them a competitive advantage. Data monitoring and correlation give remote medical practitioners real-time alerts to a condition that may be in its early stages, enabling them to intervene in a timely way. Taking that a step further, the same data could be consumed by deep-learning artificial intelligence capable of suggesting remedies for simple problems, but alerting doctors to serious issues. These capabilities enable a healthcare system to be more responsive to patient needs. ❯

'Healthcare is an excellent example of an *industry that's using data to increase service delivery* while improving patient services.'

Manufacturing is another area where data collection, analysis, and automation are used to improve production operations. It's similar to Team Dimension Data's use of data to optimise equipment usage and rider strategies based on real-time conditions. Again, it comes back to collecting, collating, and analysing data that may come from production-line equipment, supply chain, and historical data, and then optimising based on that data. For example, it's possible to correlate product quality issues with production-line equipment running out of tolerances. Using sensor data and analytics-driven predictive maintenance, it's possible to prevent the out-of-tolerance condition and increase production quality. Post-production analysis can provide data to adjust a manufacturing process, whether that involves sourcing components, changing components before they enter the production stream, or tweaking a product design. These kinds of changes can be made with minimal interruption to ongoing manufacturing, improving production-line capacity.

We're all familiar with how data can improve consumer experiences, and that has become critical to business growth. Business models such as retail and finance use data to create unique digital experiences to grow and strengthen their customer base. Those experiences must be relevant and responsive, because there's a lot of competition for consumers. In the case of the Tour de France, the audience has the choice of watching or not watching. We want them to watch because a bigger audience increases revenue potential from advertising, sponsorships, and broadcast licences. In the case of retail and finance, combining individual, historical, and market data enables a business to create timely, personalised experiences for their customers. Consumers reward businesses that do this most successfully.

In every case, it comes back to collecting the right data, analysing and filtering it, and using it in a way that triggers the desired customer action. Frequently this involves embedding data in processes and applications to create great digital experiences. Often the best use of data is invisible to the end user. ❯

The infrastructure needed to support data-driven processes and experiences isn't trivial. In the first year of the Tour de France programme we trialed beta solutions, and each year we've added capabilities to make the experience richer. Success hinges on being able to gather and present data from anywhere, even from remote and highly mobile devices, and automating the analysis and visualisation of that data. ■

Key points

1 To leverage data, you need to filter it for business relevance, correlate it for context and meaning, structure it so people and processes can consume it, then add historical data into the mix and apply predictive analytics.

2 Business models such as retail and finance use data to create unique digital experiences to grow and strengthen their customer base. Those experiences must be relevant and responsive, because there's a lot of competition for consumers.

Joe Manuele
Group Executive – CX and Workplace Productivity

in
Linkedin

Joe Manuele is on the pulse with how people are using technology to communicate, and he's fully committed to helping our clients use our tailor-made on-premise, in-the-cloud, or fully outsourced communications technology to connect people with business outcomes. Joe studied Computer Science at the Control Data Institute. Fluent in Italian and French, he's also an avid golfer at his home course in Half Moon Bay, California, and has completed six marathons in support of the AT Children's Project.

The key to making employees productive and engaged in today's world is empowering them to work how and where they want to work. For many people, work is no longer defined by office hours in a fixed location with tethered devices. Technology gives us new freedom to be productive wherever and whenever we need to be, and to create our own work-life balance.

Although every business has its own culture and its own employee productivity needs, and every person has their own work preferences, there are two aspects of workplace technology that strengthen both engagement and productivity. One is being able to choose and use the preferred technology for work, and the other is being able to apply analytics to improve work performance.

> *Technology gives us new freedom to be productive wherever and whenever we need to be, and to create our own work-life balance.*

Using the preferred technology for work can mean a lot of things. For example, people typically have multiple communication tools on their mobile devices. I recently spoke at a conference where I asked for a show of hands from those who used WhatsApp. Almost everyone raised their hands. Then I asked how many thought this was a Chief Information Officer-approved application. There was laughter, but no one put up their hands.

