En route

Canada

Miller McAsphalt joins Colas
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Cover photo: view from the Canadian-Hungarian tunnel, Budapest park, Toronto (Ontario), Canada.
As you know, one of the Colas values I feel particularly committed to is safety. Our results in this area continue to improve but we still have more to do if we want to fulfill our ambition of being the benchmark to which other companies aspire.

Today, I’m asking you to take another step forward.

A safety culture initiative will be launched in early 2019 along the same lines as the “Goal Zero” program rolled out in our North American companies. All employees based in mainland France will be concerned.

Baked by innovation, other initiatives will also help reduce the frequency of accidents. These will include virtual reality safety training for new recruits, and participation, alongside a machine manufacturer, in a project based on artificial intelligence targeting jobsite safety.

Of equal importance is health, as reflected in the campaign focused on fighting addiction underpinning 2018 Safety Week and the gradual roll-out of the ExoPush cobotics tool designed to make physical work easier, in France, Europe and as far afield as Australia.

Among Colas’ strategic priorities, revisited within the context of the One Colas project, there is one that goes back a long way in the Group’s history: external growth.

In this respect, 2018 will be seen as the year in which Colas made its biggest acquisition ever. Miller McAsphalt Group, a major road construction player in Ontario and a leading bitumen distribution player across Canada as a whole, joined Colas Canada at the end of February. The integration process is ongoing, led by a dedicated team. It is taking place in optimal conditions and is on schedule.

As well as several smaller deals in the construction materials sector, Colas has also reinforced its railway business, with the acquisition of Alpiq Engineering Services’ railroad activities at the end of July. As a result, Colas Rail has supplemented its range of solutions and expanded its geographical scope to include three new countries: Switzerland, Italy and Germany.

Hence Colas continues to develop its core businesses - Roads and Railways - and to focus on consolidating its expertise in the fields of aggregates and bitumen, key resources for its activities.

In line with its mission - namely to promote infrastructure solutions to support responsible mobility -, Colas is pursuing its transformation while retaining its singular identity.

Its new head office, in Paris, is a symbolic illustration of this.

The environmental performance of the positive energy building fits squarely with our responsible development approach. Its cutting-edge technologies reflect our capacity to innovate. Its architectural quality and its sleek lines make it stand out in the urban landscape, while being a symbol of dynamic impetus. As for the transparent interior, the open spaces, synonymous with sharing and conviviality, are designed to promote well-being in the workplace and the dissemination of collective intelligence.

I would like to thank each and every one of you for helping to put Colas’ values into practice day-to-day and for your commitment to the Group’s development and transformation.
From New Caledonia to the USA via Gabon, Madagascar and France... A rapid trip around the world to see the Group’s jobsites, work in progress and finished projects.

Heading north-east on the Red Island. In Antongil Bay, between the towns of Mananara Nord and Maroantsetra, 350 Colas Madagascar employees are upgrading around twenty engineering structures on Route RNS 5. Access to the sites is particularly difficult, requiring a major logistics operation involving the use of barges to deliver equipment to locations as close as possible to where they are needed. Work - using local materials - is being carried out manually whenever possible, except for lifting, transport and pile-driving operations. In addition to training for the local population and passing on expertise, a health program has been set up for employees and their families. Launched in April 2017, work is set to last 33 months.
The Baie des Rois (Bay of the Kings) development project in the old Port Môle harbor district of Libreville includes plans for housing units, offices, shops, restaurants and leisure facilities, to be completed by 2025. For the time being, site preparation work is under way on an area covering 360,000 m². Commissioned by Colas Gabon, Spac is tasked with installing the wet utilities on one of the four blocks: 2 km of pipes for drinking water, 1.5 km of pipes to drain rainwater into the sea and 1.5 km of pipes to carry wastewater to a treatment plant. The company is also installing 500 meters of ducts and tubes for the electricity and telecoms cables. Made up of around twenty employees from France, Togo and Gabon, Spac’s team on-site has a major challenge ahead of them: to install all these networks simultaneously, in an environment complicated by the fact that it is right next to the sea.

Colas Civil Engineering takes the metro

Colas Île-de-France Normandie’s Civil Engineering profit center is currently creating an additional access to the Champs-Elysées-Clemenceau metro station in Paris. Located near the Grand Palais museum, the work is being closely monitored, with ongoing geometric controls taking place to avoid any damage to the historic building. Once the major structural work has been completed at the end of 2018, Colas Civil Engineering will move on to the interior fixtures, to be delivered by the end of 2019.
Development along the Basque coast

One of the most outstanding sites along the Biarritz coast - the Côte des Basques - has been turned into a pedestrian-friendly zone. Teams from Colas Sud-Ouest's Bayonne profit center carried out redevelopment work on the boulevard Prince-de-Galles, linking the Old Port and the villa Beltza to Le Sunset. Pedestrians, cyclists, skateboarders and joggers can now enjoy the beautiful landscape to their heart's content.
An extension program is currently under way at Santiago international airport, including the renovation of the existing terminals and the construction of a new terminal. In April 2017, Reali, Smac’s Chilean subsidiary, secured the contract to design and install the roof and canopy. The key to its success? Its capacity to deliver optimal technical solutions, in this case an acoustic roof complex enabling a 49-decibel reduction in noise level. Building Information Modeling (BIM)¹ was used to design the canopies and roofs. The work, launched in August 2017, is set to continue through to the end of 2020, with up to one hundred employees on-site in periods of peak activity.

1. The BIM digital model makes it possible to share all data and information with everyone involved in the project, from design to completion.
A new bridge, one hundred meters in length, comprised of 750 tons of metal and 1,600 m$^3$ of concrete now spans the two banks of La Plaine ravine in Saint-Paul. The new section is designed to relieve traffic congestion in the municipality. At the end of 2017, with the cyclone season approaching, GTOI’s teams installed the metal frame, then in 2018, the concrete deck, superstructures and connections.
The USA, Japan, Canada, Reunion Island, the Netherlands, etc., trial sites incorporating Wattway, the world’s first photovoltaic road surface developed by Colas in 2015, are popping up all around the globe. In May, in Châlons-en-Champagne, France, 54 m² of photovoltaic panels were installed in the town’s historic center. A first in an urban environment for this region and for use in a zone shared by vehicles, pedestrians and cyclists. Ultimately, the energy produced by the solar road is set to be used to power a dynamic display panel or a bench with electric sockets enabling passers-by to charge their mobile phones, for example. Great care was taken to make sure the Wattway site would fit harmoniously into its environment, amidst buildings classified as Historic Monuments. Teams from Aximum Nord-Est installed and connected the Wattway system while Colas Nord-Est carried out the necessary urban development work. With the agreement of the architect from Bâtiments de France, a band of red asphalt mix was applied around the photovoltaic panels. The Châlons-en-Champagne site is now one of more than 30 pilot Wattway sites around the world.

FRANCE

Wattway: once upon a time in the East

site-seeing 09
For the renovation of boulevard Jean-Jaurès in Saint-Just-Saint-Rambert, Colas Rhône-Alpes Auvergne’s Forez TPCF profit center was responsible for the earthworks, roadworks and networks. The aim was to give a facelift to the approaches to the town. On the agenda: the creation of a new access road on a former railway site, the conversion of an old roadway into a parking lot for 100 vehicles, the development of numerous green spaces and the installation of street furniture. The main challenge involved the application of asphalt mixes over a 500 meter-long section in under one day, in order to minimize disruption to traffic and local shops. A safety protocol was drawn up to take into account the proximity of the site to the railroad.

Algiers metro extension

Colas Rail carried out extension work on line 1 of the Algiers underground transport system. With three new stations, extension C adds 3.6 km to the line going to Ain Naâdja. Extension A adds 1.7 km to the downtown line, with two new stations, including one beneath the place des Martyrs. In December 2017, with the project at its peak, up to 650 employees were mobilized on-site, to lay the track and dedicated electric power rail and install energy, ventilation and low-voltage systems (fire detection, ticketing, etc.). The infrastructures were delivered in August 2018.
Commissioned last summer, the A304 is a new 31-km section of four-lane highway, extending the previously existing A34 highway from south of Charleville-Mézières, in the Ardennes area of northern France, to Belgium. Colas Projects (consortium leader) and Colas Nord-Est carried out the work, aimed at improving access to and from the French Ardennes region. Tasked with installing 15 km of steel guardrails, teams from Lille’s Aximum profit center also carried out ground marking operations using Axispot. This thermoplastic road marking solution is solvent-free and generates no waste.
A facelift for the Pont Lorois

The only bridge between the Pays d’Auray and the Pays de Lorient, in southern Brittany, the Pont Lorois straddles the river Étel. Damaged by maritime corrosion and increasing traffic, the 115 meter-long suspension bridge was showing significant signs of deterioration. For the renovation work, teams from Colas Centre-Ouest planed down the existing surface and waterproofed the deck before applying 1,000 tons of asphalt mixes and pouring the concrete required for 500 meters of curbs. Aximum was responsible for temporary traffic signing during the ten months of work. A mission accomplished in sometimes challenging weather conditions.

