Implenia

IMPACT

THE MAGAZINE FOR OUR STAFF

WINTER EDITION 2 / 2021

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SCAN ME

Don't forget! IMPACT is also available online. We go into most of the topics in more detail online and there are plenty of videos to supplement the reporting.
Worth checking it out!

Legal notice

IMPACT
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“We need to keep improving all the time.”

We are facing huge changes: By 2050, more than 80% of the European population will live in towns and cities. Making this work will require both innovative solutions and billions worth of investment in real estate, mobility and infrastructures. It is a huge opportunity for Implenia – and a challenge that we must be prepared for.

The construction and real estate industry is facing radical change. In large, complex projects, Implenia is in competition with other strong international providers – we need to be better than them. On the one hand, being better means being more efficient. Digital approaches like Building Information Modelling (BIM), Reality Capturing and Lean Construction help us here, as does the development of new, standardised and largely pre-produced construction and real estate products. But being better also means being safer and more sustainable – for people, society and the environment.

If we want to be successful on the market, delivering decent work is not enough. We need to constantly improve, develop and apply new methods, design new products, and make full use of the potential of every single individual. To do this, we need innovation.
This edition of IMPACT shows how we do it.

André

NEWS

LYON–TURIN BASE TUNNEL

TELT (Tunnel Euralpin Lyon Turin) has awarded section 3 of the 57.5-kilometre Mont Cenis Base Tunnel to a joint venture led by Implenia. The section begins at the Villard-Clément portal and is around 4 kilometres long. The work includes relocating the existing structures (cover and associated structures at Saint-Julien-Montdenis) and new construction for the base tunnel. The project will take around four and a half years.

MAJOR PROJECT LUDWIGSLUST

Our specialist civil engineering team in Germany is delighted to have gained the order for part of the large-scale infrastructure project “Ludwigslust rail bridge”. Focused on a key transport hub for the region, the project is intended to provide more effective interconnection of all local passenger transport in future. Due to the project’s size and extremely ambitious timeline, the Rhine-Ruhr and Hamburg offices are working on it together.

WELCOME TO IMPLENIA CONNECT

After more than two years of planning and reconstruction, Implenia moved into its new headquarters in September 2021. They brings together our four Zurich sites under one roof for the first time. It is designed specifically to encourage collaboration, communication and all types of contact. To make this a reality, Connect is equipped with a totally new space and working concept. Alongside standard workspaces, it offers a wide range of working environments, from peaceful areas for concentrated working or relaxing to meeting rooms of every size and with various equipment. There are also central meeting zones surrounding the tea kitchens on the various floors, as well as the open staircase that links the first, second and third floors, surrounded by open galleries. Whether one prefers to work in the peaceful surroundings of a library, in a normal open-plan office environment, or at a table in the canteen, Connect offers a space for every taste.

SURVEY

Win a trip to Stockholm!

Do you also read IMPACT online, on your smartphone or on a screen at the office? It is worth checking it out, as many of the stories that we outline briefly in the print version are provided there in full length. And there is some totally new content, too: portraits, videos and lots and lots of pictures. We want to know what you like the most. Take part in our short survey about your online favourites to win a trip to Stockholm, where our team in the Johannelund project is currently testing a new concrete injection robot.

PROJECT MILESTONES

WORK BEGINS ON THE SPITALLAMM DAM

Early June saw work begin ona dam being constructed 2,000 metres above sea level. We are building a new, 113 metre tall, double curved concrete dam immediately in front of the existing wall at Grimselpass. The old dam wall will remain in place and be filled from both sides. The new construction ensures that more than a million people can be supplied with electricity using water from the Grimselsee lake.

OPENING OF "MUSEUMS-INSEL" IN BERLIN

The opening of Museumsinsel station in early July completes Berlin's very first fully accessible underground line. With 6,662 illuminated dots, its ceiling is reminiscent of a starry sky. The station's location directly under the Spree canal demanded unusual solutions, with our civil engineering specialists conducting what was at the time Europe's largest ever urban ground freezing. A video shows how the project came about.

↑ Spitallamm: We are constructing a new replacement dam in front of the existing dam, at a height of 2,000 metres above sea level

CONSTRUCTION BEGINS ON THE KANTONSSPITAL AARAU

Work on the new hospital in Aarau officially began in mid-August. Currently Switzerland's largest hospital building, it encompasses three areas – walk-in clinics, functional areas and wards – connected by the shortest routes possible, and is expected to go into operation in 2025. Implenia took over the former ARGE partner, BAM Swiss AG, in May, making it the sole total contractor.

GROUNDBREAKING FOR THE EMPA/EAWAG CAMPUS

Just under four months after work began, the foundation stone for Empa and Eawag's "co-operate" research campus was laid in early September 2021 (see report p. 12). At the special event in Dübendorf, representatives of all partners involved in the project filled a time capsule with items typical of our age, watched by around 50 guests. Construction work is expected to be completed by mid-2024.