People often use applications specific to the people they speak to. I use WhatsApp to communicate with my CEO. I use Skype for Business to communicate with our head of global marketing. We have a global client who uses videoconferencing for all meetings because they believe that they can instill continuity and culture by seeing each other. I can start a video call on my mobile device, walk into an office, and move that video to a room-based system with higher definition and the ability to collaborate with more people. The ability to choose and use collaboration tools that work best is a key to strong engagement in the workplace.

Another example of using technology to build an engaging experience comes from our mobile data centre in a truck that follows the Tour de France. We have clients who enjoy the race with us. We connect the truck with our Client Experience Centre, which is stationed in major centres close to the route of the Tour. We have great video interactions with our technical leads who explain the process and what goes on behind the scenes. This gives us an incredibly personal experience with our clients. ❯

> The ability to choose and use collaboration tools *that work best is a key to strong engagement in the workplace.*

Team Dimension Data for Qhubeka's use of mobile applications to manage health, logistics, and collaboration provides an outstanding example of a business on the move, using technology to make everyone's work possible. All 70 of the Team's support staff, management, and riders use a variety of applications on the devices of their choosing. They have video capability and the ability to initiate or join a call, regardless of their location. Team management might be running three races in three different parts of the world. If they need to review strategy or resolve issues, they can connect, whether by videoconference to California, FaceTime with Team members in Norway, and WhatsApp with people in Italy – whichever works best depending on where everyone is and the available bandwidth. Riders communicate with their coaches and doctors from anywhere, too. They can stay in touch with their families, and they can support each other. When Ben O'Connor was doing so well in the Giro d'Italia, Team members who were in other parts of the world cheered him on. This is how having technology tools of choice keeps everyone engaged in a highly distributed enterprise.

Another important piece of the equation is ensuring productivity in a mobile work environment. In the case of Team Dimension Data, riders use a bespoke app on their mobile devices to submit daily health reports. Doctors and coaches correlate those reports to performance data collected during training or in actual races. This becomes valuable information in developing race strategy and making tactical adjustments to ensure the Team's optimum performance. It also serves as a pre-emptive tool to prevent illness or injury before it happens, and it enables coaches and doctors to adjust training programmes to strengthen riders and help them recover from illness or injuries.

There are many ways to measure employee performance. Collaborative technologies provide new opportunities to help employees become more effective in different work situations. For example, we drive analytics around videoconferencing that help our clients make their meetings more productive. We can evaluate how long people speak in a meeting. If a team leader speaks for 22 minutes in a 30-minute meeting, this becomes an opportunity for that person's manager to suggest ways to make meetings more productive by encouraging contributions from others. ❯

In a mobile world where colleagues and partners are often in different places, applying the right technologies works to build a virtual business culture. A lot of what keeps employees engaged and productive is the employees themselves who are choosing the devices and applications they want to use for work. Just as Team Dimension Data uses a mixture of sanctioned commercial applications alongside specialised ones such as the health and wellness application, businesses need to strike a balance between control at the centre and productivity at the edge. This is the CIO's challenge, to make sure that employees have that freedom they need, while ensuring security and compliance. We work with our clients to establish and maintain a balance that's optimal for their business. ■

Key points

1 Riders communicate with their coaches and doctors from anywhere. They can stay in touch with their families, and they can cheer each other on. This is how having technology tools of choice keeps everyone engaged in a highly distributed enterprise.

2 In a mobile world where colleagues and partners are often in different places, applying the right technologies works to build a virtual business culture. Businesses need to strike a balance between control at the centre and productivity at the edge.

Matt Gyde

Group Executive – Security

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Linkedin

Matthew Gyde's career in IT security spans almost 20 years, which gives him a deep understanding of how security platforms should be implemented. He helps to ensure clients' businesses remain competitive while minimising their risk. Matt joined Dimension Data as Global General Manager of Security Solutions in 2012. From 1997 to 2004, he was the Regional Sales Manager for Secure Computing. From 2004 to 2006, he served as Sales Director of SurfControl Asia, before joining the Datacraft Asia team as its General Manager of Security Solutions.