FRANCE

NEW CALEDONIA

Néobus: the BRT is coming to Nouméa

Néobus is the bus rapid transit system (BRT) introduced to facilitate access to the city. The 1st route, between Moselle and Médipe, will consist of 13.3 km of dedicated lanes, 23 stations, 7 eco-mobility interchanges and 2 park and ride points. Colas New Caledonia is responsible for a 4-km section in the downtown area, covering everything from the earthworks through to civil engineering for the stations, via asphalt mixes. The main challenges facing the teams include diverting the networks and managing traffic flows during rush hour. Néobus will hit the road in mid-2019!
In the town of North Pole, south-east of Fairbanks, Alaska, Colaska, Colas’ American subsidiary, is laying 55 km of pre-insulated water pipes of various sizes. Unusually, the project was launched in the depths of winter as frost makes it easier to install pipes in wet zones and areas where groundwater comes to the surface.

In parallel, Colaska teams carried out work to modernize and extend the water treatment plant. They also modified an existing pumping station and built a new one, along with a drinking water tank with a capacity of almost 3 million liters. Mission accomplished for the teams, who managed to prevent thawing of the permafrost and at the same time stop it drying out. The project, carried out in extreme weather conditions, with temperatures as low as -35°C, is scheduled for completion by the end of 2019.
Buildings projects in Central Europe

Local Colas subsidiaries in Slovakia and Hungary are currently working on a number of building projects. In Kosice, Slovakia’s second biggest city, ISK is building a residential complex comprising two 10-story towers that will also house shops and offices. Delivery is scheduled for spring 2019. In Budapest, on the banks of the river Danube, teams from Colas-Bayer are building the Duna Terasz Premium development. This 11-story, U-shaped building will house more than 320 apartments, each with its own outdoor terrace or balcony. Residents will also be able to enjoy the building’s large communal roof garden.
By 2019, the Caen tramway will have completed its transformation: a new model on rails is set to replace the rubber-tired trams. This major project - the first of its type in France - began in January 2018. For the central batch (4.5 km of track in the downtown area), several Colas teams are working together. Colas Projects is leading the operation. Colas Rail is responsible for laying the tracks and installing the overhead contact line. Employees of Picheta demolished the existing reinforced concrete infrastructures, while Colas Île-de-France Normandie’s Caen profit center will be responsible for the new platforms (paving, asphalt mixes, etc.). Finally, Aximum has been subcontracted to install temporary traffic signing. Located at the heart of the downtown area, this project requires permanent adaptability and a detailed schedule for the completion of each phase of the work. On the avenues, the central part of the road is cordoned off with barriers, allowing the work to be completed in sections and residents to move around in complete safety.
FRANCE

A safer mountain road at Péone

The teams from the Cozzi profit center of Colas Midi-Méditerranée have been back to work on the road through the mountains, this time at Péone. At the request of the Alpes-Maritimes Departmental Council, they have widened the RD 29, a winding road with steep rocky sides, to make it safer. The work involved excavating 20,000 m³ of rock from the up-slope embankment to a height of 20 metres in places, backfilling with rubble excavated to widen the down-slope embankment, and consolidating the existing retaining walls using straps and sprayed concrete. The exceptional nature of the work meant that the road had to be diverted to enable the on-site teams to work free of traffic.
At the start of July 2018, the Paris-Saclay EPA (public development agency) chose the consortium led by Colas to develop the smart shared parking solution for the Paris-Saclay urban campus south-west of Paris. The parties have signed a five-year innovation partnership. The Moov’Hub smart shared parking solution developed by Mobility by Colas opens the door to the new mobility solutions offered by Colas. The online services platform will show users which parking spaces are available, guide them to a space that meets their needs or, during times of high congestion, offer them alternatives to the car. The result is a totally new way of managing the use of space to promote responsible mobility.

Aircraft can now take off again from Tan-Tan

A month ahead of the scheduled six-month lead time allowed, GTR, a Moroccan subsidiary of Colas, delivered the runway at Tan-Tan airport in the south of Morocco at the end of April this year. In addition to lengthening the runway from 2,000 to 2,600 metres and creating 7.5-meter shoulders on both sides, the work also involved strengthening the runway, ramp and aircraft stands, and renovating the access road and outdoor car park. For this project, the Agadir profit center had to open a temporary quarry close to the runway and bring in two mobile crushing plants, as well as an asphalt plant capable of producing 2,000 tonnes per day on average. In total, a hundred employees and thirty pieces of plant and equipment were required to move 100,000 m³ of earth and apply 60,000 tonnes of asphalt.
en route
February 28, 2018. Colas finalized the acquisition of Miller McAsphalt, a major road construction player in Ontario and a leading bitumen distributor across Canada. The deal gives fresh stimulus to the Group’s growth strategy in North America. We take a look back at the biggest acquisition in Colas’ history.

Colas strengthens its position in Canada
BITUMEN DISTRIBUTION AND STORAGE IN CANADA

Following the acquisition of Miller McAsphalt, Colas Canada now boasts 28 bitumen terminals across the country, from the Pacific to the Atlantic, from Vancouver to Halifax, as well as two barges and 200 tanker railcars.
With the acquisition of Miller McAsphalt, Colas begins a new chapter in its history in Canada, which began in the early 1960s. “This move is the fruit of a relationship built on trust over the space of 10 years with the Group’s owners. It is part of a series of acquisitions made over the years to gradually build the Colas Canada we know today”, explains Louis Gabanna, Managing Director, North America. Miller McAsphalt was formed from the merger of two companies in 1976. Miller has been instrumental in creating an extensive network of roads and highways throughout Ontario, Canada’s biggest province, with the road construction company celebrating its centenary in 2017. McAsphalt, created in 1970 by John Carrick Sr. and Leo McArthur, specializes in bitumen production and distribution. Two complementary businesses that have allowed the group to become a major road construction player in Ontario and a leading bitumen storage and distribution player across Canada as a whole.

Synergy and complementarity
“Colas Canada and Miller McAsphalt are in the same business but they don’t operate in the same regions or the same markets”, continues Jean-Yves Llenas, Colas Canada’s Vice-President for Administration and Finance. “So the merger gives us an opportunity to establish new bases, in provinces like New Brunswick and Nova Scotia, or even in Manitoba, where we had previously been absent.”

François Vachon, Vice-President of Operations, Colas Canada

“Find the right words to facilitate the integration of new employees”

When François Vachon, responsible for integrating Miller McAsphalt’s employees, met them, he was keen to show them that their company had chosen a good partner in Colas. “Miller has a strong corporate culture. It is based on integrity, loyalty and respect for the company and its charismatic leader, Leo McArthur, who knew all 3,000 of his employees by name. It was important for them to realize that our model was not so very different from their own and that we shared the same values.” François Vachon, civil engineer, joined Colas at the age of just 13 to work at a weigh station before moving out to construction sites at the age of 15. As far as he is concerned, having a deep attachment to a company is not just an empty phrase. “My father spent 37 years at Colas and I’ve been here for 22 years. It was easy for me to find the right words to talk about my experiences with Colas, about the very human approach underpinning our businesses. These are realities Miller’s employees can relate to and they gave me a very warm welcome.”
Ontario, Colas Canada, which had not really been present to any great extent in the province before, is now a well-established road construction player and the outlook is extremely promising: this is one of Canada’s most populated provinces and a third of the road network is in need of renovation. And the same development opportunities also apply to bitumen production, storage and distribution: before the acquisition, Colas had six bitumen terminals and Miller McAsphalt had 22; today, Colas has 28 terminals across the country, from the Pacific to the Atlantic, from Vancouver to Halifax. Two barges and 200 tanker railcars transport bitumen throughout Canada. "This 'strike force' in terms of organization and technical expertise has helped Colas establish itself as one of Canada's leading road construction and bitumen distribution players", notes François Vachon, Colas Canada's Vice-President of Operations. But the merger amounts to more than the simple addition of three companies – Colas Canada, Miller and McAsphalt. For Frédéric Roussel, President of Colas Canada: “We immediately noted that there wasn't any real overlap between the companies. Instead, there were actually many areas in which we could benefit from complementary expertise. We could take the best of both worlds. For example, we chose to unite the PPP teams from Colas Canada and Miller. This specialized unit, one-of-a-kind in Canada, can rely on Colas’ national network and expertise in PPP (Public Private Partnership) projects, as well as on Miller’s broad experience in Canada and civil engineering expertise (concrete structures). As for Bitumen, all the assets at Colas Canada were transferred to McAsphalt as of May 1. Our cumulated operational capacity and know-how give us access to major projects. We can now bid for PPP projects across Canada.”

A booming country

Canada is a highly dynamic market and PPPs are widely used. The country’s annual GDP growth is 3%. The vast Canadian territory has always been a favorite zone for Colas. Its advantages? A stable political situation, high levels of investment and strong demand for transport infrastructure, particularly in and around towns and cities, where growth is significant – every year, on average, cities such as Quebec, Toronto, Montreal and Ottawa build an additional 200,000 households. The Federal Government manages the construction and maintenance of the Trans-Canada Highway (a 7,800-km highway system that travels through the ten provinces, from the Pacific to the Atlantic), ports and airports, as well as a few bridges. The provinces and towns and cities are responsible for maintaining their own road network. The frequency and scale of these maintenance programs thus depend on their resources, resulting in some major disparities. By way of illustration, with just over 4 million inhabitants, the province of Alberta, which boasts significant oil and gas reserves, invests three times as much per capita in its road network than Quebec does (8.5 million inhabitants). “Globally, there is a degree of coherence between the GDP of each province, its road investment and Colas’ revenue", notes Jean-Yves Llenas. Coherence that has been further reinforced...
Like Colas Canada, Miller McAsphalt is a vertically integrated group, meaning it is present throughout the value chain, from materials production through to road building and maintenance. What’s more, it has an excellent reputation for quality, safety and innovation. For example, Miller McAsphalt used cold in place recycling as early as 1989.
since the acquisition of Miller McAsphalt, while the geographic and operational distribution of Colas Canada’s activities has improved across the territory.

