



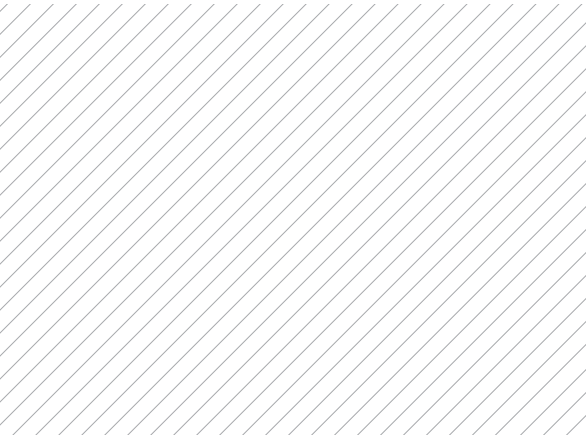
SPECIAL

LEAN MANAGEMENT

Rethinking what we know



INROS LACKNER



Dear readers,

we all experience change in our lives – sometimes with little notice, and in other cases following years of planning. This also applies to us as a company, and we can look back with pride at Inros Lackner's 85-year history. Our development into one of the largest General Planner consultancies in Germany was only possible because we are open to change and to current technological, economic, political and environmental trends. The demands on buildings and other structures have changed significantly in the last few decades. Demanding approval procedures, public participation and increased time and cost pressures are characteristic of the complex planning and construction processes we deal with today. Often the goal is clear, but the path to get there is not well mapped out. Sometimes I observe a tendency to stick to what is tried and tested, where flexibility is required. Lean Management involves taking a closer look at the path we take. Looking at it is not new, but consistency is necessary in order to establish a sustainable, conscious culture of change and open communication in projects and companies.

By adopting the Lean philosophy, we aim to further improve our structures and processes, reducing them to what is essential in the interests of our clients. In focusing on this topic in this issue, we talk to experts and employees, and describe the first experiences we have gained in projects. We also offer an insight into some of our projects in Germany and elsewhere around the world. On behalf of Inros Lackner SE, I would like to thank all our customers and partners for the trust they have placed in us. On that foundation we have been able to develop successfully, because only by working together is it possible to implement the best solutions and initiate changes.

Enjoy your read!

Dr. Klaus Richter
Executive Director

Torsten Retzlaff
Executive Director

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NEWS



Training centres in Senegal

Contract for a complex educational project in West Africa: In six cities in Senegal, innovative educational centres – with a focus on agriculture and the food industry – are being planned on behalf of the Education Group. Inros Lackner is responsible for project management and financial aspects on the project, and will also have responsibility for construction supervision. The project is being planned on a land area of 100 hectares, of which 5 hectares will be used for educational buildings, accommodation, offices and facilities for gastronomic training. The remaining 95 hectares will contain a water tower with capacity of at least 35 m³, drip and pivot irrigation systems, greenhouses and breeding facilities. Special emphasis is being placed on self-sufficiency and the use of sustainable energy. A first centre is expected to open in early 2023.

Opening of the Humboldt Forum in Berlin

Largest ventilation planning and design project in INROS LACKNER's history: The Humboldt Forum, a place for culture and science, is located as a rebuilt Berlin Palace in the immediate vicinity of Berlin's famous Museum Island. The outstanding cultural building is of international significance, and represents the largest ventilation planning and design project in company history for INROS LACKNER's technical building systems team. The team was responsible, from initial assessment right through to planning approval, for the planning and design of numerous aspects of the building's construction, including external services infrastructure; sanitary, heating, ventilation, cooling and conveyance technology; the integration of the building into public supply and disposal networks; and the building's automation systems. The team also had responsibility, from 2013 until the project's completion in 2020, for technical project controlling, for the estimation and completion of the execution-stage design work, and for supervision of installation of the building's ventilation technology.

(Source: humboldtforum.org)

**Biggest
ventilation
project**



Inauguration of the Supreme Court in Vietnam

Design, general planning and implementation completed in record time: Collaborating in a joint venture with the Vietnamese company Coninco, Inros Lackner Vietnam took on the role of General Planner for the project. The new building, constructed on an area of 6,417 m², was completed in a record construction time of only 399 days. The total cost of the six-storey building with its additional four basement levels was approximately 30 million euros. The court building was designed in a contemporary "new classical architecture" style considering its historical significance and the cha-

racter of the district. The new building is adjacent to the old, historic Palais de Justice with its French colonial architecture. The two structures together form a harmonious architectural ensemble with a green inner courtyard in which the balance between old and new is expressed in space and form. The building was awarded the title "Building of high quality" by Vietnam's Ministry of Construction. Responsible for the design were Torsten Illgen (Inros) and Nguyen Dang Quang (Coninco).



Lehrte MegaHub facility

Successful entry into service: This rapid trans-shipment facility (rail-road and rail-rail) for combined transport is a unique project in Germany. The centrally located railway transportation hub is situated 20 kilometres east of Hanover and also serves routes in the directions of cities such as Lübeck, Duisburg, Ludwigshafen, Munich and Verona. The handling of goods is optimised in the MegaHub facility, with its high-performance portal cranes and innovative sorting system. This further strengthens the development of environmentally friendly rail transport. The incoming containers are redistributed to freight trains, according to their destination, as entire loading units.

The shunting and bringing together of freight wagons for this is no longer required. With extensive specialist knowledge in the field of combined transport, Inros Lackner coordinated, from the first draft proposals, the planning and design work relating to the transportation infrastructure, the buildings, the civil engineering facilities including drainage, the control and safety technology and the active and passive noise protection, bringing them together as an integrated, comprehensive result. The company's responsibilities also included the preparation and supervision of the project's complex financing and approval processes.



International crane information centre

New building devoted to protection of the birds in northern Germany: Germany's Baltic Sea coast is an important stopover site for migrating cranes. A new information centre is being built here, of wooden construction, which will house, among other things, a contemporary multimedia exhibition, an experience room, and meeting and seminar rooms. The topics covered in the building, which will be open to the public, include climate protection and biodiversity, and the main objective is to enhance protection of the birds. Inros Lackner has been commissioned with the structural design of the building on behalf of Kranichschutz Deutschland GmbH (Crane Conservation Germany). The construction of the new building, a well insulated timber structure with self-protective larch wood cladding, will be resource-conserving and ecologically friendly. The opening is scheduled for 2023. The building is planned as a timber-frame construction, of which the flat roof will be largely covered with plants. (Source: www.kraniche.de)

Construction work on the A7

Better road safety: With a length of over 960 km, the A7 autobahn is the longest motorway in Germany. Construction work is currently being undertaken to improve traffic safety on the section between the Drammetal motorway junction and the Lower Saxony / Hesse border. Work commenced in 2021 to renew passive protection equipment, install additional equipment, and renovate existing drainage channels along a section of length 30 km. The scope includes three highway junctions with 36 bridges as well as underpasses and overpasses. Inros Lackner is responsible for site supervision, addendum/claims management and health & safety protection coordination.