Securing data, applications, and infrastructure for the Tour de France and Team Dimension Data for Qhubeka presents challenges many businesses will recognise. We're dealing with a highly distributed environment in which mobility plays a key operational role. We're protecting a lot of real-time data that's critical to the business. And we're trying to do this within an infrastructure that's itself evolving. To further complicate matters, this is all happening in a threat environment that has become very sophisticated, and we're working with rapidly changing cybersecurity tools. Of course, we must provide security cost-effectively and with minimal impact on operations that are critical to the business mission. It's no wonder that many companies struggle with their security strategy. In technology markets, one vendor often dominates in a market space, followed by two or three prominent competitors. In cybersecurity today, no single vendor owns more than 10% of the market, and there are hundreds of vendors promoting unique solutions.

When building a security solution, you must start by understanding what you're protecting and the risks of a compromise. This differs by industry and individual business. In the case of the Tour, we have real-time performance data, logistics data, several applications, a website, and the infrastructure itself. Some of the data is public and not a likely target for theft, but some rider-specific information could be used to compromise the integrity of the race. Websites and infrastructure are always potential targets, and the favourite of bad guys these days – ransomware – is always out there. >

Today we're seeing a shift away from hardware-based physical security appliances to software-defined networking with programmable security. Along with that, we're seeing greater emphasis on protecting digital assets. Our approach to securing the Tour and Team Dimension Data has followed this trend. We began in 2015 with a mobile data centre in a truck, and we protected that with traditional firewalls.

In subsequent years, we virtualised more of the infrastructure, just as many businesses are doing now as they move assets to the cloud. This year, everything will be in the cloud, including security, which will be entirely programmable, consumption based, and managed through Dimension Data's managed security service.

Virtualising the infrastructure has provided many advantages. No data is stored in our mobile data centre now. The truck has evolved into a place where visitors can have a fabulous real-time view of the race. By moving everything to the cloud, we're able to spin down and spin up virtual environments instantaneously. We keep known good images of those environments. If we detect a compromise, we can automatically and instantly kill that process and then restart it with a clean image. This happens with no service interruption, and it's something that couldn't be done with traditional hardware-based security. ❯

‘ Today we're *seeing a shift away from hardware-based physical security appliances to software-defined networking* with programmable security. ,

With everything now in the cloud, we've added a layer of continuous monitoring and behavioural analytics that uses machine learning and artificial intelligence to detect anomalies. When it identifies suspicious activity, it automatically triggers appropriate response actions. In addition, we're correlating infrastructure activity with security data from other sources, including monitoring the dark web. This enables us to apply predictive intelligence, which anticipates potential attacks and blocks them before they can be executed. A key element of this strategy is moving security from a fixed asset and making it a virtual one that follows the workload or application. Another critical element is automation and orchestration that takes the decision out of the hands of a human and implements instantaneously.

In our highly mobile model, endpoints also become important. We not only have connected devices on the bikes, we have mobile apps used by everyone involved. We want people to be comfortable and engaged using the device of their choice. Through a DevOps approach to app development, we build security controls into the applications and perform continuous security testing during the development process, just as we would for cloud-based applications. We also monitor endpoint-data activity, and if the system detects anomalous traffic, it can instantly quarantine a device. ❯

> ‘ *With everything in the cloud, we've added a layer of continuous monitoring and behavioural analytics that uses machine learning and artificial intelligence to detect anomalies.* ,

The Tour and Team Dimension Data have proven to be great test cases for a modern approach to infrastructure security. Their models are data intensive, mobile, and distributed globally. I see a future for IT security in which hardware security appliances largely disappear. They will be replaced by programmable security controls that are part of applications and the network. They will be driven by artificial intelligence, machine learning, and advanced analytics that automatically detect and respond to threats. And there will be less human intervention needed to distinguish between real threats and benign incidents. All of this strengthens security without restricting business operations. ■

Key points

1 With a programmable infrastructure, it's possible to automatically and instantly kill a compromised process and then restart it with a clean image. This can happen with no service interruption.

2 The future of security is in programmable security controls driven by artificial intelligence, machine learning, and advanced analytics that automatically detect and respond to threats. There will be less human intervention to distinguish between real threats and benign incidents.