GROUNDBREAKING CEREMONY ON THE GOTTHARD

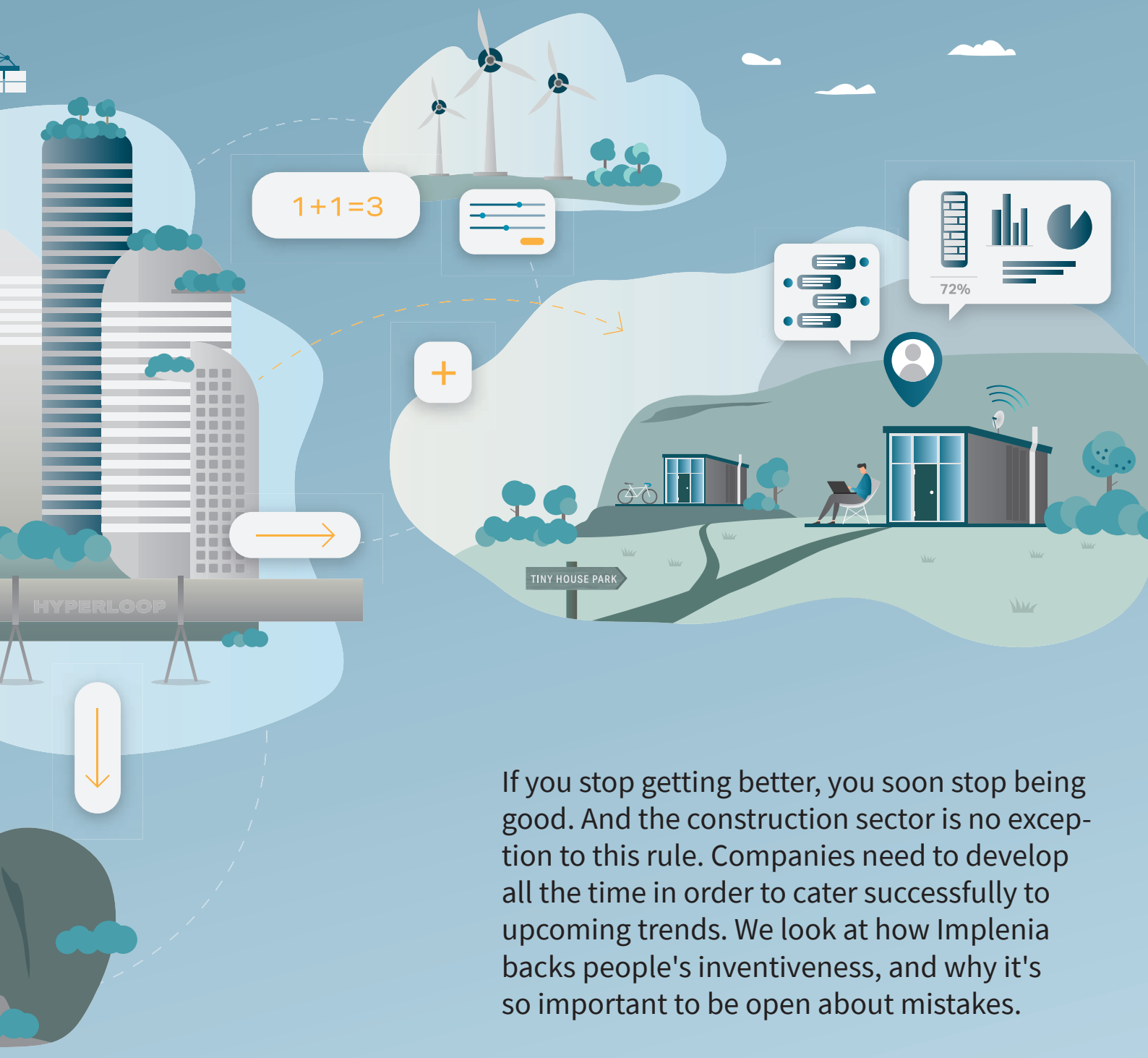
Late September saw two wonderful events in Göschenen and Airolo to celebrate the groundbreaking ceremonies for the construction of the second tunnel of the Gotthard road tunnel. Implenia was awarded the contracts for the two preparatory stages, "relocation of north safety tunnel" and "access tunnel and logistics recesses north", a few months ago and has already begun on the complex tunnel and civil engineering work.

DEDICATION OF THE BRUGG SOUTH-WEST BYPASS

The one kilometre long Brugg south-west bypass was opened to traffic in early October 2021 – almost a year earlier than planned. The project involved many of Implenia's core areas of expertise, including road construction, concrete construction, bridge construction, maintenance, and construction of concrete roundabouts. By using a closed-loop system, Implenia also minimised the CO_2 footprint, thus making a positive contribution to the environment.

INNOVATION

ALWAYS EVOLVING



If you stop getting better, you soon stop being good. And the construction sector is no exception to this rule. Companies need to develop all the time in order to cater successfully to upcoming trends. We look at how Implenia backs people's inventiveness, and why it's so important to be open about mistakes.

FINDINGS FROM RESEARCH

INDUSTRY TRENDS

The construction industry today is one of the most active sectors when it comes to investing in new technologies. Contech start-ups specialising in modern construction technologies have received more than CHF 6 billion of investment over the last three years alone. There are three megatrends currently ready for use in infrastructure and construction projects:

1. **Artificial intelligence** enhances the expertise of construction managers and engineers and helps them to choose the plan with the lowest costs and shortest construction times from thousands of options.
2. **Reality capturing** helps to record the built environment in the form of digital twins, allowing daily progress updates and real-time monitoring of construction projects.
3. **Industrialised construction** increasingly uses modular construction, kit-of-parts and 3D printing to optimise both project quality and timelines.

Building Information Modelling (BIM) is the new standard in construction projects, although Germany and Switzerland are generally still stragglers in the field. In future, future construction managers will need to be trained and developed in digital skills.

Our guest author Daniel Hall, who wrote this article, is Assistant Professor of Innovative and Industrial Construction at the Department of Civil, Environmental and Geomatic Engineering of ETH Zürich.

THE FULL ARTICLE BY PROF. DANIEL HALL IS AVAILABLE ONLINE

Implenia has a clear mission: with and for people, we sustainably develop and construct real estate and infrastructure in order to meet their needs for modern living, work and travel. Yet these needs and standards are changing faster and faster, often creating a need for totally new solutions. But which ones?

Answering this question is Anita Eckardt's main job. As head of the Specialties Division, she supervises the development of a host of promising and innovative companies – Holzbau, BCL Baulogistik and Fassadentechnik to name but a few. At the same time, her team in the Innovation Hub have a clear mandate to promote innovation throughout the company.

"We want to play an active role in shaping the fundamental transformation of the construction sector," explains Anita. "If we meet the future needs of modern living, work and mobility, it benefits our customers, our staff and our shareholders, too." She and her team are tackling the challenge at a range of different levels. An overview:

"INTRAPRENEURSHIP" APPROACH

"Innovation begins with people. Implenia employs a huge number of intelligent and innovative minds, and we demonstrate agility every day as a diverse, passionate team that is constantly on the trail of new and innovative solutions," explains Anita. After all, the approach behind Intrapreneurship is also very simple. Using the Kickbox process, the Innovation team supports staff who present a good idea by providing time, tools and coaching so that they can develop it further (see Page 10). Even if many approaches do not ultimately lead to a new business, they all add something to the organisation. And some suggestions have the potential to develop into something very big indeed.