The challenge of integration

“The similarities and complementarity between the three entities are significant”, explains Jean-Yves Llenas. Like Colas Canada, Miller McAsphalt is a vertically integrated group, meaning it is present throughout the value chain, from materials production through to road building and maintenance. What’s more, it has an excellent reputation for quality and safety. This perfect complementarity of geography and businesses is an undeniable asset for successful integration. The challenge is to turn a family business into an international group, while maintaining the entrepreneurial fiber of Miller McAsphalt’s 3,000 employees, their energy and their knowledge of the market and the country, within a new managerial, administrative and legal environment. Integration is going smoothly. It is based on sharing and implementation of best practices. Some ten working groups managed by representatives from the ten Canadian subsidiaries are currently active. Above and beyond any improvements, this type of event helps employees get to know each other and fosters a sense of pride in belonging. As is customary in Canada, we do our best to respect the cultures — very similar in fact — and each company has kept its name,” underlines Frédéric Roussel. The result? A number of significant paths for progress have been identified in operations and logistics, and these are currently being implemented. The desire to communicate and share is real and mutual.

“Over the next two years, new management systems will be rolled out, but teams have adapted well to the first changes already introduced”, enthuses François Vachon. Synergy, opportunities to work together, good practices and values common to both groups - loyalty, respect, integrity - have already been the focus of a first conference between top managers and they represent a solid foundation.

“We can learn a lot from Miller McAsphalt’s employees who, in a highly competitive market, have successfully established their company as a major road sector player across Canada. It’s an excellent acquisition. It’s up to us to create the synergy required to bring together the best of everyone and to maintain and reinforce the existing value”, concludes Jean-Yves Llenas.


ROAD BUILDING IN CANADA

Building and maintaining roads in a country 20 times the size of France, with 3.7 inhabitants per km² and six time zones, is challenging to say the least. The climate is one of the harshest on the planet and the temperature range between summer and winter can be as much as 70°C. There is heavy snowfall in the winter, reaching depths of up to 3 meters in Quebec, for example. Roads are regularly subject to freezing and thawing and thus deteriorate twice as quickly as in temperate zones. Another specific characteristic and problem, linked to Canada’s unique climate, is the highly seasonal nature of the business. Generally speaking, road construction activities are carried out between May 1 and November 1. Everything comes to a standstill in the winter. Some employees work on snow clearing and highway maintenance while others find work in the mines, in oil exploration zones or in forests. Others still simply opt to spend the imposed downtime with their families. When the construction season starts again, it’s not always easy to reassemble the teams!

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The acquisition of the Miller McAsphalt Group will enable Colas to:
- increase its presence in Ontario, a province with considerable potential;
- consolidate its network in Canada;
- reinforce its bitumen business, with total national coverage.

KEY FIGURES

100% stake in Miller McAsphalt acquired by Colas Canada
8,000 employees at Colas Canada following the acquisition of Miller McAsphalt

BITUMEN STORAGE

28 facilities

ANNUAL MATERIALS PRODUCTION

15 Mt of aggregates
400,000 t of emulsions and modified bitumen
8 Mt of asphalt mixes
700,000 m³ of ready-to-use concrete
In the bauxite mines of Guinea-Conakry

A light veil of red dust billows up as trucks and backhoes roll over the ochre-colored tracks. Tracks are doused with water to dampen down the burning dust. The distant hills provide a backdrop of gentle, lush curves. The Tinguilinta construction project is in full swing. The site conceals huge reserves of bauxite, the “red gold” used to make aluminum named after the French village of Les Baux-de-Provence, where it was discovered in the 19th century by a chemist looking for iron ore. Beneath the surface of Guinea-Conakry are thought to lie half of the world’s bauxite reserves, i.e. some 25 billion tons. The rock has a very high alumina content which is easy to extract in open-cast mines. The Tinguilinta mine will be operated by Bouygues Travaux Publics on behalf of Guinea Alumina Corporation (GAC), the Guinean subsidiary of Emirates Global Aluminium (EGA).

Colas in Africa: recognized expertise

GAC chose Colas Africa and Colas Projects to build the infrastructures required to mine, crush, store and transport the ore: a storage platform, five bridges including one that is 200 meters in length straddling a sea inlet, mining site access roads, 18 km of railroad tracks, with two branch lines to link the site to the existing railroad, which takes bauxite to the port of Kamsar 120 km away, an equipment maintenance zone, a dam and a water distribution system.

*Signed in October 2016 and worth around 150 million dollars, this is an exceptional project for Colas on more than one level. It’s a complex, multi-faceted...
BAUXITE MINE
Colas arrived in Guinea-Conakry in 2017 to build the infrastructures required to operate a bauxite mine located to the northwest of Conakry, the country's capital.
mining project. And it’s the Group’s first foray into Guinea-Conakry”, comments Benoît Chauvin, International Business Development Manager. “In our favor we had our experience in Africa, our team management expertise, our capacity to mobilize our local subsidiaries, our technical know-how and our command of HSE requirements”, adds Stéphane Knebel, Colas Director for the ECOWAS’ zone.

On the ground, Colas Africa assembled a sizable fleet of machinery in record time. More than 300 machines – bulldozers, compactors, graders, crushing equipment and hydraulic excavators – were transported from Benin, Ivory Coast and South Africa. 1,200 people are working on the site, 80% of whom are Guineans hired locally and trained by Colas managers from Ivory Coast, Benin, North Africa and France.

Complementary know-how for a complex project

“The Tinguilinta project is a fine illustration of the strategic “One Colas” initiative (read article page 54) launched by the Group: pooling our expertise to meet a challenge. Synergies have operated between the different types of expertise (design, purchasing, logistics, construction, quality, legal and project control), as well as between the local experience of Colas Africa and the international experience of Colas Projects”, points out Laurent Juillard, Colas Projects Operations Manager. On the ground, Colas has called in two subsidiaries: Spac, for pipeline work, and Colas Rail, for the railroad. As Olivier Dupré, Spac’s Water, Civil Engineering and Maritime Works Manager, underlines: “We’ve contributed our technical know-how and benefited from Colas Africa’s logistics support. That’s enabled us to work in a country where we would never have been able to operate without this synergy.” Spac’s team laid 8 km of pipelines and installed pumping facilities downstream of the dam in the Tiouladi valley and the Tinguilinta river to bring river water to the mine. “Since the first pipeline had to cross a 100-meter wide river, teams had to build a suspension bridge with a span of 120 meters in record time”, adds Olivier Dupré.
For its part, Colas Rail laid 18 km of rail track: 10 km on the Kamsar port site and 8 km in Tinguilinta. More than 75,000 tons of ballast were transported to the site, along with 14,500 tons of various machines and plant: the concrete sleepers came from Portugal, South Africa provided the 22 points and France supplied the 1,800 tons of rails. Quite a feat and one that Muriel Kuser, Project Manager at Colas Rail, recognizes as having been one of the biggest constraints. It was a major challenge, with tracks needing more reinforcement than those used for high-speed train lines: "A stated axle load of 22 tons corresponds to 30 tons here. A sleeper weighs 330 kg compared with 300 for a high-speed track and each point weighs 60 tons. The objective for the customer is to transport 12 million tons of bauxite per year in trains that are 1,500 meters long pulling 120 wagons, with each wagon carrying 100 tons of ore."

"The Tinguilinta project is a fine illustration of the Group’s strategic One Colas initiative. Synergies have operated between expertise, as well as between the local experience of Colas Africa and the international experience of Colas Projects."