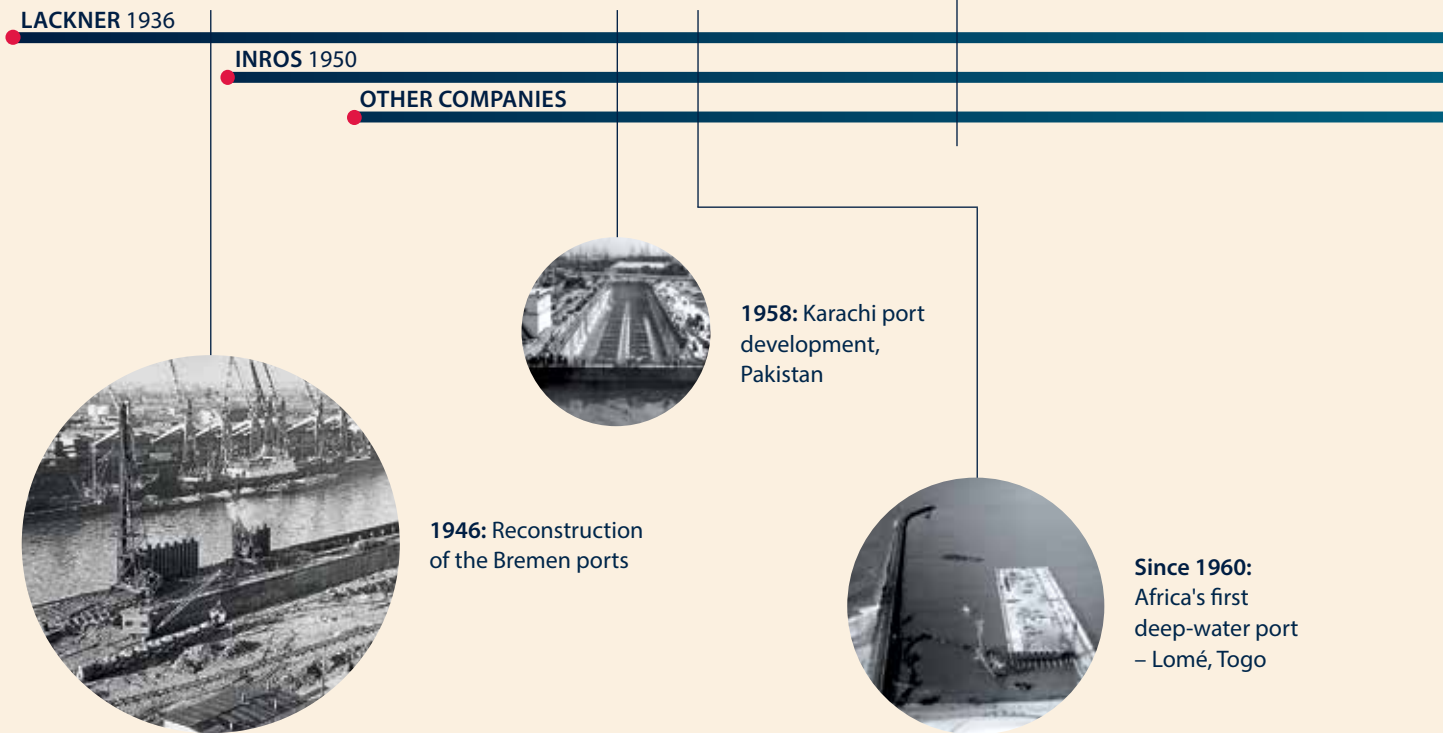


85 YEARS – A BRIEF SUMMARY

Today, INROS LACKNER is one of the largest General Planner consultancies in Germany.



1983: Jugendmode clothing factory, Rostock
▶ Architecture Prize of the GDR



550 +

employees with extensive interdisciplinary specialist knowledge



Involvement in professional associations and at universities, support of pilot projects (focus: digitalisation, BIM and lean management)

≈ 950

projects per year





2011: Hanoi Museum, Vietnam
 ▶ 5th place among the most beautiful museums in the world



2017: 50Hertz Netquartier building, Berlin
 ▶ Engineering Award 2017, Mecklenburg-Vorpommern
 ▶ Certifications: LEED Gold, DGNB Gold and DGNB Diamond



2003: Croatian motorway network, feasibility study and design development



2016: Flood protection for the port city of Beira, Mozambique
 ▶ Exemplary climate protection project in Africa



2020: Founding of the charitable association "Inros Lackner hilft e. V."



- National locations**
 Berlin · Bremen · Cottbus · Dresden · Freiburg · Hamburg · Hanover · Munich · Potsdam · Rostock · Schwerin · Stuttgart · Wörth am Rhein
- International locations**
 Angola · Guinea · India · Cambodia · Cameroon · Kenya · Congo · Mozambique · Pakistan · Senegal · Tanzania · Togo · Czech Republic · Turkmenistan · Vietnam · Belarus

LEAN MANAGEMENT

A philosophy for increased client satisfaction

The Lean Management philosophy has its roots in the automotive industry. It is characterised by a strong focus on customer value, lean production, efficiency and quality. Processes are optimised right along the value chain, and the result for the customer is maximised. Waste is avoided, and lean management is an approach that is now also being applied in other industries such as construction. Projects in the construction sector are often criticised for finishing too late or becoming too expensive. With a different view of the customer, lean methods can help to add value in planning and construction processes. What is new and what is already known? How can lean management initiate a fresh approach and a new culture of collaboration?

Professor Haghsheho, you became involved with the subject of lean management in civil engineering from an early stage. What was your motivation?

The key factor was my transition in 2013 to teaching and research at the Karlsruhe Institute of Technology (KIT). Before that, I worked in the construction industry for many years but had little exposure to the subject of lean. My predecessor at KIT, Professor Fritz Gehbauer, had already dealt intensively with the topic of lean construction. He was very well networked internationally, with a small research team. That was a good opportunity for me to become more involved in this area. I quickly became very enthusiastic about the management approach and recognised its great potential. At that time the first companies were dealing with lean, and science had already progressed further.

Critics often speak of “old wine in a new bottle”. What does the term Lean Management actually mean?

Shervin Haghsheho: Especially at the beginning it is a difficult term to define succinctly, because a lot of it is familiar and known. I too asked myself: Is lean really something new, the great revolution that

will move the construction industry forward? A key moment for me was a lecture in the USA, in which fundamental ideals and principles of management philosophy were presented from the perspective of another industry. It was this absolute focus on the customer and the particular attention paid to the subject of waste. I understood that Lean Management is a philosophy that unites familiar topics but sets itself apart through complete clarity and consistency. From my point of view, it is characterised by three things. First, the absolute focus on the customer. Second, the importance of recognising waste. In the work processes of today, it is incredible how much is done that is not actually necessary. We lose the ability to notice this, and stick to familiar processes. For example, we often don't even notice searching and waiting times, or unnecessary journeys or repetitions arising from unclear instructions, because in many cases we just got used to them. Lean management offers numerous approaches to transparently mapping complex relationships between those involved in a project and within its processes – for example, the Last Planner® System as a method of collaborative production and control planning. And third, Lean is not about the big quantum leap, but about creating a culture of change. Taking small steps every day in working to improve structures and processes and to focus better on what is really important. That is the great potential of this philosophy.

What exactly do you mean by absolute focus on the customer?

Shervin Haghsheho: That is one of the most interesting discussions I have with project teams. Who is the customer in our tasks and processes? For some, it is the client who pays. For others, it is the user of the structure. The third intriguing perspective in Lean is the process perspective. For you as planners and designers this would mean: For whom do I undertake the planning and design work in such a way that it can be implemented with as little effort as pos-

sible and without errors? In this case, the customer would be the construction contractor. It is about escaping from the silo mentality and re-identifying the customer whenever appropriate.

Hans-Jörg Niemeck: This thought process can also be applied internally – for example, to interactions between designers and the IT department. It is crucial that I see all those involved in the project, for whom I do something, as customers – and, of course, I should expect the same in the other direction. From my point of view, this is the necessary cultural change that is initiated by lean management. And then we must deal with the way contracts are drafted and have to be executed; often it is this that leads us to the silo mentality and makes it difficult to see a different way of approaching things.