Take the idea from Robin Frantz, Project Leader Façade Engineering from Hamburg. Robin used the Kickbox service for his inter-company research project. Together with the Fraunhofer-Gesellschaft, the team is now developing a modular façade system that uses state-of-the-art technology to provide a sustainable energy supply to houses. Vital data has been being collected using a prototype module on the test bench at the Fraunhofer Institute for Building Physics since August 2020.

Robin Frantz is impressed with the Kickbox process and the support from the Innovation Hub team. "They just know which questions to ask and help to think the process right through to the end. That way, we can approach the market value of the system more specifically."

More than 800 users are now registered with the Kickbox platform; 77 ideas have been submitted so far. The Innovation Hub team is also happy with its progress. "The internal innovation ecosystem is growing and we are making clear progress in intrapreneurship," says Karel van Eechoud, Senior Innovation Manager and Head of the Innovation Hub.

"OPEN INNOVATION" APPROACH

When it comes to innovation, 1+1=3. Implenia thus relies on a wide network of industrial, technology and research partners, such as the Fraunhofer Institute, ETH Zürich, the virtual reality start-up HEGIAS, and the innovation agency InnoHack. Two things are crucial when working with these partners: team work and transparency. Anita stresses: "We are not afraid to share our ideas, and in exchange we benefit from the expertise of all these partners."

For example, we are working with ETH Zürich and the engineering office WaltGalmarini to develop a sustainable wood and concrete lightweight construction ceiling and with the Hamburg-based Cross Innovation Lab to develop our environmentally friendly multi-chamber skip. Alongside our research, we are working with start-ups to test their potential solutions in pilot projects, for example in the field of reality capturing.

"INNOVATION M&A" APPROACH

The Innovation team also observes the market looking for companies with innovative ideas that could improve the construction sector for the long term. The goal is to establish collaboration and perhaps to invest, too. These ideas from outside help us to use new materials such as organic-based materials in our projects, further enhance our BIM expertise, and record deadlines, costs, environmental data and future maintenance work in digital construction plans. Virtual and augmented reality also have an impact on the way we will work in future, for example allowing us to tour planned installations in the virtual building.

Anita Eckardt, Head Division Specialties and Chair of the Implenia Sustainability Committee

"Implenia employs a huge number of intelligent and innovative minds."

Karel van Eechoud, Senior Innovation Manager and Head of the Innovation Hub

“Innovation means being open to new things, thinking flexibly, and working hard.”

GOAL: “INNOVATION CULTURE”

But all these ways to access innovative new ideas are just part of the equation. To ensure that the organisation enjoys the full benefits of its creative potential, it is vital that this love of innovation is embedded in the corporate culture. One way to do this is through meeting people and discussing. It is therefore no surprise that the new Implenia headquarters Connect not only promotes collaboration at all levels, but also makes the topic of innovation easily visible with its Innovation Space. Available to all staff including for working with external partners, its flexible furniture and tools support collaboration, creativity and various forms of cooperation.

But physical facilities are not everything. We also need to promote diversity – for example in mixed teams in which everyone learns from one another. Just as important are curiosity and lifelong learning, for example the newly launched Innovation e-learning course, which is available to all staff on the eCampus. “I tried out the course during the pilot phase and I loved it,” says Anita. I recommend the course to anyone who wants to learn more about future trends and innovation and who wants to put helpful methods into practice right away.”

But Anita knows that promoting creativity and inventiveness is not enough if a culture of innovation is to be embedded in the DNA of a company for the long term. Dealing openly with errors is just as important. “If we want to try new things, we need to accept that some attempts fail,” she stresses. “The important thing is that we learn from errors quickly and actively use the new experiences to develop ideas and solutions further – as an innovative, future-proof company that plays an active role in shaping the development of the construction industry.” ■

THE KICKBOX METHOD

Kickbox is a framework for corporate innovation and is used in thousands of organisations around the world. The method allows every member of staff to play an active role in the company’s innovation process, and to submit and validate their own ideas. At the start of the process, there are no limits at all: every individual has the opportunity to develop their own idea further, up to establishing a new product or business model. A toolbox supports this process. The latest Kickbox campaign, “Sustainable Implenia”, aims to generate ideas that make the construction industry more environmentally friendly, safer and more socially responsible.

More on this on the Kickbox platform:

APPLIED INNOVATION

NORWAY

CLEANTECH FOR CONSTRUCTION

Implenia Norway and the Norwegian cleantech company TECO 2030, which develops hydrogen fuel cells for ships and other large machinery, have received subsidies from the Norwegian state-owned company Enova. The partners plan to work together to develop hydrogen-operated solutions for construction sites, which are to become emission-free in future.

GERMANY

EFFICIENT DISPOSAL

Materials, techniques and processes in construction have become ever more efficient over the years, but waste disposal has not kept pace. Frank Reschke wants to change that. Instead of a truck that delivers one skip at a time, he has envisaged a large van that disposes of four to five different types of waste, saving fuel, noise, and CO_2 and nitric oxide emissions.

GLOBAL

E-LEARNING INNOVATION

The Innovation Hub now offers a 90-minute innovation course in English and German for all new staff. The programme includes topics like the Implenia innovation strategy & market trends, commercial innovation & intrapreneurship, the Kickbox process, ideas generation & design thinking, and Lean start-up & experimentation. Participants can pass a short test to gain a certificate.

SWITZERLAND

INNOVATIVE WOODEN FLOOR

It all started with a vision of a wooden floor for the 10,000 square metres of office space at Implenia Connect. What resulted is a floor product that combines flexibility, sustainability and aesthetics, developed by our Timber Construction division. The top floor layer, comprising 120 x 120 centimetre birch plywood planks, is screwed to the substrate and can be replaced flexibly. There is interest on the market.

MORE ON ALL THESE TOPICS ONLINE

GERMANY

ENERGY FROM THE FACADE

Together with the Fraunhofer-Gesellschaft, our Façade Engineering division is developing an innovative modular façade system that uses integrated installation engineering such as photovoltaics, micro heat pumps and ventilation technology with heat recovery to work towards supplying almost 100% of an office building's energy needs via the façade. The system is currently in the test phase.