A challenging environment

"Administrative and customs facilities, catering and accommodation, transport, safety and security: drawing on its extensive presence in the ECOWAS zone, Colas Africa had all the necessary resources to provide its teams with optimum working conditions. For all that, the reality on the ground was far from easy. We arrived in an unfamiliar country clutching our computers. We had to discover the specific characteristics of the place and get our bearings", explains Christian Bardin, Project Manager. We were given a warm welcome by the Guineans but we had to adapt the construction program to the climate, with its alternating dry and rainy seasons impacting the work schedule. For nine months of the year, temperatures range from 30°C to 45°C and during the rainy season, from June to October, earthworks and construction work are made virtually impossible by torrential rain. As a result, the schedule is tight. In addition to these challenges, there are also very strict safety and procedural rules specific
INFRASTRUCTURE CONSTRUCTION

Work on the infrastructures required to mine, crush, store and transport the ore consists of the construction of a storage platform, five bridges including one that is 200 meters in length straddling a sea inlet, mining site access roads, 18 km of railroad tracks, an equipment maintenance zone, a dam and a water distribution network.
to mining companies. What’s more, Colas’ expertise was seriously put to the test by a landslip caused by pressurized groundwater, disrupting the creation of a 20 meter-deep ditch as big as three soccer fields. No fewer than 300,000 tons of material had to be removed. “Looking back, we can conclude that we did a good job, thanks to our capacity to deal with a major accidental event. We wasted no time in implementing new technical solutions, mobilizing teams and minimizing the delay without compromising safety”, explains Benoît Chauvin. Team safety is a major priority. “We preferred to have employees travel without their families because we don’t have complete control over the environment. The Ebola fever epidemic had just ended when we arrived and employee safety was our top priority”, explains Christian Bardin. Housed on a compound, employees eat and enjoy free time together in a friendly atmosphere where the main topic of conversation remains the Tinguilinta and Kamsar project! “Everyone has rolled up their sleeves to deal with the challenges. Employees from the various subsidiaries all share the same concerns and the same energy”, notes Christian Bardin. “We’re all part of the same family and we all get on well”, confirms Muriel Kuser.

The sky is overcast above the hills of Boké. The baking sun has gone, to be replaced by heavy showers and a few claps of thunder. Workers take shelter while they ride it out. An air of relative calm reigns over the site. The rainy season is fast approaching. It will last until around the end of October. Then just a few more weeks of work will remain before this exceptional project is delivered.

1. Economic Community of West African States.
The Lens BRT, the secrets of a major project

From the coron’s façades, from the Art Deco to the spoil tips to the pit head frames, from the famous Bollaert-Delelis stadium, home of the RC Lens soccer club, to the Louvre-Lens museum, the “mining basin” is constantly reinventing itself. The latest development: the BRT (Bus Rapid Transit) project, known as “Bulle”. Each day, 600,000 people living in the area encompassing the agglomerations of Lens-Liévin, Hénin-Carvin and Béthune-Bruiy make 2.2 million journeys for work, school, leisure, etc. Traffic congestion means buses are often delayed and people still prefer to use their cars rather than public transport. To improve mobility in this region covering 1,000 km² and offer an efficient, more environmentally-friendly alternative to the car, the project set out to create some 110 km of dedicated lanes between 2017 and 2019. The six routes will serve the region’s main commuter hubs and give all residents access to a public transport network on a regional scale.

A project, a team

“This contract had long since been identified by Colas Nord-Est’s local profit center, which immediately saw that a major project approach was required”, explains Stéphanie Minnebois, Colas Projects’ Sales Manager. Act 1: in September 2016 a team comprising Colas Projects (leader), Colas Nord-Est and Bouygues Energies and Services (a Bouygues...
NORD-PAS-DE-CALAIS MINING BASIN
At the foot of spoil tips, a reminder of the region’s mining history, teams from Colas Projects and Colas Nord-Est are working on five sections of the Lens BRT project.
“Teamwork is crucial because you have to be able to constantly adapt to the people and places. The fact that my managers trusted me helped a lot.”

Cécile Cadet, Design Office Supervisor (Colas Projects)

Construction company) was assembled. “The added value of our consortium lay in the creation of a dedicated structure”, recalls Frédéric Dutour, Project Manager. “In addition to knowledge of the local environment, the mobilization of Colas Nord-Est’s Artois (major projects) profit center and SNB unit (landscaping) reflected our determination to provide a solution taking into account the locations, the various representatives and local residents’ concerns.”

An optimized technical brief

Act 2: the construction of a high-impact, factual and precise technical brief meeting the customer’s requirements. For Stéphanie Minnebois, “the key was to show the customer that we had identified the challenges - compliance with deadlines and schedules, integration of the project in an urban environment, environmental approach - and that we were proposing high-performance technical solutions. We got together in workshops to define the key items to be included. As for the form, we tried to write a clear and concise brief. That’s why it was so focused on the customer, and we won with the best bid.”

Five submissions, five contracts

In December 2016, the first brief associated with the bid for the Section 6 in Bruay-la-Buissière was submitted, and the foundations for the other four briefs were thus laid down. Act 3: the BRT adventure begins! “In total, five sections were awarded, representing more than 38 km of lanes worth €60 million”, explains Frédéric Dutour. “Starting work on these five sectors simultaneously was a major challenge after fewer than 2 months of preparation, particularly in terms of recruitment and team mobilization.” From the Hauts-de-France in northern France to the Vosges in the east, 350 employees from several of, Colas Nord-Est’s profit centers worked on-site at the height of the project. On the agenda: earthworks, roads, drainage, surfacing, green spaces. Aximum, Colas’ road safety and signing subsidiary, was responsible for temporary traffic signing on the approaches to the site.
**Adapting to the local context**

Act 4: constantly adapting.

“In this region historically and topographically marked by two world wars, the BRT construction site was, for its part, impacted by the presence of shells and mines. Any explosive device, even when rusty and old, is dangerous”, underlines Frédéric Dutour. Just meters away from the Bollaert-Delelis stadium - a Lens landmark -, a former blockhouse was revealed, bringing work to a halt for a few months while the building’s galleries were checked and secured. “One of the unusual features of this project was the involvement of a company specialised in pyrotechnical issues, who sent a pyrotechnician and special equipment to sound out the land and detect metal objects prior to the launch of construction work”, continues Frédéric Dutour. “This was crucial to prevent any serious risks of explosion.” The sports arena was also an important consideration since access to the stadium had to be maintained for sports events and the site secured with anti-climb and anti-tip barriers. This security system had already been used by the subsidiary for the 2016 European soccer championships at Lille’s Pierre-Mauroy stadium.

“As job superintendent and someone who lives in the region, I’m proud to build infrastructures that will make mobility easier for people.”
Florian Rigoulet, job superintendent (Colas Nord-Est)

**Environment and safety**

Act 5: the environment and safety at the heart of operations. From the design stage of the project, an environmental expert was brought in to outline the environmental issues to
BEAUTIFICATION
Place de la Republique Square in Lens, where printed concrete slabs have replaced old red asphalt sidewalks.

BOLLAERT-DELELIS STADIUM
When designing the BRT lanes outside the stadium, teams from Colas had to adapt their schedules to accommodate for sporting events, and even the discovery of a WWII blockhouse.
> be taken into account when putting together the bid. The presence of invasive Japanese knotweed, consideration for migratory species and polluted land management: every environmental challenge was addressed during the execution of the project. “Since the risk of accidents was particularly high given the restricted space and the numerous machines present on the various sites, safety - Colas’ number one priority - was central to site management”, underlines Frédéric Dutour.

**Integration in an urban environment**

Final act: social acceptance. Because a jobsite that is well understood is well accepted. The free “Colas et Moi” app was used to monitor the BRT projects in real time. “With its options to search by sector, publish photos and a description of the work, sign up for alerts, etc., the app was our solution to create proximity and facilitate communication with residents.” At the height of the project, 300 people were using the app. In parallel, a facilitator was appointed and pairs of ambassadors liaised with shop owners and businesses to monitor the impact on them.

Fourteen months after the work was launched, the time has come to start delivering the various sections of the BRT project. A trial run period is scheduled for December 2018. And, as Frédéric Dutour concludes: “A major project is a human adventure demanding constant adaptability, humility, energy and effective communication. With the Lens BRT project, our greatest success was the team spirit created. The project worked because of its people.”

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1. The identical housing units built for miners in northern France and southern Belgium.
2. Artificial hills, also known as “bings”, formed by the accumulation of mining operation waste.
3. A structural frame above a mine shaft.
4. Area of northern France economically, socially, topographically, ecologically and culturally marked by intensive coal mining operations.

Romain Delattre, Works Manager (Colas Projects)
Profit center manager, project engineer, technical assistant, foreman… They all do their jobs with enthusiasm and have decided to share their daily routine and projects with us.

As far back as he can remember, Jenjob Natthavut always dreamed of sailing around the globe. Determined to make a career of it, he started out as a ship cadet before joining Tipco. His job? Captain of the Tasco Tara, a 129 meter-long bitumen tanker, which sails the world’s seas and oceans with its crew of 17 men from a variety of backgrounds and a cargo of up to 12,000 tons of bitumen. “Between Australia, New Zealand, China and South Korea, I discover new landscapes and cultures with every crossing”, explains Jenjob, who spends an average of seven months of the year at sea. “My primary responsibility is to ensure the safety of my crew, the cargo and the ship. That’s what drew me to Colas, an international Group that makes safety its number one priority.” Now 41, this captain is proud of belonging to a Group that has trained him in the art of people-oriented, responsible management. 
“My job demands genuine adaptability.”