Is the industry ready for such a culture change?

Shervin Haghsheno: It's complex. What I have noticed in recent years is that we all in the construction industry are constantly struggling not only with increasing cost pressures and ever tighter schedules, but also to master challenging "framework" conditions such as demanding stakeholder structures, ever higher demands on the structures, and the division of design and construction services into many specialised trades which necessitates a considerable amount of coordination. In addition, there is a natural process of change that all industries go through at regular intervals. Markets and companies change as a result of increasing digitalisation and due to the influx of staff from the next generation. These are developments that disrupt established structures and call for change. There is a willingness within the industry to address this.

How well has the introduction of lean management been accepted so far in INROS LACKNER's experience?

Hans-Jörg Niemeck: It varies considerably, depending on the current state of knowledge. It reminds me of the introduction of our quality management system, or when we started using BIM. At first, the same questions always arise. What is the point of all this? Aren't we already doing this, or is it just a fad? It is similar with clients. Here, too, there are pioneers such as EnBW (Energie Baden-Württemberg AG) in the energy sector, or DB Netze (Deutsche Bahn Netze) in the transport sector, which specifies the use of lean management and lean construction on its large railway track and station projects. But for some other clients and partners, the concept does not mean much or they do not yet see potential added value for their projects.

To what extent does the establishment of a lean culture require that employees know and understand the lean concept?

Shervin Haghsheno: That depends on the way the lean transformation takes place. For example, companies can gain initial experiences by first trying out individual approaches and conducting pilot projects. If the approach gains traction among the employees, customers and business partners, and is to be anchored in the corporate philosophy in a next step, then it is important to implement a stand-alone transformation process. And this, of course, requires everyone to play a role – especially the management. Sustainable

IN CONVERSATION



Prof. Dr.-Ing. Dipl.-Kfm. Shervin Haghsheno

Executive Director of the Institute of Technology and Management in Construction at the Karlsruhe Institute of Technology (KIT)

Prof. Haghsheno studied civil engineering at the Technical University of Darmstadt and received his doctorate there in 2004. He also completed a degree in economics at the Distance-Learning University in Hagen. He then worked at Bilfinger & Berger, was a project manager in the Frankfurt branch of Bilfinger Hochbau GmbH, and from 2008 to 2013 was a member of the management of Bilfinger Hochbau GmbH. In 2013 he was appointed university professor.

changes depend very much on the commitment of the company's managers and the example they set. At the same time, as a second dimension, a concept is required for how employees are to be trained, integrated and brought along.

Hans-Jörg Niemeck: Our client in the railway sector, DB Station&Service, was an initiator, with a project on which lean methods were specified as an important part of the contract. Our project team worked intensively on this and quickly realised how valuable methods such as the Last Planner® System and agile work are. Lean management has not only helped avoid mistakes in daily work, it has also increased productivity. The shortened intervals for coordinating subtasks were crucial. The employees liked discussing their work tasks with each other and were more motivated. In the past we had generally met every four weeks in big meetings, and the exchange of information suffered as a result. So "lean" was passed

IN CONVERSATION



Hans-Jörg Niemeck
Director, INROS LACKNER SE

Hans-Jörg Niemeck has been a member of the INROS LACKNER management team since 2011. Before that he was managing partner of Wisserodt Consulting GmbH and GENERAL CONTRACT GmbH over a period of 26 years. He started as a draftsman over 45 years ago, and has been paying close attention to the rapid technological developments in the industry ever since.

upwards at Inros Lackner. The management understood from the employees that it is worth taking a closer look. But no matter how it caught on – the spark jumped, and we now have a coalition of the willing. We are currently gaining experience on pilot projects, and plan to use this to develop training projects for staff. The procedure is analogous to the way we previously implemented BIM.

Shervin Haghsheno: My observation is that every company's gateway to lean is very personal. Many come close to it through digitalisation, which inevitably leads to thinking about value streams in procedures and processes. Others pay attention to the development of innovations and in this way learn about methods such as the Last Planner® System, Scrum or other agile approaches. Then there are companies that are looking for more efficiency for economic reasons – which at first glance is not the best starting point, but is a very real one. And, as described by Mr. Niemeck, there is also the path of implementing a new culture. How can I improve collaboration internally and externally? Collaboration and transparency are very firmly anchored in this management philosophy. Values that every company strives for and that shape a company's culture.

Hans-Jörg Niemeck: In this context, there is often talk of a change of mindset. I don't want to change personalities or attitudes, but

rather to take everyone on a journey from the current culture to the target culture, with stops along the way so that nobody gets left behind.

Shervin Haghsheno: I agree that it's not about re-educating people in terms of their personal values etc. In Japanese culture, where the lean philosophy has its origins, respect for the individual is very important. Everyone is valued for their personality. We're talking, rather, about a company's culture, and how it can be moved towards the desired target. This requires a willingness to question the status quo, to keep learning and to look at one's own mistakes. It can happen that individuals do not feel comfortable and do not come on the "journey". In this respect, it is a process in which the mindset plays a role. I don't mean re-education, but an openness to the new principles.

Have the first project experiences shown that lean management, as a lived culture in your project work, can help people to break out of crusty old ways of doing things?

Hans-Jörg Niemeck: I don't want to talk about "crusty old ways". The lean concept doesn't have to cure anything, but it can help us develop further. So it is important not to portray the conventional methods as being bad. Lean management can and will lead us to increased and improved collaboration. Even just the way of deciding who will discuss what, and when, and with whom, promotes thinking as a team. In this respect, lean also represents a different, more intensive form of communication in the sense of information exchange. You cannot introduce a culture change to a particular schedule. A work culture grows and develops, and depends above all on conveying a clear, understandable message and the deeper meaning behind it, and then leading by example. Of course, the extent to which a project will benefit from the quick and effective implementation of the "lean treasures" also depends on the conditions dictated by the company, the customer and relevant legislation in relation to how the work is to be carried out.

But doesn't a culture change also require a critical look at existing work structures and an analysis of current work processes?

Shervin Haghsheno: The lean approach offers an opportunity to heighten one's awareness of work structures and conditions that present avoidable difficulties. Lean management changes the way we observe things. We take a step back and question our work structures more thoroughly, going right to the root – that's something I see as a real opportunity. There is currently a lot of talk about Integrated Project Delivery (IPD). It is not surprising that this model emerged from the lean community in the USA. People started daring to question their work structures – something that we haven't done so much in recent years in our day-to-day work with respect to our business models and how we do things. The structures and processes are in place, and people largely accept them and try to work within their limitations – even if one process may present obstacles for another. This idea of looking ahead, step by step, represents an opportunity. It can also happen within a work phase or a task area, or even within a company. Often, a transformation will

“Markets and companies change as a result of increasing digitalisation and due to the influx of staff from the next generation. These are developments that disrupt established structures and call for change.”



only succeed if structures are looked at differently and in a very fundamental way. This kind of awareness of waste – I must say I don't really like the term, but it is very expressive – and the above-mentioned consideration of who should be considered the customer of the process, can help challenge operational routines.