SWITZERLAND

PATENTED WOODEN CEILING

The super-lightweight wood composite flat roof was developed by our Timber Construction division in cooperation with WaltGalmarini and the ETH. Needing just 90 millimetres of concrete and allowing an additional floor to be included at a height of 27 floors, it successfully passed through the patent process. We are delighted that it is being used in the "Pi" project in Zug – Switzerland's tallest timber construction.

SWITZERLAND

STANDARDISED PRODUCTS

Through their new joint venture Rubus Development GmbH, Implenia and Rostock-based Deutsche Seereederei GmbH want to work together in future to develop sustainable, standardised and industrialised real estate products for the green hospitality segment. Deutsche Seereederei GmbH is an investment company whose interests include owning and operating hotels and resorts via a subsidiary.

GERMANY AND SWITZERLAND

DEALING OPENLY WITH ERRORS

Errors are a normal part of developing innovations. At the first Implenia ScrewUp Event, three internal and external speakers talked about their greatest failures. This type of event, held regularly in more than 300 cities across the world, is designed to provide a safe space for errors, aiming to reduce fear of failure and encourage people to communicate their ideas openly and proactively.

WHERE INNOVATION COMES AS A STANDARD

When a research institute builds a new campus, off-the-shelf solutions are not going to be much use. On the construction site in Dübendorf, Implenia is working closely with the customer, the Eidgenössische Materialprüfungs- und Forschungsanstalt (Empa), to create innovative solutions.

Empa's motto is "The Place where Innovation Starts". A motto that will not only be followed on the research campus that Implenia is currently expanding, but that already applies during construction. "Innovation is routine in this project," says Main Project Manager Benjamin Häusler. "If I reel off all the specialist solutions we've come up with, it all looks so easy. But getting here has been very challenging. In-house expert knowledge, external specialist expertise in construction dynamics, and so many planning meetings, hunched over mountains of pizza boxes late into the night." So what are all these complicated structures?

LABORATORY

In the laboratory and office building, which houses around 30 labs and 30 offices with a total floorspace of 8,900 square metres, the Empa researchers will begin work on new materials in 2024. They will be using highly sensitive equipment such as devices for thermogravimetrics, which allow masses of less than one microgram to be weighed. Because even the tiniest vibrations can disrupt this kind of measurement, we are using an ultra-heavy, rigid concrete construction for the building in which oscillations are all but impossible. One example: a normal floor slab needs a thickness of around 20 to 30 centimetres. The floor slab for the laboratory is three to four times as thick, at 80 centimetres. At 60 centimetres thick including composite coating, the ceilings do not even allow vibrations from footsteps. And both the floor slab and the ceilings easily match bomb shelter standards.

The entire structure is of course not light. 48 piles are set 18 metres deep to bear the weight, requiring the expertise

↑ A state-of-the-art laboratory, a multi-functional building and a car park are being built on the Empa and Eawag campus in Dübendorf

Benjamin Häusler, Main Project Manager

“We spent hours honing solutions.”

of our underground engineers. And that is not the only construction challenge: To ensure the supply of oxygen, compressed air, water, gases etc. directly to the laboratory workspaces, Implenia is installing ingenious media ceilings that present a real challenge to our building technicians. And innovation is even in evidence when researchers and visitors go to the toilet: “We are installing special separation toilets and urinals that separate the urine out and pass it on to the NEST research building. There Eawag’s WaterHub converts it into fertiliser that is approved by the Federal Office for Agriculture for edible crops. Not even the toilets are standard in this project,” laughs Benjamin.

CAR PARK

The multi-storey car park with 260 spaces is being built using a wood and concrete hybrid technique. In its construction, we are combining the advantages of wood as a sustainable raw material with proven building methods. We are currently gaining experience in this, not least at “Pi” in Zug, Switzerland’s highest wood construction. “But we cannot apply this expertise completely unchanged here at Empa. Car parks are open buildings exposed to the elements; we are using wooden slats as the façade. We also had to find totally different sealing solutions for the floors from those used in a closed residential building like Pi. After all, car park floors might be subjected to oil leaks etc. The connections between the concrete primary structure and the wooden secondary structure were also a challenge. The crux is in the detail,” says construction engineering graduate Benjamin. Empa and Implenia are also currently collaborating with Arno Schlüter, ETH Professor of Architecture and Building Systems and a distinguished expert in the field, on developing an innovative photovoltaic system on the car park façade.

↓ For the first time anywhere in Switzerland, Implenia is building an innovative, geothermal probe field that experiments with high temperatures rather than the conventional low temperatures

↑ Empa's motto is "The Place where Innovation Starts". And we are following this motto even during construction

GEOTHERMAL PROBE FIELD

Not a single patch of ground or resource remains unused on the construction site. Half underneath and half outside the car park, there is another first: boreholes of up to 100 metres deep have been drilled here since October. In future, 144 geothermal probes will store the heat from the buildings on the campus so that it can be used for heating in winter. Benjamin: "For the first time anywhere in Switzerland, we are building an innovative, experimental geothermal probe field that works not with conventional low temperatures, but with high temperatures as an experiment."

OUTDOOR DESIGN

The entire research campus will also be completely car-free and green, with a green belt connecting the Empa and Eawag institutes. According to Benjamin, even this is innovative: "We are currently working with the customer to develop ways in which robots can continuously design new ornamentation for the open spaces." All this innovation demands sharp minds. Benjamin: "Especially at the start of the project, we often spent hours honing solutions."

ONLY AT IMPLENIA

Despite – or indeed because of – all these challenges, Benjamin is enthusiastic and proud: "Implenia is an very attractive employer. Where else can you work together with so many experts from so many different fields within the same company right from the very beginning and bring about innovative and complex projects like this together?" ■

THE EMPA CAMPUS PROJECT

On the campus shared by Empa and the ETH's acquatic research institute (Eawag) in Dübendorf, a state-of-the-art laboratory, a multi-functional building and a car park. The first stage of construction, scheduled for completion by the end of 2023. Our Buildings, Civil Engineering and Timber Construction divisions, our master builders and the building technology specialists from the competence centre are all involved. In addition, we are in charge of landscaping the entire site by mid-2024.