Alix Mabire
Project Engineer
Colas Centre-Ouest
France

During her engineering studies at the INSA engineering school in Strasbourg, Alix Mabire completed two internships: one at Colas Centre-Ouest’s Bourges profit center, as assistant project engineer, and the other in La Rochelle’s technical services department, where she helped draw up the town’s environmental standards. After graduating at the end of 2015 she applied to Colas and began a tour of France that took her around the country. “Roads and services, drainage, asphalt mixes: I took part in a variety of projects, discovered all aspects of jobsite operations and learned a lot about the technical and organizational side of profit centers. Every four months, I moved to a completely different professional and personal environment. It was a great experience.” Alix, who returned to Brittany in 2017, is now project engineer on urban development projects, including an esplanade at Rennes railway station. “This is a complex project with interface and flow management issues in an operating railway station. It is also highly qualitative, with prestigious materials like granite. Good communication with the job superintendent is the key. We work in tandem. The city and the profit center are extremely dynamic. I feel useful and am delighted to have settled in Rennes!”
KANJANA YINDEE  
LABORATORY AND R&D MANAGER  
SAMI BITUMEN TECHNOLOGIES  
AUSTRALIA

For Kanjana Yindee, Laboratory and R&D Manager for Sami Bitumen Technologies, a Colas company in Australia specializing in the import and marketing of bitumen and the production and distribution of special binders, Colas’ international dimension is a reality and an opportunity. “I particularly appreciate the fact that working for Colas gives me the chance to gain experience working overseas,” she says. Born in northern Thailand, Kanjana, who has a degree in pure chemistry and a Master’s in environmental sciences, joined Tipco, Colas’ Thai subsidiary, in 1995. She spent fifteen years with the company, first as a quality control technician, then as research and development manager. The irony is that she grew up in a remote village and had to take a boat to go to school every day, and yet she ended up helping to improve her country’s road network! After two years working for Colas in Mauritius, she then took her road binder and micro-surfacing expertise to Sami Bitumen Technologies in Australia. “I’m lucky to be working in a multicultural environment with colleagues of 10 nationalities,” she explains. “Working for Colas gives me self-confidence. Every day, I say to myself: “I’ve got the skills, I can do anything.”
Éric Martin knows asphalt mixes like the back of his hand. Since he began his career in 1980, he has held every possible post in the field, including periods spent on major highway projects. “I’ve always had a preference for asphalt mixes over earthworks, because you get to see the concrete result of all your work”, he confides. In April 2017, when he was application foreman at Axima Villefranche (Colas Rhône-Auvergne), he was asked to contribute to the roll out in the profit centers of ExoPush, the exoskeleton developed by Colas and the start-up company RB3D. This “cobotic” rake is aimed at employees whose job is to manually apply asphalt mixes on the road surface.

“Thanks to ExoPush, the employee can adopt a far more ergonomic posture: there is less strain on the back and movements are amplified. There is a five-fold reduction in the amount of effort required”, explains Éric. He has spent the last eighteen months teaching his colleagues in France, Switzerland, and Northern Europe, how to handle the device and gathering grassroots feedback that he can share with developers with a view to incorporating further improvements. “Whenever a new feature is introduced, I’m the first to test out the new version. I’m passionate about mechanics and love to find clever tricks. I particularly love the interaction with employees and being able to say to myself that I’m doing my bit to improve their working conditions.”
The Flowell adventure is exciting

EMMANUEL ORLIANGES
FLOWELL DEVELOPMENT MANAGER
COLAS SA
FRANCE

As commercial manager at Aximum Marking Products, Emmanuel Orlianges knew everything there was to know about road marking. When he discovered the Flowell dynamic signaling solution designed by Colas, he was completely won over by this innovative technology. Keen to get involved in the project, he soon joined Colas’ dedicated Flowell team as development manager for the new product. “Colas has always been the benchmark as far as I’m concerned. I spent my childhood in Africa because of my father’s job and the company’s yellow diamond was everywhere”, explains Emmanuel. Ethically-minded and concerned about environmental issues, he identifies with the Group’s values and Flowell’s objectives. “As well as the numerous technical, legal and commercial aspects that have to be understood and addressed, there is much to do in terms of technological development and studying the behavior of future users.” A genuine personal undertaking as far as Emmanuel is concerned. “I’m proud to be a part of this adventure, alongside engineers whose backgrounds are very different from mine and who are armed with some extraordinary professional experiences. I’m working towards an exciting objective. It’s extremely rewarding!”
Guaranteeing quality on site

MAUD HACHET
TECHNICAL ASSISTANT
COLAS ÎLE-DE-FRANCE
NORMANDIE
FRANCE

A chemical engineer, Maud Hachet did not set out to work in the construction business. On the contrary, the formulation of paints, resins and dressings was her domain. In fact, in 2011, she carried out her end-of-studies internship at Colas’ Campus for Science and Techniques (CST), researching road marking paints. Hired the following year for a twenty-month tour of France, she undertook a series of quality control missions concerning asphalt mixes. “I didn’t know what I was doing to start with, I learned on the job”, she smiles.

At the start of 2014, a technical assistant position came up in the Paris region. Drainage networks, pavement and retention basin sizing calculations, research into alternative solutions, compliance monitoring… From calls for bids through to project delivery, she provides comprehensive technical support to three profit centers.

“I work on a variety of projects with a variety of people: profit center managers, site supervisors, design offices, legal specialists. With this job, I spend some of my time in the office and some out on jobsites, even at night, so I can check projects are advancing as they should be. And the job is constantly evolving, with the emergence of new civil engineering and geotechnical activities! I’m really happy to have seized all these opportunities and taken my career in a new direction”, she ends.

“...itineraries...”
I was lucky enough to be able to work with my dad.

TIM DUDLEY
GENERAL MANAGER OF SECON AND SOUTHEAST ROAD BUILDERS
COLASKA
USA

For the Dudleys, working at US Colas company Colaska is a family affair! Now General Manager at Secon and Southeast Road Builders subsidiaries, Tim Dudley has fond memories of watching his father, who has worked at Colas since 2000, take part in a number of major infrastructure construction projects, such as the Trans Alaska Pipeline. “He inspired me. I have been lucky enough to have worked with my dad throughout my career at Colas”, he says. Tim Dudley joined Colaska at just 18 years old, while studying management and marketing. From asphalt mix application at QAP, another Colaska subsidiary, he moved to project engineering before becoming general manager. “Our strategic plan focuses on the development of the company, the consolidation of our position in south-east Alaska and the identification of new opportunities to improve efficiency”, he explains. Organizing the transport of equipment and materials between worksites, making sure barges have the necessary mooring rights, checking the quality of materials... Tim’s job is extremely varied, but everything he does is underpinned by the same shared requirement to best address customers’ needs and hence secure the long-term future of the business.
I still derive the same pleasure from being out in the field.

KAROL ZEIDLER  
PROFIT CENTER MANAGER  
COLAS POLSKA  
POLAND

“I always wanted to be a construction engineer and work with France. Colas gave me the opportunity to fulfill both dreams at the same time. I studied French at high school, I love the language and the country. After completing my studies at the Poznan University of Technology, I had to choose between roads and buildings”, explains Karol Zeidler. Circumstances decided for him: Colas had a profit center in his town. The student read everything he could get his hands on about Colas, his enthusiasm grew and he went for it, paving the way to a career in roads! An intern before being hired by the company in 2004 despite the fact that he had yet to complete his studies, Karol gained a variety of experience and gradually rose through the ranks: site engineer, site supervisor, project manager. Today, he is responsible for some major projects, including the construction of two 20-km sections of expressway between Poznan and Wroclaw. Depending on the project, he works in partnership with Czechs, Slovaks, Italians, etc. He thrives on the diversity of his tasks, the international dimension his job gives him, the challenge of complex negotiations… and he never forgets to head out to the jobsites. “I need to feel the atmosphere, meet the teams and keep things concrete so that I understand the problems that can arise. I still derive the same pleasure from being out in the field.”
A finalist at the 1980 Moscow Olympics, voted best African athlete in 1981, five times military athletics world champion, fourteen years in the Algerian national team… A world-class athlete and 3,000 meter steeplechase specialist, a distance he covered in 8'25, Ahcène Babaci arrived in France in the 1980s to train at the legendary Racing Club de France, then in Nanterre. In 1988, having been spotted by the president of the Magny-en-Vexin athletics club, who also happened to be a construction sector entrepreneur, he began a double career: worker by day, and federal trainer at the club in the evening. As a foreman at Spac’s Aulnay-sous-Bois profit center since 2003, he supervises a team of between three and five people and continues to enjoy his double life. “Earthworks, operating machines, concrete, asphalt mixes, laying paving and water pipes, connection work for private individuals, asbestos removal… we tackle a lot of different projects and I love the variety. In the evening, I’m back with my athletes. Some of them are in the French national team; it’s a source of immense pride! Sports and work are essential to my life balance.” A real perfectionist, what he likes more than anything else is passing his expertise on to his teams, as well as his taste for hard work. Irrespective of which hat he is wearing!
The BRT project helped me grow.

Julien Lefrère always wanted to go into the construction business. He loves the variety and being able to work outside, the team spirit and the chance to learn from old-hands: “The job’s anything but monotonous!” After his high school certificate in civil engineering, he did an internship in the roads and services sector. That was the “trigger” that set him off on this path. Equipped with a vocational diploma in construction, he began his career as roads and services superintendent, with a detour into earthworks. In 2017, he heard from a friend that Colas was hiring. “I was interested straight away. Colas is a big group and a groundbreaker in the roads and services sector.” The company took him on in May 2017. His first mission was as superintendent on the Lens BRT project. With its many teams (of up to 20 people) and large machine fleet, the project was a big step up for Julien: “It really helped me grow in terms of organizational skills, as well as giving me a great deal of responsibility when it comes to people management. It also gave me a broader perspective of a jobsite.” One of the things he particularly appreciated was the genuine cohesion between teams on every level. “An atmosphere on the ground that really makes you want to do your best.” Next step? Another few years to increase his autonomy as a job superintendent before - why not? - trying his hand as a site supervisor.