Hans-Jörg Niemeck: The basis for every change is an open and honest analysis of the current situation. What is good is preserved, and new solutions are developed together. Large construction projects, in particular, are typically implemented, step by step, from start to finish. Questions such as “What exactly does the project need and when” are often not asked or are asked too late. If we think and plan “backwards”, it becomes clear at an earlier stage what capabilities, efforts and other inputs are required in order to complete the project successfully in terms of quality, schedule and costs. Especially on complex projects, or for us in our work as General Planners, this approach is critical in helping stay equally focused on the opportunities and the risks. This calls to mind my favourite saying: “If you fail to prepare then prepare to fail”.

What potential do you see for lean management in partnership models of project execution?

Shervin Haghsheno: In Germany we understand the classic partnership models to mean that we try to involve construction companies at an earlier stage in complex projects. This is intended to reduce knowledge gaps, identify risks earlier, and integrate specialist knowledge directly into the planning and design work. I would also like to mention Integrated Project Delivery in this context. Here, there is a yet stronger focus on the project's structures, and how it is to be executed, in bringing together the interests of all those involved. The “added value”-oriented thinking of the lean methods very much prompts one to think about partnership models, to question structures and to encourage close communication at an

earlier point in time. So yes, the lean philosophy can promote partnership models and help to break free from the silo mentality. But the lean methods themselves, such as the Last Planner® System, also call for all project participants to work more closely together and to communicate more openly. I would suggest looking at it like this: Lean methods can have an even greater impact within partnership models because individuals are better able to free themselves from contractual shackles. With partnership models, the potential of lean and of BIM can be realised even better – for example, if a BIM execution plan has already been created and is relevant for others, then the others will not have to reinvent the wheel when they get to that point later on. From these two perspectives, I would say that the topics go very well together.

How do you as an expert see the lean concept developing in the next 10 years?

Shervin Haghsheno: Just as it is part of the lean philosophy to move in small steps, development in our industry will be a continuous process. I can currently see some momentum because we are moving beyond the phase of trialling on individual pilot projects. In the coming years there will be an ever-increasing focus on education, training and standards in this area. For this there are institutions such as the German Lean Construction Institute, which is dedicated to the topic and supports the industry.



WHAT CAN LEAN HELP ACHIEVE?

A process-oriented way of working – open and honest

Striving for perfection

New lean ways of doing things call for the courage to change and a willingness to strive for perfection. The principles are applied cyclically until the perfect result is achieved at some point.

Pull principle

Continuously reacting to the needs of customers and allowing changes to flow agilely into the existing structures and activities. Living an open project culture.

Value stream principle

Critically analyse complex processes and organisational structures from start to finish in the sense of value creation.



Focus on customer value

Define the value-adding measures from the customer's perspective and question all other activities. In doing this, consider who should be thought of as the "customer" – for example, think of the construction companies that will carry out the work as customers, and consider their needs and preferences in the planning and design stage.

Flow principle

By deliberately omitting activities and avoiding waste, a value-adding flow is generated, with one activity followed seamlessly by the next, supported by agile methods.

Hypotheses:

- 1 Lean management is a philosophy and stands for a corporate/organisational, management and work culture that is lived and exemplified by all.
- 2 Established companies shy away from changes in their corporate culture. Lean management calls for the discussion of possible changes.
- 3 Lean management can be a successful model for the implementation of large (and not so large) projects.
- 4 Lean management can efficiently support important developments in the digitalisation era.
- 5 Lean management is often underestimated because it (only) involves rethinking what is already known.
- 6 The central needs of open and honest communication are integrated in a very deliberate way.

“ON THE RIGHT TRACK” WITH LEAN

Railway station construction programme of the Regionalverband Grossraum Braunschweig: Agile project management for Deutsche Bahn

The German railway company Deutsche Bahn (DB) has set itself the goal of transitioning to the use of 100% green electricity for train propulsion purposes, and completing the transition by 2038 instead of 2050 as previously planned. “Strong Rail” is the name of the umbrella strategy that DB is applying to deliver climate-friendly mobility and the associated requirements in the coming years ([deutschebahn.com/de/presse](https://www.deutschebahn.com/de/presse)). The route network is being expanded, and energy systems and stations are being modernised. Efficient cooperation between all parties is crucial for the implementation of these demanding infrastructure projects within a short period of time. For the industry, this creates an opportunity for fundamental change. Only with a shift of mindset in the direction of digitalisation, lean management and new forms of partnership-based cooperation between all stakeholders will the “Strong Rail” objectives be achieved.

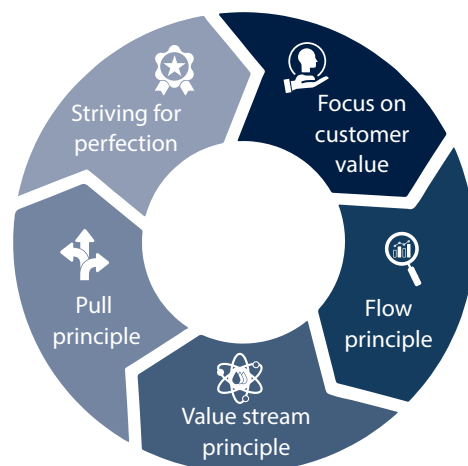
Lean Management: A management approach that is characterised in particular by the basic principles of decentralisation and parallelisation, with the aim of increasing customer orientation while consistently reducing costs. (Source: Gabler Wirtschaftslexikon)

Complex infrastructure project in Braunschweig

In mid-2020, as part of the “Strong Rail” strategy, the go-ahead was given for the project “Stationsoffensive Regionalverband Grossraum Braunschweig” (StOff), which includes the demolition and new construction of seven train stations in and around the city of Braunschweig. The regional association for the greater Braunschweig area (Regionalverband Grossraum Braunschweig) and the station operator (DB Station&Service, or DB S&S) are thus constructing these modern, barrier-free stations close to residential areas, increasing



the attractiveness of local rail transport in the area. It is a complex project with numerous stakeholders, including cities, municipalities and communities, requiring interfaces to be coordinated well in advance and the involvement of all affected and involved parties right from the start. Furthermore, in addition to the construction of the new stations, the programme of works also includes the deconstruction of old and outdated stations, necessitating the expertise of many different trades. The planning and design work thus involves the consideration of different options in determining how best to meet the needs of the interested parties and enable construction to start in 2026/2027. In the initial stages of the programme, the General Planner is DB Engineering & Consulting (DB E&C) and Inros Lackner is supporting the programme in the roles of project manager, BIM consultant and lean consultant. Following after the uPva fire protection project relating to underground passenger traffic systems in Hamburg (see page 20), this is our second Deutsche Bahn project in which all those involved have committed themselves to consistently applying the lean principles:





Kick-off: These events serve to clarify the goals of the next period and to motivate. They usually take place at the beginning of the year, the beginning of a project or the beginning of a period of transition. (Source: leanmagazin.de)

Management based on lean principles

Step 1 – Kick-off with Lego simulations: What needs to be done for a successful project start? Often, due to time pressure and the pressure to succeed, not enough attention is paid to how the project is commenced – potentially resulting in exploding costs and severe delays to project completion. The kick-off phase is the foundation for the rest of the project. For the start of the StOff project, Inros Lackner, as project manager and lean consultant, made a point of organising training days (covering the topics of Lean and Lean Construction) and coordination meetings in which the project goals, the way to get there and the parties’ preferences relating to the project implementation were discussed in a spirit of collaboration. In winter 2020, due to the coronavirus pandemic, the kick-off events were limited to small groups and digital formats. The collaborative kick-off defines the goals and tasks, the lean principles and the client’s project vision for all those involved.