↓ Innovative approach to work: Building Information Modelling (BIM) is used from competition to facility management, alongside Lean methods and tools

FOLD-DOWN BEDS ARE A STEP TOO FAR

Breaking new ground in real estate development: Implenia is using the co-creation approach, loved on the start-up scene, to let customers decide which homes should be built in the "Rocket" tower in Lokstadt. Project Developer Stefan Verling explains.

↑ Project Developer Stefan Verling (top) explains why he is letting customers decide how the homes in the "Rocket" tower in Winterthur's Lokstadt (below, right of picture) will eventually look. Essential in minimalist micro-living: flexible space division with movable partitions (centre)

What are the advantages of the co-creation approach?
In order to understand what the market needs in as much detail as possible, we include potential customers in the design process. Having originated in the start-up sector, the approach is uncharted territory for real estate.

How does a survey like this work?
We provide a choice of two contrasting options in each case: Are larger or smaller homes more popular? With or without built-in wardrobes? That allows us to read people's preferences.

How did you find the participants?
We advertised on Facebook, Instagram and Google, attracting people to our temporary project website. From there, we were able to track what interests them. Next, we asked potential candidates to fill out a questionnaire and also conducted qualitative interviews. All in all, we were able to generate more than 400 qualified leads – potential customers with real interest.

Was Rocket planned in detail based on the results of this survey?
The constraints inherent in the design plan, such as the height and area of the building, were already fixed. But we now know how many rooms and square metres the homes should have, and can offer the desired mix of fixtures and fittings.

What does the market want?
A balcony or patio are the number one requests. In the upper price segment, a generously sized living room, impressive lobby and walk-in wardrobe are also in demand. When it comes to minimalist micro-living, on the other hand, what counts are flexible spaces, movable partitions and smart interior design, i.e. built-in furniture that can ideally be sunk into the floor. But fold-down beds are an absolute no-go. People also often want a personal workspace in the co-working area and the option of renting extra guest bedrooms.

What are the next steps?
I see the tests as an investment in creating the optimum product, which can then be sold better and more quickly. Waiting even just two or three months longer to sell a home is ultimately more expensive than this approach. We will continue. ■

DREAM HOME: WHAT PEOPLE WANT

Upper price segment
- Private patio or balcony
- Generously sized living room
- Impressive lobby
- Walk-in wardrobe

Minimalist micro-living
- Flexible spaces
- Movable partitions
- Furniture that sinks into the floor
- Personal workspace in co-working space
- Option of renting extra guest bedrooms

NO INVOICE WITHOUT MEASURE-MENT

Since Spring 2021, Antonio Romeo and his team of 23 have been working to build 1.5 kilometres of new road at the Grünau site in Zurich. The project is going very well – not least because the team has put a lot of energy into documenting their own work for the client. After all, this is the only way we can submit invoices on time.


Implenia

"I LOVE COMPLEX PROJECTS!"

"Over 16 months, we are working on a CHF 10 million project with 23 people across 1.5 kilometres. The size of the project alone is a challenge, including complex logistics with two parallel trenches alongside the motorway approach, close to other large scale construction sites. We are working on both city and state land – with differing requirements. And we are under constant pressure in terms of time scale and budget. We have hit all the agreed milestones in the first six months – something to be very proud of. Achieving this takes a huge amount of work and an agile team. Thank you everyone!

Project Leader Antonio Romeo

When making a bid, we assume ideal conditions – no reserves are set aside for poor weather or unexpected obstacles in the soil. This wet summer has shown us once again that there is no such thing as ideal conditions. On large sites like this, we have specialist teams, such as for surfacing work. If we cannot carry out this work due to rain, these teams need to be deployed somewhere else – for work that they perhaps cannot complete so quickly and easily. We need to take this into account in our planning.

I enjoy the fact that I learn something new every day. For example by talking to colleagues, including those abroad. The Civil Engineering division's last Excellence Day was conducted in English and attended by participants from Norway, Sweden, Austria, France and Germany. This is totally new for me and a real challenge.

The Grünau site is a showcase project. Implenia has been working on the "advance measures for supply lines Bernerstrasse South" since March 2021, preparing for the main work on the project. After more than six months of work, the team led by Project Leader Antonio Romeo is right on track. "So far we have hit all our milestones," he says. "This has only been possible thanks to the team's hard work. Thank you so much to everyone!"

When he talks about the team's hard work, he is of course talking about the 19 colleagues who are doing the digging, concreting, surfacing and other jobs under the leadership of foreman Joel dos Santos. As well as active construction work, however, many, many hours are also spent in the office trailer, where staff document which services Implenia has provided for the project on a weekly basis.

"It is very simple: In order to submit an invoice for our work every month, we need to prove that we have done it," explains Antonio. "That is why we need to measure the amount of spoil excavated, surfacing removed, trench cut and materials delivered."

WEEKLY DOCUMENTATION

At least once a week, construction manager Robin Schwendeler digitally documents the work completed together with a representative of construction management. Across the 1.5 kilometre site, they assess the progress of the previous working week together and record it using the iPad camera and the tachymeter. The images are then processed and measured.

Back in the office, the staff then check the reports and compile the dimensions: images of the construction site with additional information, such as soil quality or any obstacles encountered that could have an impact on the amount of work that can be done. Assessments of this kind of unforeseen additional job always lead to discussions. "Obstacles mean extra work that we have to invoice," explains Robin. "We cannot always agree on what figure to put on this extra work."

PERFORMANCE GENERATES TRUST

Antonio Romeo knows from years of experience that it helps to deliver good work consistently. "This allows us to make discussions on additional expenses more

"The important thing is to submit invoices as quickly as possible for all work that everyone agrees on."