Equipment: a fast-changing sector

The Equipment department began working on predictive maintenance for machines and industrial plant using telematics data at the end of 2017. Daniel Ducroix, Colas Group Equipment Manager, explains the major challenge facing the branch: the transition from a culture of maintenance and repair to one of optimization and efficiency.
Could you present the Equipment branch to us?
Daniel Ducroix: The Equipment branch is made up of around 1,800 employees around the world, in some 50 countries. It is organized on the basis of the Group’s model, by geographic zone (France, International, North America). At Colas SA, the branch is organized more on the basis of fields of expertise for industries – asphalt plants, emulsion plants, quarries – and for mobile equipment.

What changes has the sector seen?
D. D.: There have been changes in terms of techniques and equipment of course, but not only. Over the past two years, the purchasing procedure has evolved: it is more structured and consolidated at Group level. But the big change happening right now concerns telematics: the analysis of data from machinery (miles traveled, fuel consumption, number of tons transported, etc.). The technology makes it possible to optimize productivity and reduce maintenance costs. It is also an invaluable operations support tool. Now, for the service life of the machine, we no longer reason in terms of TCO (total cost of ownership), one third maintenance, one third fuel and one third purchase price. With telematics, we now talk about TVO (total value of ownership), i.e., what the machine produces and its added value.

What are the major challenges facing the branch over the coming years?
D. D.: Our main challenge is to support change and, where possible, preempt it in order to maintain the Group’s competitive edge. To do this, we’re going to have to move from a culture of equipment “maintenance and repair”, to one of equipment “optimization and efficiency”.

What are the keys to ensuring a successful transformation?
D. D.: The right equipment has to be in the right place and used properly! The Equipment branch keeps a critical eye on fleet use across the Group: be certain that the machine fleet is adapted; have a return on investment, and gradually shift from possession to usage.

“To what extent is the use of telematics data set to change the lives of employees working for the branch?”
D. D.: Telematics data are playing an increasingly important role within the branch. A machine is first and foremost a production tool. So we have to be able to determine the right machine to use, but also how to use it on the basis of its actual added value. This approach requires more input from employees, both at field and operations level. Therefore it’s up to us to make sure all these telematics data – the keys to predictive maintenance – are included and managed by our manufacturers when we purchase our machines or launch a call for bids. We then need to manage our quarry, asphalt plant and emulsion plant predictive maintenance activities.

“A machine is first and foremost a production tool. So we have to be able to determine the right machine to use, but also how to use it on the basis of its actual added value.”

“INTERVIEW WITH DANIEL DUCROIX, COLAS GROUP EQUIPMENT MANAGER”
Colas and Volvo Construction Equipment, a Volvo Group subsidiary specializing in the construction of site machinery, have teamed up for a research project aimed at improving site safety. As part of the Safer@Work research project, Volvo CE recently tested a human presence detection system at two Colas sites, an asphalt plant and a quarry in Switzerland. The concept uses artificial intelligence (AI) to warn machine operators when a human presence is detected in the vicinity. It incorporates different warning systems, for both the operator and people working close to the machine. The prototype is one of the three machine operator assistance concepts Volvo CE and Colas have been working on since 2016. Currently, this work forms part of a research project aimed at demonstrating that the technology is viable on an industrial scale. “As far as Colas is concerned, safety is its number one priority. We wanted to work in partnership with a site machinery manufacturer to create an innovative safety system that would reduce the number of crushing accidents, a major risk in our business”, explains Philippe Simarik, Colas’ Prevention, Health and Safety Manager.
EXPERT ADVICE
“The pace of progress is exponential”

In 1965, Moore’s law predicted that the power of computers would double every 18 months. That’s exactly what happened. Ray Kurzweil, Google’s Director of Engineering, has suggested that by 2045 we will be producing the equivalent of a 20th century of innovations every month. Such a pace may be alarming but we’re talking about innovations that can improve our lives. The second challenge is to anticipate “drivers of disruption”: extreme longevity; super-structured bodies that produce the major innovations; a globally connected world; smart objects everywhere (50 billion in 2030); and a world of artificial intelligence. All these things will lead to a radical transformation of our society, our usages and our modes of consumption. Third challenge: we’re shifting towards a society of usage, sharing and information. We’re going to be able to optimize the usage rate of goods. Intensive automation over the next 15 years will alter our production methods. For Colas Equipment, the issues surrounding the transition to machinery automation, usage, new professions and data production are of fundamental importance. So we mustn’t fear these changes. We need to go with them, or even preempt them. At the conference, I was impressed by the capacity of the working groups to anticipate.

IMÈNE MEJRI-CHTIOUI,
Energy - Predictive Maintenance Manager
“The objective of predictive maintenance: to avoid breakdowns”

“Colas’ Equipment Department began working on predictive maintenance at the end of 2017. For vehicles and mobile machinery, systems installed by manufacturers on our machines generate data: pressure and temperature readings, number of engine revolutions/minute, number of miles covered, fuel consumed, number of tons lifted by a bucket, etc. We then store, process and correlate these data and define warning thresholds. These thresholds help us detect anomalies and monitor their evolution with a view to scheduling or postponing a mechanical intervention. Our aim is to reduce the number of stoppages caused by breakdowns, ensure the reliability of production equipment and increase its availability rate. With predictive maintenance, our job sites will be more fluid. For quarries, asphalt plants, concrete plants and emulsion factories, the approach is quite similar, with data fed back in addition to systems placed at various strategic locations to monitor the health of operating machines remotely.”

REYNALD BAZILLE,
Equipment Engineer
“Operational efficiency and predictive maintenance”

“The objectives of telematics data are fourfold. Firstly, the idea is to have a long-term vision of equipment. Evaluating telematics data will help us reduce spending on machines, but also, and more importantly, measure their added value. From now on, we will be able to measure the efficiency of our machines, know how much they are bringing in and whether or not they should be kept. At the moment we only have basic data on our machines, such as operating time and consumption. We don’t know their productivity (yield per ton, etc.). Secondly, with the use of telematics internally, we’ll be able optimize our fleet management and provide operational support, by linking all these data (distances covered, fuel consumed, tons lifted) with ERP data (accounting, schedule, jobsite report). Thirdly, the aim is to achieve the “zero breakdowns on job sites” target thanks to telematics used for predictive maintenance purposes. Our manufacturers, Volvo and Liebherr, will be able to tell us what part of the machine needs to be replaced and when.”

JEAN-PHILIPPE COUTURIER,
founder of the Whoz platform, addressed the Equipment Conference held in June in Paris
“Our society will face three major challenges over the next 20 years. The first challenge is the pace of progress and innovation. We have traditionally thought of progress as a linear phenomenon. But it’s exponential.
On August 20, 33 months in the making, Colas’ new head office opened its doors to the 350 employees now based there. Located in the 15th arrondissement of Paris, bordering the suburb of Issy-les-Moulineaux, the eight-floor facility was built by Bouygues Construction on behalf of real-estate promoter Bouygues Immobilier. The contract to carry out the demolition and structural work was awarded to Colas Ile-de-France Normandie. In 2017, as the initial work was coming to an end, employees got involved in the design of their future working environment, testing a variety of collaborative spaces, for example, and taking part in workshops focusing on the future internal layout. A digital archiving project was also launched, encouraging the gradual adoption of new document management methods. Lastly, huge volumes of paper and materials were amassed for recycling as a result of a number of waste collection initiatives. In 2018, after the trades completed their work, the internal layout was finalized prior to delivery of the building.

Striking figurehead
Of spectacular, streamlined architectural elegance, this quartz-like edifice is the brainchild of Christian de Portzamparc (Pritzker prize 1994) and can be seen from the Paris ring-road as it soars 36 meters into the sky. The building envelope of oblique facets, with slants and slopes of between 3 and 6°, consists of double skin: light-colored thermo-lacquered aluminum in the inside and silk-screen printed glass on the outside, delivering a transparent effect. Daylight floods into the spaces inside, which also enjoy outstanding thermal and acoustic comfort. A veritable glass prism, the building forms a striking feature in its urban environment and reflects Colas’ singular identity, its dynamism and its ambition.

A positive energy building
The facility is a latest-generation positive energy building, i.e. it produces more energy than it consumes. Its environmental credentials are
Located in the 15th arrondissement of Paris, the new Colas head office is a positive energy building, designed to foster teamwork and communication.

Based on three principles: to produce renewable energies, consume less and consume better. For example, 540 m² of photovoltaic panels have been installed on the roof. There is also a rapeseed oil cogeneration plant. To reduce overall energy consumption, lights come on when human presence is detected, blinds are controlled depending on outside light, etc. Employees are asked to behave eco-responsibly, by sorting their waste and opting to travel to work by public transport, bicycle, electric car or using car share. These characteristics mean that the building has triple environmental certification: BEPOS (positive energy building) Effinergie 2013, HQE (high environmental quality)™ “Exceptional” 2015 and BREEAM International 2013 “Excellent”. Hervé Le Bouc, Chairman and CEO of Colas, enthuses: “Thanks to its energy performance and the cutting-edge technologies it employs, our new HQ also symbolizes Colas’ responsible development approach and its capacity for innovation.”