A significant contribution can be made to the kick-off phase by simulation exercises, such as Villego® workshops which involve the use of Lego building blocks to explain the Last Planner® System (LPS) – a well-known lean management tool – and its advantages. For the StOff project, the Inros Lackner team planned these workshops and carried them out on its own initiative. Away from the day-to-day

Rules for successful lean kick-off events:

1. Meetings without waiting, distractions or time overruns; no wasting of time, in the sense of lean
2. Leaders and management should be present (supporting the importance of lean)
3. All parties that are already known to be involved on the project should be included
4. Bottom-up and top-down implementation
5. Open communication in relation to the project’s lean culture
6. Definition of the project goals and team rules
7. Define the desired gain in efficiency through lean
8. Lean leaders provide support and lead the way, and are open to suggestions and problems in the team

business, the events took place in a Hafven Event Spaces meeting room in Hanover. Here, the project’s challenges and problems were analysed as a group, before going on to discuss process-optimising lean methods. In each of the Villego® simulations, significantly better results were achieved using LPS. With an approach like this, the team learns about LPS in a playful way. It also promotes team building and creativity, helping the team to manage any complex situations that will arise. A rethink is initiated and shared visions are developed.



VILLEGO® SIMULATIONS WITH LAST PLANNER® SYSTEM (LPS)

Results in comparison: The exercise, which involved the use of Lego building blocks, in two rounds, to simulate a construction project, demonstrated the difference between classic project management and the collaborative planning and control approach of the Last Planner® System.

	Round 1 without LPS	Round 2 with LPS
Construction time (minutes)	13:26	2:52
Productivity (blocks per minute)	4	18
Construction on site (days)	72	17
Days of standstill/vacancy	9	0
Quality defects	1	0
Safety violations	0	0
Waste	50	0



PROJECT START



Step 2 – Digital analysis of the whole process, and planning of each of the first project phases: Another milestone for the successful commencement of the project was the beginning in early 2021 of the overall process analysis and of the planning for the first individual phases of the project. In this process, all those involved agree on the goal to be achieved in the next part of the project, and plan the individual work packages backwards from this point until they reach the starting point. The planning is done together on a so-called planning wall (e.g. a whiteboard). Each trade or party receives sticky notes (Post-its) of a certain colour, on which the individual work steps, along with the required preceding steps and the subsequent steps, are written. Each Post-it represents a work package and is defined on a weekly basis. The agreement of the work package among all those present strengthens their sense of solidarity, while the act of placing their Post-its on the board by those involved in the project promotes their sense of personal responsibility. The colours of the Post-its show clearly who is responsible for each work package, when it arises, and which interfaces and dependencies have to be taken into account. In the lean management approach to planning the programme of works involving the seven train stations in Braunschweig, great emphasis was placed on the value of personal meetings, especially in relation to such critical steps as the

overall process analysis and the planning of each individual project phase. Due to the applicable coronavirus rules at the time, physical meetings were not possible so a postponement was considered. However, the delay that would result to the project could not be contemplated, so alternatives were evaluated. In consultation with the project management of DB S&S, a solution using Mural software – a digital whiteboard – was chosen. This solution enabled the participants to work together seamlessly, collaboratively and simultaneously. In three days, project schedules were created for the seven stations, based on the combined inputs of all those involved.

The results were then presented and coordinated in RefinemySite (Bosch software) and an IL deadline dashboard. These are the basis for the weekly lean planning meetings and, in keeping with the lean principles, they visually present the overall progress of the project. Thanks to the greater depth to which the participants go in this planning exercise, and their discussion of the issues as a team, a robust and efficient schedule can be worked out on which all project participants can agree. Dependencies, parallel measures and points of weakness in the project can be identified and taken into account at an early stage.



Virtual team spirit

Marco Kümmerle
Project management and control

The corona pandemic presents us with a multitude of challenges, as it is no longer so easy to travel to different locations or to come together in meeting rooms. But using digital collaboration methods we have managed to bring those involved on the StOff project together virtually and to generate some team spirit. The jointly developed pro-

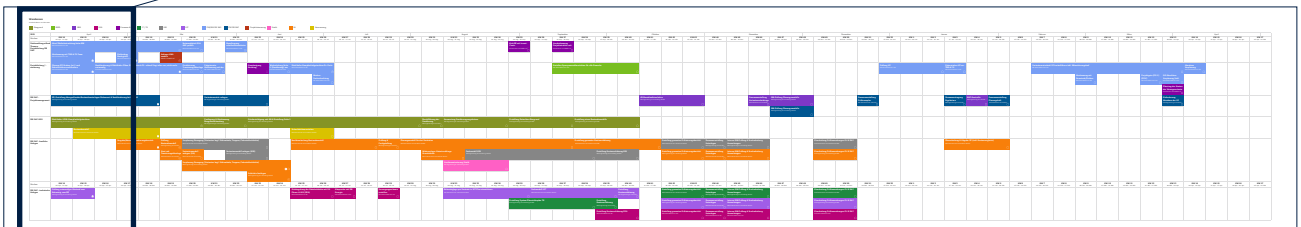
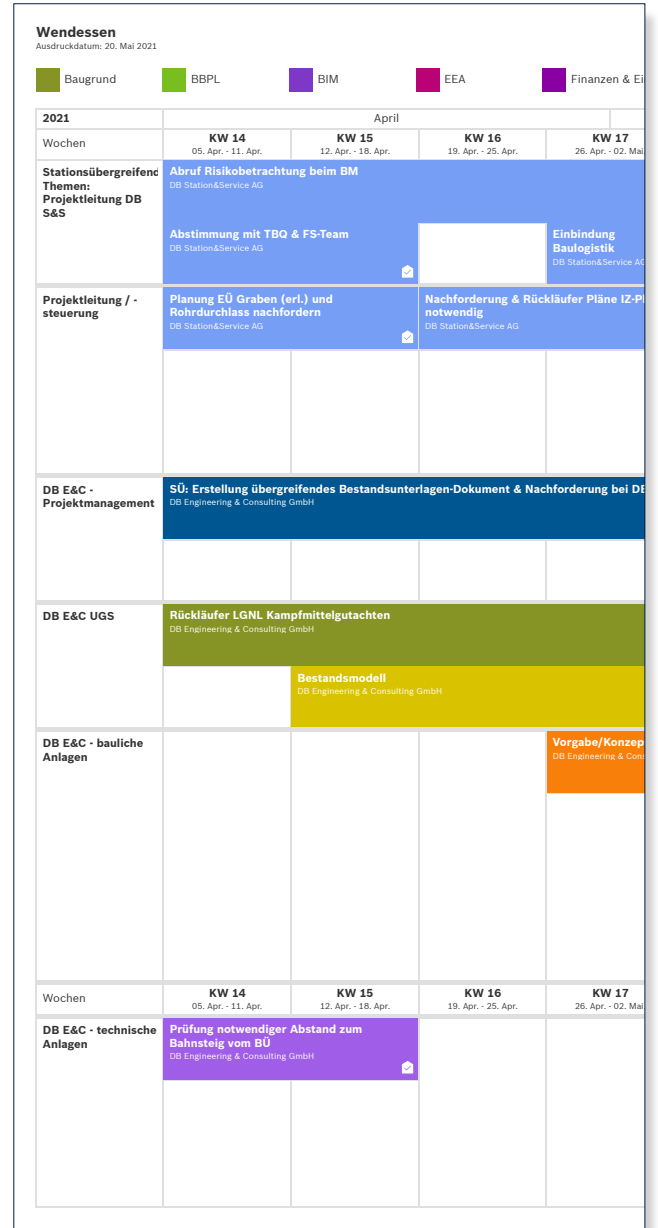
ject schedule puts transparency in the foreground and promotes open communication in the meetings on our digital "Lean-Board". Any misunderstandings can be quickly cleared up, and waste avoided.