Antonio Romeo, Project Leader

THE A1 SCHLIEREN EUROPABRÜCKE (GRÜNAU) PROJECT

Client: Bundesamt für Strassen ASTRA
The project: Maintenance on the national road N1 and Bernerstrasse North and South in the city of Zurich, Grünau district. In connection with the new construction of the ZSC stadium at Bernerstrasse South, new supply lines – specifically for gas, EWZ, district heating, district cooling and water – need to be laid in advance of the main work. All underground engineering work for the city supply line projects is to be completed alongside this preliminary work, making the project a mixture of national road building and city underground construction. An additional challenge: more than 90% of the national road between Europabrücke and the city limits on the Limmat is assigned to water protection zone.
Start: March 2021
Construction period: 16 months

↑ Antony Vines and Nelson Fernandes moving distancing stones

constructive," he explains. "If we edit and submit our measurements as quickly as possible, we can be more confident and convincing in our arguments and in providing information."

But discussions cannot always be avoided. "The important thing is to submit invoices as quickly as possible for all work that everyone agrees on," emphasizes Antonio. "Sometimes we would rather wait with the invoicing until all the open points have been decided and we can send a final invoice. But waiting costs money! After all, we also have to spend money and make sure that we are paid for our work regularly."

"Construction – measuring – checking – invoicing" is thus a process repeated weekly or monthly, ensuring that we are remunerated for our work. The reports are stored securely and every invoice attached. "Transparency is the key," explains Antonio. "We are building with public funds. In projects like this, we have to make sure that it is possible to trace which services we have invoiced and why, even five years later, when there is no construction site left to see." ■

↓ Everything according to plan? Robin Schwendeler (right) discusses progress with the team

Construction Manager Robin Schwendeler

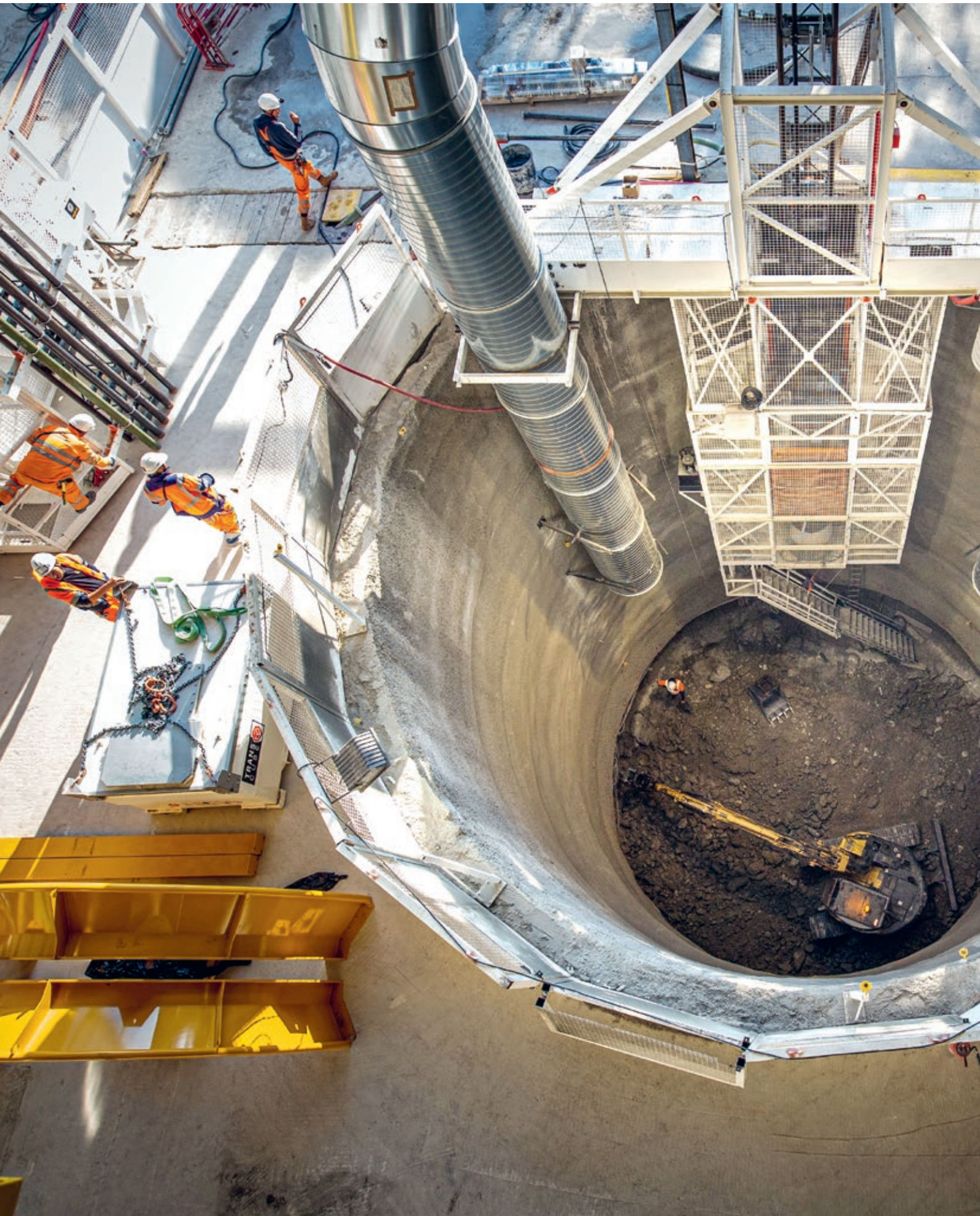
"WE SPEAK THE SAME LANGUAGE."

As construction manager, I straddle two worlds: I plan and document the activities on the large-scale site from my desk, but I am also very close to and hands-on in the implementation together with the foremen and their teams. Right from when I was 13 or 14, I used to work as a labourer on construction sites in my summer holidays. When it came to my apprenticeship, I first trained as a construction draughtsman and then additionally as a builder, before completing more advanced training. I enjoy working on a construction site, the close contact with the team. We speak the same language, very direct, and we say when we don't like something. I have never experienced it before. I like the culture.

Foreman Joel Fernando Dos Santos Vieira

"I KNOW WHO CAN DO WHAT WELL."