Peter Gray

Sports Practice Senior Director – Tech

in

Linkedin

Peter Gray is the Senior Director of Technology for Dimension Data's Sports Practice. He's responsible for overseeing the strategy, design, and delivery of sports technology solutions, including Dimension Data's technology partnership with the Tour de France, and Team Dimension Data. Prior to this, Peter was a Director for Analytics and Information Services within Oakton, an Australia-based technology consulting firm that Dimension Data acquired in 2014.

I n many ways, the work we've done for the Tour de France and Team Dimension Data for Qhubeka over the past four years parallels the digital transformation journeys many companies are currently undertaking. We've developed proven processes for setting up the infrastructure and systems for each race, providing Team Dimension Data with the technical tools and support it needs, making sure we're delivering useful and high-quality data, and managing the infrastructure that makes all this possible. Our experience shows how companies can use process automation in ways that allow them to do great things.

When we first began, our efforts were all about getting something running quickly and using that to test, learn, and validate the assumptions we'd made. It was really a proof of concept, which is a critical step in infrastructure and network design. It was a learning process because no one had ever done this before.

My colleague Tim Wade and I worked closely through that stage. We were heavily involved in the design and implementation of all the different elements of our solution, and we had our hands in absolutely everything. At one point Tim said, 'We should automate this so we don't need to do anything.' He was right. It had to be repeatable so that activities done daily and for each race could be done as simply, easily, efficiently, and consistently as possible. We needed to deliver a high-quality service without a staff of network experts, security professionals, data centre engineers, and software engineers always on the ground with us. ❯

> '
> Our experience shows how companies *can use process automation in ways* that allow them to do great things.
> '

It wouldn't have been possible to automate set-up and operate if we hadn't done our proof of concept in that first year. With that experience and better knowledge of what works and what doesn't in the complex environment of the Tour de France, we were in a good position to go down the path of operational automation.

Automation enabled us to have a much more virtualised infrastructure managed remotely by infrastructure experts as part of a managed service. That allowed us to reduce the number of people on the ground while having access to a broader range of expertise. It also gave us more flexibility to respond to unexpected situations. Incidents always happen in a race that are out of our control, due to weather or logistics. We're able to respond more effectively because of our flexible infrastructure and access to deeper skill sets. These same advantages apply to businesses of any size, whether it's a small company without the technical expertise to put together and operate a complex network, or a very large enterprise that struggles with process and service consistency across a global organisation.

It's not just network operations that benefit from automation. In the case of the Tour, collaboration was critical, and as in many companies, videoconferencing became the primary way for people to meet. Having a managed video service eliminated problems and concerns about video meetings that were critical to operations. Another example is automated content preparation. Providing information about the race for timely publication is one of our key missions. We have been able to automate key aspects of the preparation of content we generate, particularly for social media. This ability to operationalise concept execution and publication, and create a solid workflow, is critical for many businesses. Of course, all of this is made possible by a solid technology infrastructure working invisibly in the background. ❯

Our process in supporting Team Data Dimension is very similar to what we do with other clients. We sat down with the Team and worked through their biggest challenges. We looked at how we could help them solve those challenges in ways that would allow them to operate more effectively.

The Team is a complex operation in an environment that's continually changing. They have people moving in and out of the organisation and have grown substantially over the past couple of years. Having moved to the WorldTour means they're continually operating two to three race programmes at any time in different parts of the world, in addition to running a separate development squad focused on developing young African riders. They need to manage logistics, continuous training, and the health and well-being of each rider, all while strengthening the Team and maintaining its cohesion.