Step 3 – Implementation with agile LPS: Having completed the previous stages of the LPS, the project team is now in a cycle of regular weekly meetings. In each meeting, it is first checked which tasks were pending since the last meeting and whether commitments have been kept. If tasks have not been completed as expected, the question “why?” and not “who?” is asked. Dealing openly with obstacles and problems assists in the search for solutions and helps the team to grow together. Examples of the challenges encountered included weather-related delays to surveying work, and a pause in the project due to a change in the client’s priorities. So far, the project team has been very successful in reacting flexibly to these challenges, since all the key players participate in the meetings. And together they focus not on the problem but on the goal.

The preliminary planning is expected to be completed in early 2022, allowing more time than otherwise expected – a first result of the lean management approach. In the client’s original preliminary schedule, the target was October 2021. During the initial planning phase, however, it became clear early on that this deadline could not be met. This was clearly communicated, and more time was allowed. Thorough planning requires sufficient time to identify and eliminate risks at an early stage, thereby avoiding problems that would otherwise delay the project later on. This step was taken in close consultation with the client. It became clear that the required time investment at the start of the project would lead to an overall optimisation of the project.

These approaches help to accelerate project delivery and reduce uncertainties in terms of costs and deadlines. But in spite of such optimisations, infrastructure projects will always present complex challenges. The extent to which the new methods and techniques have been successful will be evident at the end of the project: Has the project team, working together in a spirit of collaboration, succeeded in steadily adhering to cost budgets and time schedules?

Extract from the planning schedule for Wendessen train station



“There are two things on which success depends in all circumstances. One is that the purpose and goal of the activity are properly defined. The other, then, is to find the actions that lead to this goal.”

Aristotle





PILOT PROJECT

First lean experience with Deutsche Bahn

The German railway company's "uPva" project in Hamburg involves the upgrading of the fire protection measures of various underground passenger transportation facilities in and around the city, including those of Hamburg's main train station. Due to the strict safety requirements, most of the work can only take place during night-time track closures and is very time consuming, requiring a great deal of organisational effort. There are also typical project management challenges such as complex interfaces and communication channels between the different trades and parties involved. As a result, budgets and schedules were not being adhered to during the first years of the project. This was unwelcome from the perspectives of everyone involved – including the public, because inactive and long-term construction sites are associated with reduced convenience. A critical examination of the situation led to the decision by Deutsche Bahn AG at the start of 2020 to bring the work on the four

remaining stations to a reliable, satisfactory conclusion with the help of lean management – and Inros Lackner was contracted for this in April 2020. Together, the project team decided to trial the Last Planner® System, which is one of the best-known methods of lean construction management. In the start phase, an expert from the Karlsruhe Institute of Technology (KIT) took the lead from a lean management perspective, gradually passing on his knowledge to the team. Lean project management is of great interest to Inros Lackner in two ways. First, the use of lean methods on projects is currently in greater demand than ever before, in both the planning/design and execution phases, and is therefore an important subject to have knowledge of in the context of winning future contracts. And second, the lean principles can also be applied in a variety of ways outside of projects, creating added value when applied consistently.



The positive effects are clearly noticeable

Kerstin Kögel

Project manager / Client representative DB Station&Service AG

DB Station&Service AG has had good experience with lean construction management in relation to the renovation of the underground S-Bahn stations in Hamburg, a project that commenced in 2016. On this basis, at the beginning of 2021, we started a new type of collaboration using lean construction management, right from project commencement, on seven of our station projects in the Braunschweig area. And we are constantly learning – questioning, trial-

ling, rejecting and optimising. Even if there is still a lot of persuading to be done, the cooperation among those involved is already more open, more transparent, and more characterised by personal responsibility and equality, resulting in positive effects already in this early project stage. I look forward to continuing on this path and improving the way we manage our projects through the use of lean management.

Openness to new lean methods within the team

Michael Beckmann
Manager, Hamburg office

On the basis of successful long-term cooperation with Deutsche Bahn, it was decided to together establish and expand the use of lean management on our common projects. I was surprised how willingly the teams accepted the lean methods and thereby quickly optimised the value stream in their work together. Lean management is not rocket science – rather, with small impulses it

sharpens the focus on the customer and the teamwork within the process. Sub-tasks are coordinated at shorter intervals, and challenges and emerging problems are discussed more openly. This ultimately leads to a better result for the user, for the customer and for us as a commercial enterprise – existing values do not have to compete with innovation and the “spirit of trying things out”.



Addressing challenges through collaboration

Marie Herbst
Project management

I find it great to see how a team grows together in a lean culture. Instead of problems representing risks to the entire schedule that must be addressed by individuals, they become challenges for the whole team to identify and address together. After all, everyone involved in the project has individual specialist knowledge, good ideas and creative ways of looking at things. If we make space for all such inputs and bring them together, it can only offer added value – for the project, for the team and for the participants themselves.

“Coming together is a beginning, keeping together is progress, working together is success.”

Henry Ford

“The more people proceed by plan, the more effectively they are affected by chance.”

Friedrich Dürrenmatt

Take even the smallest doubts seriously

Philipp Peruzzo
Project management and project control

The effect of new methods on existing processes, and on the conditions governing the way projects are implemented, can be tested in pilot projects. In our case, challenges have emerged as expected, which must be carefully considered in future projects from the very beginning. The greatest challenge is to create a common understanding within the entire project team of the project and its goal. Every little doubt must be taken seriously in order to minimise any resistance. In addition to the common understanding, it is important to have a solid contractual basis to avoid any associated differences of opinion.



LEAN AND AGILE

Efficiently bringing together the known and the unknown

Already routine in our traffic and transportation team

Jens Pohl

Manager, Hanover office

The Daily Scrum is now an integral part of our daily routine. Our traffic and transportation team meets every morning at nine o'clock – initially we came together in front of the whiteboard, but then we started meeting virtually due to the coronavirus pandemic. The team members briefly report on the day's tasks, associated difficulties, possible scheduling conflicts and any spare capacity they may have. The team then independently arranges the necessary support for each topic. Scheduling conflicts are resolved as colleagues assist each other with their workload and thus give each other the extra time they need to meet their customers' demanding requirements. As a rule, the Daily Scrum lasts no longer than 15 minutes. In this way, we manage and complete more than 350 traffic and transportation projects every year, in Germany and Europe, to the satisfaction of our customers.

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Daily Scrum

▶ Guidelines:

- Short meeting (max. 15 min.)
- Same place, same time
- Scrum Master is responsible
- Whole team should be present
- Quick update of the to-do list
- No other discussions

▶ Questions to the participants:

What did you do yesterday?
What do you want to do today?
What obstacles are in your way?

Open to change

Oliver Schwarz

Business Unit Manager

Agile methods:

- ▶ **Scrum**
- ▶ **Kanban**
- ▶ **Feature-Driven Development**

Agile teamwork requires an agile mindset, initially reflected in the attitude and approach of each member of the team. Every change starts with oneself, and that is probably the biggest challenge. Digitalisation and mobile working are developments that have proven their value in our teamwork for a number of years already – a progression which has been pushed even further by the coronavirus pandemic, requiring a high degree of agility in the short term. From my point of view, this has worked out very well. I see a great

deal of openness to new working methods and the increasing use of the tools of the MS 365 platform. We also approach the completion of tasks with significantly shorter coordination intervals, enabling the tasks to be controlled better and with more focus. This enables us to act faster and in a more quality-oriented way because the project goal is continually being focussed on, and adapted where appropriate. In this process, free of rigid structures, I see one of the most important advantages of agility.