Every construction site is unique. This one is 1.5 kilometres long and we are constantly in different places with the various groups. Work preparation ensures that the team can continue working even in poor weather. I know exactly who likes doing what and who can do it well – that is important when assigning tasks. The scale and the variety are a key advantage at Implenia. I like to have large construction sites where I am stationed for a long time. It means I get to see how large projects come about. We always see a lot. When the holes are covered up, no-one can see what is hidden below. But we know what is under the ground.



DIFFICULT LOGISTICS? GO LEAN!

CERN: The world's largest and most powerful particle accelerator is located in a 27-kilometre tunnel at a depth of 100 metres. An 80-metre-deep shaft is the only way to access the underground construction site. The team is meeting this challenge using Lean methods.

It is a demanding tunnel and specialist underground engineering project: In Cessy, France, Implenia is building an underground network of tunnels that connects to the existing tunnel of the CERN particle accelerator. Access to the tunnels is provided via an 80-metre-deep shaft. As well as five buildings on the surface, the team is building a 46-metre-long cavern at the foot of the shaft, a 300-metre-long main tunnel with a cross-section measuring 44 square metres, and four connecting tunnels to the existing tunnel.

↑ Crucial to the success of a project is the optimum use of the transport crane

SUPPLIES VIA PORTAL CRANE

Delivering machinery, equipment and concrete via a deep shaft makes logistics and its optimisation a core factor in the success of this project. A portal crane with sets of lifting gear for 15 and 50 tonnes was set up above the access shaft. It not only allows safe access for people, but also ensures the supply of materials, including large equipment and building materials, as well as concrete and formwork tools. Three cable drum attachments developed especially for this project can lift loads of up to 10 tonnes.

All construction site logistics are based around this portal crane. The crane operator uses a tablet PC to control the lifting processes based on a highly detailed lifting plan, which shows features of the equipment and machinery such as weight, selected endpoint and other conveying information with a high degree of accuracy. The team won the Golden Helmet for this application at the Health & Safety Awards 2019.

ACCURATE PLANNING THANKS TO LEAN

The Lean method makes interaction much easier when two phases come together, such as when underground engineering work began immediately after excavation was completed. This meant that waste material was still being removed at the same time as material needed to be supplied for subsequent construction work such as formwork and reinforcement.

Thanks to special tools, Lean construction makes it possible to sequence tasks. All work processes can thus be planned with enormous precision. The CERN teams were supported by IMMA, an external company that specialises in Lean construction. This allowed the use of tools that meet the specific requirements of this complex construction site.

Florent Baulat, Main Works Manager

“In line with the last planner system, we set up an overall plan for three weeks at a time.”

“We used the last planner system (LPS) to generate an overall plan for three weeks at a time,” explains Florent Baulat, Main Works Manager. “The tool allows each individual tunnel to be divided into work blocks, each with associated tasks. The logistics needs for each time period can thus be determined very accurately, and we can optimise all the tasks in terms of safety, quality and efficiency.”

In order to optimise the lifting and transport processes, the installations at the shaft head were planned so as to create a buffer zone. “The Lean approach really paid off for us!” emphasises Florent Baulat. “We were able to optimise the planning, structure tasks and control the lifting processes

THE CERN PROJECT

In 2018, the European Laboratory of Particle Physics (Centre Européen de Recherche Nucléaire – CERN) gave Implenia the go-ahead for an underground project. Various underground constructions and multiple buildings above ground are to be built. This new infrastructure is needed for CERN’s showcase extension project, the High Luminosity LHC. Implenia is conducting the work as part of a consortium with Baresel and is responsible for technical leadership and lead management.

↑ Implenia is conducting challenging tunnel construction projects in Sweden and Norway – with occupational safety the top priority

SAFETY CHECK IN SCANDINAVIA

Our organisations in Norway and Sweden are pioneers in the field of occupational safety. Norway, for example, has a lower percentage of work-related injuries than any other unit in the group. What makes the Scandinavian teams so successful?

It is no surprise that health and safety are right at the top of the agenda for Implenia Norway. “Rules and regulations are stricter here than in many other European countries, and invitations to bid set high standards when it comes to these values,” explains Anne Gundersen, Head PES Safety. “If we want to keep up with the market and win contracts, we need to strengthen our focus on health, safety and sustainability even more.”

To achieve this, the team dedicates an entire “Safety Week” to the topic every year. Project Manager Peder Sødal, for example, regularly conducts safety tours of the Fornebubanen, discussing potential problems. He pays particular attention to the use of the right safety equipment. Using gloves and safety goggles became compulsory at Implenia Norway this year. “New safety requirements are not always popular, but we still introduce them because we want to prevent injuries,” stresses Peder.

SWEDEN'S SAFETY APP

Implenia Sweden also holds a Safety Week every year. This year, the goal is to encourage even more colleagues to report incidents and accidents. How to achieve this? The safety app.

“If incidents are to be reported consistently, the process needs to be simple,” explains Safety Officer Jan Eriksson. “With our app, anyone can quickly grab their phone, take a photo and send a report.” Josef Ibrahim, Project Engineer in Hagalund, agrees. “The app makes it easy to report incidents with no bureaucracy at all. We also get statistics on the reports at the end of the month, which help us to learn.”

Josef has even come up with a plan to encourage more staff to report incidents at work through the app: they get a free hamburger for every two incidents reported. He is sure that a high reporting rate has plenty of benefits. “Safe workplaces are important for the health of our teams. And a good safety rating also improves our chances of gaining new projects.”

Globally, Implenia is currently rolling out an app version of the “Synergi” safety software. ■

←
Peder Sødal conducts a safety tour (top)
The Implenia Sweden safety app (centre)
Josef Ibrahim actively motivates his staff to report incidents and risks through the app (bottom)

Michel Leandri, Safety Officer

“Lean construction allows us to recognise risks and difficulties in advance and to define clear working processes.”

in the best possible way by organising the equipment used above ground.”

GREATER SAFETY AND EFFICIENCY

When it comes to safety, too, the benefits of this approach are undisputed. “Thanks to the Lean construction tools, we are able to recognise risks and difficulties early and define clear, well thought out and standardised process steps,” explains Safety Officer Michel Leandri. “The fewer interfaces there are, the lower the risks. Detailed task planning makes it possible. Certain tasks, such as lifting or moving heavy loads, are conducted in a short time frame thanks to clever organisation, allowing the points of contact between machinery (excavation machines) and pedestrians (concrete engineers) to be limited. The result is maximum quality and safety.”