We set them up with a mix of sanctioned commercial and custom applications we developed to support their special requirements, such as a health and wellness application which allows the Team doctors, coaches, and sports directors to have continual communication and visibility of riders' location, condition, and training. Importantly, it also provides early alerts to highlight potential issues, which allows them to rapidly intervene or take appropriate action. Another example is the management of Team logistics including travel, equipment tracking and shipping, nutrition, and supplies, which can only be done accurately and efficiently with a high degree of automation. Many businesses manage complex supply chains with big, clean warehouses. For Team Dimension Data, a warehouse might be a truck parked by the roadside in a remote region of the world. It still needs to have all the right equipment at exactly the right time. ❯

The greatest benefit of automation for any business is being able to spend less time and energy on elements that underpin supporting services and technology. This frees up skilled resources to focus on helping the business achieve its strategic objectives. It's not so much about doing more with less. It's about being able to do more with what you have. ■

> ' The greatest benefit of automation for any business is *being able to spend less time and energy* on elements that underpin supporting services and technology. '

Key points

1 Automation allows us to have a virtualised infrastructure and systems managed remotely by experts as part of a managed service. That reduces the number of people on the ground while providing access to a broader range of expertise.

2 Complex supply chains often use big, clean warehouses. For Team Dimension Data, a warehouse might be a truck parked by the roadside in a remote region of the world. It still needs to have the right equipment at exactly the right time.

Benoît Vittek
Freelance Reporter

in
LinkedIn

Benoît Vittek was born into cycling in 1998. That summer, while the six-year-old boy was still practising his pedal strokes in the garden, Marco Pantani had already conquered summits, and the Tour de France and other riders wouldn't race in the wake of the Festina affair. Both stories left a lasting impression, compelling him to be both a witness of, and as far as possible, an actor in, the drama of cycling and other sports – first as a spectator, then as a reporter. His role has changed; his purpose too. But he remains as fascinated as ever.

've been a fan of the Tour de France for many years and a journalist covering the event for the past seven, and for me, there's never enough information.

As a teenager, I'd lie on the couch all day long, tuned into the race. I'd buy *L'Équipe*, the French sports newspaper, and I'd read all the stories. It listed the riders and their bib numbers, and with that information I'd try to identify them on TV, but it was difficult to follow what was happening. I also had my grandfather who still listened to the race on the radio as he had in the past. That's what the experience was for me – my TV screen, my newspaper, and my grandfather standing nearby, telling me about the race.

When I began covering the Tour as a journalist, my main source of information was French national TV. Writers who worked on-site would go to the starting line and talk to people, but then they'd go to the press room and watch the race on TV. After a stage of the race, they could meet with riders in the press room and talk about how the race went and what some of the important moments were.

Things began to change as social media became another source of information. We started getting information directly from the teams. They commented on what was happening in the race, and they provided information you couldn't get by just watching your TV screen, or even from being at the race. This was very exciting, but the really big breakthrough has come in just the past couple of years with live rider data provided by Dimension Data, collected from GPS trackers, along with Twitter postings and analysis. ❯

Now we have detailed information about all the riders for the entire stage. We have a better understanding of the race situation and deeper insight into team tactics. We know the current speed, position, and distance between riders, the wind speed and direction, weather conditions, and the gradient. It's information that we never had just watching TV, and while the broadcast only followed certain riders at certain times, the data is more complete, tracking and monitoring every rider at every moment of the race. It's now so much easier to follow the rider I'm interested in. If there's a group of 10 riders going at the front, I immediately know who's in that group, and I also know who's not. I know what's happening in the race instantly, which gives a whole new level of insight. ❯

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Now we have *detailed information about all the riders* for the entire stage.
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This has totally changed how I report the story. As journalists, we always want to have the full story and to know every detail to be able to choose what's important and what to report to the public. In the past, I only ever had bits and pieces, but now I know everything and I know it immediately. The data allows us to give a more accurate and complete report of the race, which makes it easier to follow and more attractive for the fans. It's a whole new story thanks to the new information.

Having all that information also enables us to put our stories together more quickly. This is important because the Internet makes it possible to touch more people with different kinds of content. We can also present the information in different ways. For instance, rather than simply describing a sprint, we can now provide a different perspective by using visualisations of the last 500m in a way that compares the speeds of riders moment by moment. That's an awesome way to analyse a race. Those clips are very short, but they're loaded with information that helps people understand what's happening.

This kind of reporting helps the international audience better understand the sport, and it also attracts a younger audience. This is something it has to do, because the way fans view sports is changing. Sport depends on spectators. It cannot survive without evolving with the times. Sport has to embrace change. ■

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Key points

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