BIM and Lean

Dr. Klaus Richter
Executive Director

In recent years, we have successfully integrated Building Information Modelling (BIM) into our project structures, making our processes more efficient. At the core is a digital model, which makes it possible to simulate the design and future use of the building, as well as the interaction of the various specialist designs and the construction process. Analogous to Lean, BIM is based on transparency, communication and cooperation. Construction errors are detected at an early stage, and improvements can be imple-

mented continuously. This increases cost reliability and improves the quality of the completed construction, and reduces waste of investments and capacities. In this respect, Lean and BIM pursue the same goals, complement each other in their application and support the collaborative approach of partnership-based cooperation between all project participants. For us, this interaction is an important feature of our project processes.



CRUISE PORT WITH ONSHORE POWER SUPPLY SYSTEM AND NEW CRUISE TERMINAL

Sustainable development of cruise shipping in Rostock-Warnemünde

Rostock-Warnemünde is one of Germany's most important cruise shipping locations in the Baltic Sea region. The port has recently been developed, with a strong focus on sustainability, with the cons-

truction of a new cruise terminal and a new onshore power supply system. The aim is to make cruise shipping more environmentally friendly, and passenger handling operations more efficient.



**Overhanging
roof construction:
Cantilever of
length approx.
12.5 m**

Southern exterior view of the cruise terminal

Project manager – Cruise terminal:

Frank Schmidt

Head of Construction Supervision

Project manager – Onshore power supply system:

Tobias Günzl

Head of Maritime Engineering

Matthias Berndt

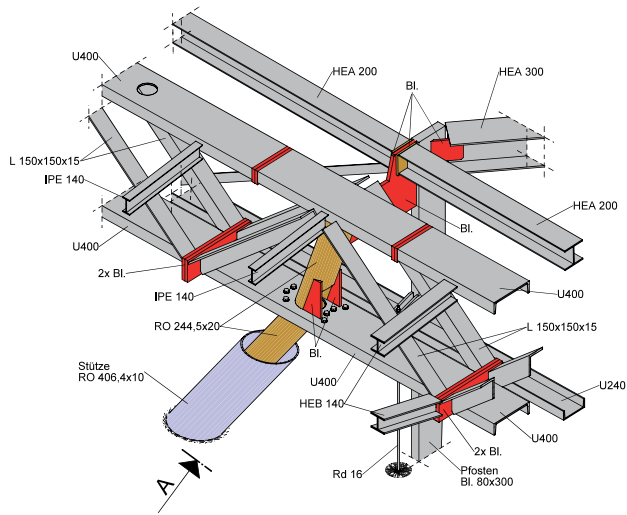
Head of Electrical Engineering

New cruise terminal

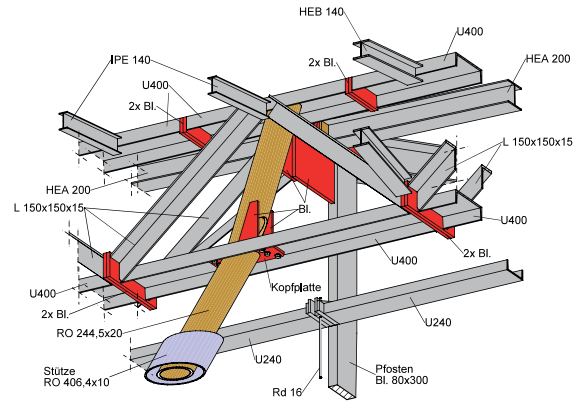
Despite the impact of the coronavirus pandemic on cruise shipping in the last two years, the demand and outlook for the Baltic Sea region remain high. The new terminal in Rostock-Warnemünde is intended to further improve passenger services. The striking building's design caters to its different uses throughout the year, including as a European Union external border point and as a communal event space for up to 1000 people. The terminal is located at the sharp bend in the port's quay wall at cruise berth no. 8, where it has become a new landmark of Rostock Port, visible from afar. The desired

imposing character of the building, combined with the demanding foundation conditions, resulted in an extraordinary steel-work structure that presented special challenges for the design team. For example, a large number of complex geometric nodes had to be calculated, involving the consideration of high stresses and penetrations. The development of the design drawings was strictly model-based. All beams were precisely represented in terms of cross-section, length and position. The nodes were modelled separately and visualised three-dimensionally in the detailed design drawings.

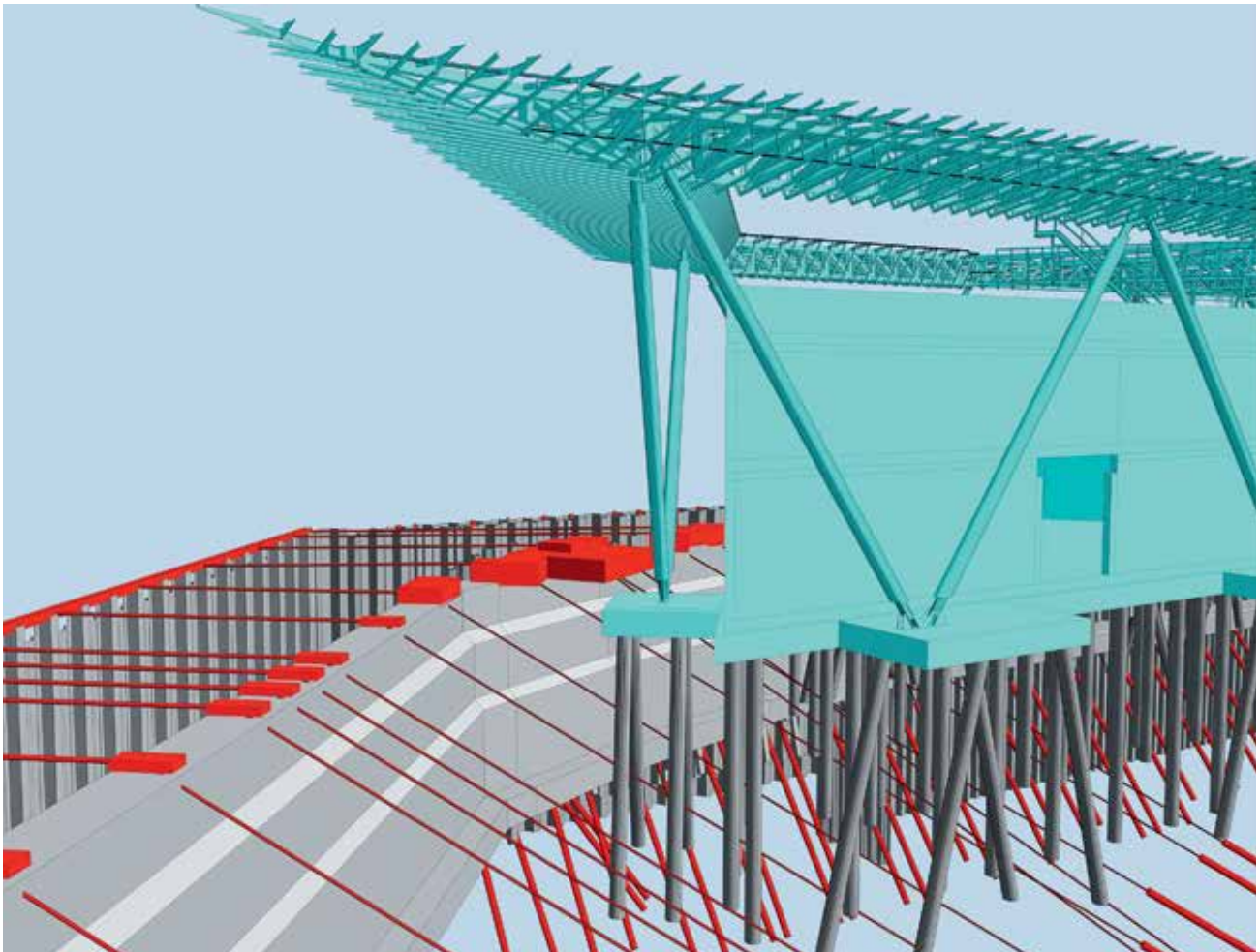
Detail 03-23 - Fassadenpfosten Kopfpunkt 2
 Isometrie 1 M 1:25