Reinforcing collective intelligence

The building has been designed to optimize the working environment for employees. It is connected, and equipped with the very latest information and office automation technologies. To ensure the well-being of its occupants, there was a particular focus on the quality of work stations and shared spaces, particularly in terms of acoustics and ergonomics. A whole range of extra facilities are also provided: auditorium, cafeteria, gym, concierge service, relaxation areas, etc. “In this reinvented and deliberately decompartmentalized working environment, open and shared spaces are conducive to exchange and collaborative working methods. They help reinforce our collective intelligence”, concludes Hervé Le Bouc.
The One Colas project provides the Group with new impetus. This strategic five-year project sets out a road map backed by collective intelligence. Its name reflects this, as Colas’ CEO Hervé Le Bouc explains: “One’ because we are one Group. We therefore have a shared future. And ‘One’ because we are stronger together than alone, all working separately.” The project, headed by the Executive Management Committee, is based in particular on the sharing of know-how and experience amongst the Group’s full range of business segments and activities, in view to federate employees and entities. To build One Colas, a drive was rolled out to assess Colas’ strengths and paths for progress, in addition to a market trend analysis. “From this work came a project that aims to take advantage of new opportunities offered by major trends, to provide added strength when needed and to significantly improve our results”, underlines Hervé Le Bouc. Using the Colas Group’s raison d’être – to promote infrastructure solutions to support responsible mobility – as a springboard, strategic axes were defined, including stronger vertical integration for the quarry-bitumen-construction segments, as well as a focus on major projects, improved geographic spread, ongoing innovation, new offers, and more. Priority projects were defined, each of which is headed by a member of the Executive Management Committee and by a project leader. During the second quarter 2018, ten roadshows were organized in France and around the world to present One Colas to Group employees. “One Colas is an opportunity for all of us to collectively contribute to building our shared future”, concludes Hervé Le Bouc. “Colas relies on almost a century of know-how and expertise, a strong employee base, enormous data resources, as well as a powerful, world renowned brand name. This is what we call the Colas Way, that gives us a lasting competitive edge and that we must further promote.”

“A STORY OF BLUE TITS AND COLLECTIVE LEARNING

“Back in the early 20th century, in the UK, milk bottles delivered to people’s doorsteps didn’t have tops. Blue tits and robins soon learned to help themselves to the cream. And they thrived on it, because the population of each of these bird families grew to a million. During the inter-war years, an aluminum foil top was added to the milk bottles. While blue tits, as socially aware animals, learned how to peck through the tops together, the robins didn’t manage to share this same knowledge. As a result, their numbers halved. The moral of the story: collective learning is almost always a determining factor in the success of a group.”

For further informations, join the One Colas Group on Yammer.
Colas Group’s deconstruction businesses1 (attached to Colas Île-de-France Normandie) have been brought together under the single PREMYS brand. The name reflects what the activity symbolizes: being first in line when building new spaces and the circular economy. The new umbrella brand brings together the 11 entities2 located across France. Through the pooling of human and equipment resources, PREMYS asserts its position as market leader, with expertise in all six areas of the activity: demolition, clean-up, asbestos removal, concrete cutting, dismantling and circular economy. With a strong identity and a logo showing that it belongs to the Colas Group, PREMYS has set itself the objective of raising its profile with its customers while expanding its range of services in new market segments, such as the dismantling of sensitive industrial sites, ships and wagons. And it will do so while constantly reinforcing its fundamentals: trust, efficiency and safety.

1. Ferrari, Genier-Deforge, Brunel, Perrier Déconstruction.
2. The entities become PREMYS profit centers while keeping their historic name attached to the new brand (for example: PREMYS Brunel agency).

PREMYS, Colas’ new deconstruction brand
The beginning of 2018 was marked by the closing of the acquisition of the Miller McAsphalt group, a major player in the road construction market in Ontario and bitumen distribution across Canada (see p. 18). Other acquisitions were also completed over the last few months in Europe, North America and Australia.

Construction materials in France…
As part of the Group’s ongoing growth strategy in the field of aggregates production, Colas acquired in the south of France a 50% stake in six quarries owned by the Malet family (September 2017) and a 100% stake in the Carayon Languedoc company (November 2017), as well as in the west with the acquisition of the aggregates and igneous rock products segment from LafargeHolcim Granulats Ouest (July 2018). These acquisitions reinforce the Group’s network coverage in France.

…and in the United States
In March 2018, Delta Asphalt, Inc. and Apex Paving Co., subsidiaries of Delta Companies, Inc., acquired ASA Asphalt, Inc., located in the state of Missouri, USA. This acquisition, which includes an asphalt plant and several manufacturing and construction sites, will boost Delta’s production capacities in the region and its service quality.

Bituminous products and road works in Australia
In February 2018, Colas Australia Group acquired Topcoat Asphalt Contractors Pty. Ltd., based in Adelaide, Australia. This company, which specializes in the production of bituminous products and road works, operates in South Australia and the Northern Territory. This acquisition consolidates the Group’s presence in Australia.

Railway experts in Europe
In July 2018, Colas Rail acquired the railway activities of the Swiss company Alpiq Engineering Services, a major energy, industrial services and rail infrastructures player. This acquisition should reinforce its expertise in the field of catenary systems, a high added-value activity, and give it access to new growth markets. The subsidiary has thus added on to its portfolio of solutions and expertise and penetrated the Swiss and Italian markets while reinforcing its foothold in central Europe and the United Kingdom.
The digital transformation is under way at Colas. After the launch of the Colas Campus e-learning platform comes My Colas, a new web portal aimed at employees based in Mainland France with a Colas email address.

All your tools in a single click
My Colas will go online in the last quarter of 2018 and be accessible via PC, tablet or smartphone. Objective: to facilitate your day-to-day work! The homepage offers simple, intuitive browsing options. It organizes and simplifies access to numerous, previously dispersed, existing tools: Office 365, the Colas Campus e-learning platform, the directory of Group employees, Yammer and the colas.com website, etc.

Des nouveaux services utiles au quotidien
My Colas is also a package of new online HR services enabling everyone to save time and share information more effectively in a secure environment. These include a digital safe (via Digiposte, a La Poste Group solution) allowing employees to receive pay slips electronically and store administrative and personal documents: invoices (telephone, Internet, energy, etc.), air tickets, photos, etc. My Colas also includes a vacation self-service section, where employees can submit requests for paid leave and days off in lieu of unpaid overtime. “No more paper! Employees will be able to see at a glance what their vacation entitlements are (number of days acquired, taken and remaining). Managers receive and validate requests online. They can also access their team's schedule”, explains Boris Blind, Deputy HR Manager. The other innovative feature: an HR self-service section, providing employees with transparent access to personal and career information: personal information, contact details, length of service, mobility, pay, training history, etc., all of which can be consulted at any time. Some of this information can also be updated online. My Colas also offers functionalities aimed specifically at managers, such as the HR Manager self-service feature, providing information about their teams. It should be noted that the portal can be customized with links, both internal (your business applications) and external (your favorite sites)!

1. A study is currently under way to provide this service to workers.
At the end of June, for the 6th consecutive year, Colas held its Safety Week initiative, covering all of its 800 construction units and 2,000 material production units on the five continents. This year’s theme was the fight against addiction. Alcohol, drugs, medication, smartphones... anyone can be affected by addiction, which can have a potentially serious impact on life, both at work – particularly on jobsites or behind the wheel – and at home. The week began with the screening of the film “Under the Influence”, produced at Colas Nord-Est’s Metz profit center by professional actors and employees. The objective was to allow people to speak freely about sensitive issues and encourage debate. Posters, quizzes and awareness sheets accompanied the rest of the week. In the subsidiaries, a number of other events were also organized: discussion workshops, presentation by an addiction specialist, talks by a sophrologist, theater company productions, etc. Feedback was enthusiastic with everyone feeling involved, sometimes on a personal level. Beyond this dedicated week, Colas’ safety policy is actively implemented on a daily basis throughout the year. In the space of 15 years, the number of accidents within the Group has halved. In 2019, Safety Week will once again be dedicated to health.

Safety Week 2018: everyone concerned and everyone onboard!

“Under the Influence”
To watch the dedicated film “Under the Influence”, go to YouTube Colas.
Drug and alcohol addiction
If you see a colleague under the influence of drugs or alcohol, what should you do?

You should do everything you can to prevent an accident and, at the very least, inform your manager. It’s about looking after the person, yourself and everyone around you. The individual concerned will then be offered various support solutions.

Telephone: best practice
• Only check your phone in a safe place, during your break or in the event of an absolute emergency.
• Do not walk while talking on the phone or looking at your screen.
• When I call someone and I realize the person is driving, I tell them to call back once they have stopped and I hang up!
Launched in June 2017, Colas Campus’ digital platform aims at speeding up skills development and boosting employability. “The tool offers a range of teaching methods covering a variety of topics (safety, office automation, BIM, ethics, management, etc.) in the form of e-learning, serious games, MOOCs and COOCs”, explains Thierry Debien, Colas’ Training and Skills Development Manager. In 2018, the Group’s training provision is being expanded further, becoming more international and providing more content.