The whole team agrees that the Lean approach is worth its weight in gold, especially in logistically complex projects. Florent Baulat recommends, “Take a systematic approach in line with the Lean method for all projects, ideally as soon as you set up the construction site, and include all teams so you can define a sensible organisation of site areas, installation plans and planning in advance.”

Michel Leandri adds, “Lean construction is a method that includes various tools, such as the last planner system. These enhance not only quality, safety and efficiency, but also communication and the working atmosphere. If everyone is included from the very start, the time scale is realistic and potential problems are considered in advance. This bonds teams together and improves the way they collaborate.” ■

NETWORK FOR THE FUTURE

When Implenia Switzerland sends its apprentices into remote mountain regions to work for a week for charity every year, it does more than give them an opportunity to put what they have learned into practice – it also builds networks for their future working lives.

↑ Adrian Geissmann, Construction Manager, Head of Apprenticeships and Co-Organiser of the social project week (front row, left) with the social project week 2021 team

"We were almost too ambitious," laughs Adrian Geissmann. Together with Anita Läderach from HR, the vocational instructor organises a social project week every year for those in the last year of their apprenticeship.

Since Covid-19, the number of places has been limited and only the best are invited to take part. Led by three foremen who themselves had only recently completed their apprenticeships at Implenia, 19 apprentices worked hard in the rural Entlebuch region in mid-July, building a new playground, a meeting point in the centre of the village of Romoos, and a machinery washing facility in Steinhuserberg. The carpenters, bricklayers, builders, roadbuilders, foundation engineers and commercial apprentices achieved an incredible amount in just five days, from earthworks with two rented diggers, to concrete and carpentry work, to planting trees and sowing meadows.

"The church in Romoos is home to rare bats," explains Gabriele Areche, second-year bricklaying apprentice in Zürich. "The meeting point, which we redesigned in just three days, is surrounded by a biodiversity area. We planted the meadow with a "moth mix" – flowers that are supposed to attract particular insects for the bats to eat.

This is another of the aims of the social project week. "Many of the young people come from urban areas. Rural Switzerland is a totally new world to them," explains Adrian. "It is impressive to see how competent and motivated these young people at the end of their apprenticeships are: working hard, discovering a new world – and building networks for their future." ■

“YOU MATTER!”

In the middle of a phase of restructuring, the Civil Engineering division launched a campaign. The posters and videos are designed to support a cultural change throughout the Group.

YOU MATTER! People are the most important factor in everything Implenia does. No project can be planned and above all implemented without the hard work of many. Although we all know this, in the rush of everyday life we often forget to put it into words.

↑ “Nothing is stronger than open, sincere praise.” Mark Lauzon, Change Manager

Evolutionary biology tells us that the human brain is wired to give threatening messages much more weight than good ones. This negativity distortion influences our perception and means that we spend much more time chewing over one-off criticism than enjoying praise. And it is precisely because the negative is so dominant that it is so important that we remind ourselves repeatedly of the positives and support one another in doing so.

That is the idea behind “YOU MATTER!”, the campaign initiated in Civil Engineering together with Marketing/Communications and HR and now being rolled out across the group. It invites colleagues to share what they appreciate about each other. They have always been able to in person, of course, but now they also have the opportunity via the YOU MATTER! platform. In a video, like Alois Rumo and his team colleagues in this picture, or in writing.

BRIEF VIDEO PRAISE

Dozens of posts have already been put online, including by Christian Späth, Head Division Civil Engineering, who explains the idea behind the campaign: “We rely on the colleagues we work with. We value the dedication and motivation of every single one. And we want to put that into words.”

The yellow speech bubbles can be spotted all over the place: on the screens at the new Connect headquarters, on posters and stickers at construction sites and in offices, even on the mugs that all the staff in the Civil Engineering division received in the summer. And of course in the various videos.

Although the videos themselves are an important part of the campaign, they are not the goal in itself, explains Change

←
"YOU MATTER!" Alois Rumo and his team colleagues thank their boss Gabriel Baeriswyl for motivating them to do their best

YOU MATTER!

Stronger together we deliver successful projects

Manager Mark Lauzon: "The Civil Engineering division has undergone huge changes recently. In a phase like this, it is especially important that every single individual senses that they are needed and valued. That they count."

The posters, stickers and videos are not an end in themselves. Their primary aim is to remind people not to forget about the interpersonal level. "In general, we do not praise people enough in our working environment," says Mark. "The tone in the construction industry is still often blunt – if no-one says anything negative, it is considered praise. But this attitude means that we are missing a huge opportunity – and that is what we want to change."

GOAL: A POSITIVE ENVIRONMENT

He goes on to explain exactly what that opportunity is: "Life is full of encounters. If our meetings with a wide range of people are positive, we gain energy from them. Nothing is stronger than open, sincere praise. One kind word leads to the next; good collaboration makes work seem easier. If we make an effort to maintain this positive tone, we will gradually improve our immediate working environment. That benefits all of us, both at work and beyond." ■

"YOU MATTER!"

The campaign is intended to encourage people to praise their colleagues. It does this by providing a platform for people to upload short videos or images with text. What we want is not perfection, but authenticity: it's the taking part that counts. Having started in Civil Engineering in Spring 2021, YOU MATTER! is now being rolled out across the Group.

Get involved and send someone a "YOU MATTER!"

OUR READER SURVEY THE RESULTS

In the previous edition, we asked where and how you read IMPACT and which topics you are most interested in. The results are clear: the print version remains popular and will not go away, even though more and more of you are also reading IMPACT online. When it comes to content, projects and people are your clear favourites. We are taking this feedback on board – you will find the results here and online.

Thank you for taking part in the survey! Competition winner Elena Bibbo, HR Business Partner in Vétroz, will travel to Innsbruck.

IMPACT ONLINE:
EVEN MORE PORTRAITS AND PROJECT REPORTS, ALWAYS NEW