The internationalization of training
Since June 15, all employees with a professional email address, wherever they are in the world, have been able to access Colas Campus, and, in particular, some of its training programs available in several languages. It should be noted that employees from outside France have access to a French-learning module since July 2018. In parallel, some new open-access modules have been added to the existing provision, particularly in the management field with five new themes: developing autonomy, in-house negotiations, stress management, managing in tense situations, measuring the impact of personal image. Go to the Colas Campus management and personnel development program.

“Business tutorials”
Manual asphalt mix application, curb laying, etc. Eight tutorials on Colas’ core businesses, in short video format, have been created and translated into 13 languages. “To watch live or download on computer or mobile phone, the idea is to create a library of Group know-how in every language”, continues Thierry Debien. The application (LMS App) is available on smartphone, for download on iOS and Android.

ColasShare, a new sharing platform
“We have a rich pool of experience and know-how,” underlines Thierry Debien. “In order to pool and formalize our expertise and come up with improvements, we’ve created ColasShare, a sharing platform organized around our businesses.” This space is open to all employees in France and abroad so they can express their views and help promote best practices. Business experts will analyze contributions and guarantee their technical validity, within the framework of the Group’s ethics and rules of confidentiality. The tool is currently available for six activities: binder plants, asphalt, quarries, equipment, cash management and M&A. It will be rolled out to the Group’s other activities from the 4th quarter of 2018. “This initiative is designed to instill a veritable cultural change, underpinned by sharing and cross-functionality, within the spirit of the One Colas strategic project.”
Their names are Inès Nouayé, Fabrel Boukou and Davy Mbiengang. What do they have in common? All aged 22, from Cameroon or Gabon, they have decided to become engineers. Armed with a post-high-school technician certificate, they enrolled on the engineering course at the Catholic University of Central Africa and the Institut catholique d’arts et métiers (Catholic Engineering Institute) in Douala (Ucac-Icam). The apprenticeship route ensures they get crucial work experience while receiving material support from the host company.

Colas Africa plays the apprenticeship card

Talented young people that Colas’ Equipment division in Africa wanted to employ and develop to ensure continuity and pass on know-how in its workshops and industries. “Between 2016 and 2019, Colas Gabon, Colas Africa in Côte d’Ivoire and Colas South Africa will be hosting five of these youngsters – three young men and one young woman – to support them through to their graduation and include them in our talent pool”, explains Serge Cavasino, Equipment Manager for French-Speaking Africa.

1. Colas is a partner of Ucac-Icam.
The 2018 Environment conference was attended by one hundred employees in Montreal, Quebec, Canada, last June, the opportunity to share best practices.

On June 12 and 13, some one hundred employees gathered in Montreal to discuss feedback and share initiatives concerning the environment. The protection of whales against sound waves caused by construction work using “bubble curtains”, re-use of water hyacinths in Africa, experiments on the eradication of Japanese knotweed, black bee conservation in Provence, etc.: the two-day conference was punctuated by a variety of fascinating biodiversity presentations. One of the highlights of this first Canadian edition of the conference was a presentation of the relations developed by the Group with First Nations: creation of joint-companies for construction projects, recruitment programs, partnerships for orders, etc. The conference also highlighted the effectiveness of projects initiated within the context of the EOCE collaborative work and collective intelligence program launched in 2015 by the Group Environment Department. It gives structure to initiatives conducted by subsidiaries, bringing together the different perspectives provided by environment officers of other entities. Finally, during a tour of a local quarry and asphalt plant, participants had the opportunity to test the new Internet platform Chloé, used to evaluate environmental performance in the Group’s stationary sites.
SAMI Bitumen Technologies has been encouraging the development of high modulus asphalt technology (EME2) in Australia for the last four years. By reducing the thickness of asphalt layers, significant savings are made possible. Following a first successful test run in Brisbane in 2014, SAMI Bitumen Technologies, a Colas Australia subsidiary, has been encouraging the development of high modulus asphalt technology (EME2) in Australia. The objective? To replace the dense, 20-mm size asphalts currently used on heavily trafficked roads in Australia. EME2 asphalts offered by SAMI lead to significant savings by reducing base layer thickness and increasing the hardness of the asphalt so that it can withstand heavier loads without cracking. SAMI teams have already supplied EME2, produced in Brisbane, for several pilot projects in major Australian cities, including Brisbane, Sydney, Melbourne and Perth. The company is currently supplying 9,000 tons of EME2 binder for the landmark Logan motorway project in Brisbane. SAMI will also be able to produce this innovative binder at its new Kwinana terminal in Western Australia.
Citizen actions, street art, awards, trade shows…
Some images of the Group’s events in France and around the world.

SOAPBOX CAR RACING
Back in June, four employees from Colas Centre-Ouest’s Bourges profit center took part in the town’s annual “Descente Infernale” soapbox car race, with 78 crews battling it out in downtown Bourges (central France). The “Bull”, designed and piloted by the team, had to negotiate a slope with a 700-meter drop in height in front of a crowd of 15,000 spectators.
SKYTOUR ROADSHOW
To mark its 60th anniversary, Skydôme (a subsidiary of Axter – Smac – specializing in skylights, aeration and ventilation solutions) went out and about to meet customers during a SKYTOUR, aboard a trailer truck! The truck, sporting the brand’s colors, spent four weeks crisscrossing France and Belgium, stopping off at partner distributors to present the latest products and the virtual reality program.

STREET ART IN THE WORKSHOP
As part of its 6S continuous improvement project, employees at the Colas Centre-Ouest workshop in Vannes called on an association, A4 Creation, to paint graffiti art murals on the garage wall in order to add color and light to the premises. Young people, aged 13 to 15, were invited to participate in the initiative, thus allowing them to discover the construction business and to raise safety awareness.
VIVATECH 2018

Winners of the Bouygues Challenge Digita-All “Connected Sleeve” competition were handed their awards by Olivier Roussat, Deputy CEO of Bouygues and CEO of Bouygues Telecom at the Vivatech new technologies trade show, held in Paris in May. The competition asked participants to come up with usages for the connected sleeve, the new tool designed for the “connected skilled worker”. Colas Nord-Est won 2nd prize with its “pocket surveyor” to help surveyors view blueprints and take measurements. Colas Centre-Ouest was awarded 3rd prize with its “Safety Toolbox”, aimed at preventive safety via the provision of useful information and the identification of hazardous situations.
CORPORATE CITIZENSHIP INITIATIVES
On June 2, in Wittelsheim, Alsace, the PREMYS’ (see p. 55) Ferrari profit center took part in a citizenship day organized by the town authorities. Forty-five employees carried out repair and upgrading work on some of the town’s symbolic places used by everyone: creation of a parking lot, resurfacing of a 2-km section of path, creation of an entrance to the Jardin du monde park, resurfacing of paths in the cemetery and cleaning of various zones.

AWARDS
The Siati (infrastructures, town and country planning and property summit) awards, organized by the Leaders League group, singled out Colas for a “special mention” in the category “best PPP structuring” for the Madagascar airports concession contract. The prize was handed over to Julien Guéry, Colas’ PPP Department section head, Catherine Marcadé, Colas’ PPP Department project coordinator (left), and Juliana Strunden, legal specialist, Colas Major Projects Legal Department.
Back in May, as part of the Colas on Stage sponsorship program aimed at creating synergies between the worlds of the arts and the road, Dystopian Dream, a dance work based on the album of the same name by composer Nitin Sawhney, was performed at the Espace Pierre Cardin theater in Paris.

Choreographed by Honji Wang and Sébastien Ramirez, the show explores the themes of loss, isolation and celebration through physical movement to take spectators on an intimate journey.
Colas Foundation
Marion Charlet

“Between dreamlike vision and projection in space and time.”
Marion Charlet

“Between dreamlike vision and projection in space and time”

How did you tackle the Colas Foundation commission? 
Marion Charlet: I don’t do much commission work. This is only the second time I have done something like this with a foundation. I identified with the subject: I’m a keen traveler and am always on the road. For me, it symbolizes both solitude and a way of escaping.

Why did you choose to depict the road in this way? 
M.C.: I called this work “On tour”. Between dream and fantasy, it portrays a peaceful moment, where time has been suspended. Nature and architecture are ever present in all my work, with a view to the outside. I never portray people and when animals are present they are very static. The viewer discovers the scene from the road in the foreground. Viewers can allow their imagination to roam freely when they look through to the landscape beyond. Like an escape, even though what you discover is almost too beautiful to be true.

What inspires your work? 
M.C.: From Matisse to Peter Doig, I’m drawn to artists who have traveled widely and succeeded in inventing their own painting; but all of my works reflect my own personal experience. My works are full of emotion: I use acid-drop colors and then experiment with palettes of varying degrees of warmth depending on my mood. I work from photos taken when traveling, so I take a landscape that actually exists and, through vision, memory and the imaginary, I transpose it to render it timeless. That’s why I never reveal the location of the place that has inspired me: I want people to take themselves off into their own dreamlike universe.
Marion Charlet
“On Tour”
Colas Foundation 2016