Isometrie 2 M 1:25



Extract from detailed design drawings



Model-based representation of the foundation design



View of onshore power supply facility and adjacent berth

16 MVA
capacity >
Electricity
demand of
Rostock Port

Onshore power supply system

As part of their “green cruising strategy”, the state of Mecklenburg-Vorpommern, the City of Rostock, Rostock Port GmbH and AIDA Cruises decided to undertake the onshore power supply project for the Warnemünde cruise port as a joint initiative. By using an onshore power supply when docked, the CO₂ and noise emissions from ships while in the port can be significantly reduced. The climate-friendly project received special recognition from the responsible chamber of engineers in the Mecklenburg-Vorpommern Engineering Awards of 2020. The system was designed and built, in accordance with the international standard IEC/IEEE 80005-1, with an installed capacity of two times 16 MVA. This means that what is currently the largest such system in Germany can supply two cruise ships with onshore power at the same time. The electricity is provided at a frequency of 60 Hertz, which is commonly used in shipping in accordance with the American standard, rather than the 50 Hertz frequency generally used in Germany. The local power supply company, Stadtwerke Rostock Netzgesellschaft mbH, as a project partner, adapted its infrastructure accordingly and took steps to ensure local network stability. The new onshore power supply system was completed in 2020. However, due to the pandemic situation, acceptance and commissioning could only take place in May 2021 with the arrival of a ship belonging to AIDA Cruises. After extensive load and safety testing of the connection facilities at both cruise ship berths, the system was entered into permanent service. On behalf of the Hanseatic and University City of Rostock, Inros Lackner was responsible, in the role of General Planner, for the project’s planning, design and engineering, for management of the approvals process, and for site management.



Cable Management System (CMS) at Berth 8



Onshore power supply building

FOCUS ON FLOOD PROTECTION

Increasing extreme weather events and rising sea levels

The flood disaster in Germany 2021 and the 6th IPCC climate change report clearly indicate that heavy rain and strong wind events will occur more frequently in the future. Environmental and climate policies must include appropriate protection measures and promote a greater response to the climate change that has already

been caused. Flood protection is part of this, including measures and constructions to limit the effects of extreme weather events. Over the years, the Inros Lackner team has gained extensive experience in flood and coastal protection.



Lower Saxony / Bremen master plan for coastal protection

Almost 90 percent of the Bremen area is at risk of flooding. The aim is to increase the height of many sections of the main floodwater protection dyke, which has a total length of approximately 160 km in Bremen, by about 1 m. Inros Lackner has been supporting the responsible authorities in this regard since 2008, including with the preparation of feasibility studies, cost-benefit analyses, and evaluations of cost-effectiveness. Inros Lackner is responsible, for example, for the planning, design and construction supervision of works relating to the new construction, upgrading or renovation of flood protection walls, dykes, dyke openings, tide gates and pumping stations.

Contact persons for flood protection:

Dr. Heiko Spekker

Head of Maritime and Coastal Engineering

Markus Schuckert

Manager, Dresden office

Preventive flood protection measures

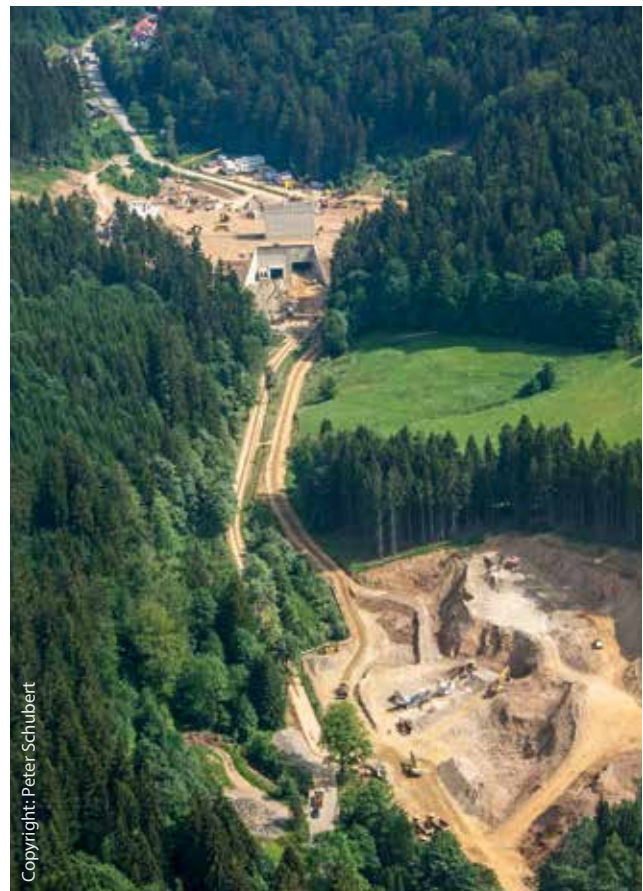
The Niederpöbel floodwater retention basin in the German state of Saxony has a retention volume of 1.2 million m³ and a dam of height 28 m, making it a "large dam" according to the German standard DIN 19700. Following completion of construction in 2019, the first test of the dam was carried out with the melting of the winter snow in early 2021. 600,000 m³ of water was held back in the retention basin, corresponding to a water depth of approximately 19.6 m and thereby meeting the test specification. The ecologically integrated basin's rockfill dam has an asphaltic concrete core and temporarily closable ecological and road culverts, enabling the basin to be fil-

led only during flood events. The new dam forms part of Saxony's overall flood protection plan, and was constructed on behalf of the state's dam management authority to improve flood protection in the catchment area of the Rote Weisseritz river. As part of the contracted engineering consortium, Inros Lackner was responsible for the hydraulic engineering, transport facilities, bridges and tunnels. The services provided included water management planning and structural engineering design, management of the planning permission process, environmental engineering, and construction supervision and management during the construction phase.

Total
retention
volume:
1.2 million m³



First test after melting of winter snow



Copyright: Peter Schubert

Construction phase of the floodwater retention basin



Coastal protection measures

Climate project

Beira is an important port city on the coast of Mozambique, with a population of approximately half a million people. The mostly informal settlements are characterised by high population density, inadequate infrastructure and a high poverty rate, which also makes them particularly vulnerable to extreme weather. Large parts of the city centre are just above sea level, and since the Indian Ocean in this area has a very large tidal range of up to 7 m, reliable coastal protection is of great importance. Beira is considered to be the city most threatened by climate change in Mozambique and one of the cities most threatened in Africa as a whole. A new flood barrier planned by Inros Lackner is now protecting the port city on Mozambique's Indian Ocean coast, and improving the city's drainage.

Coastal storm surge protection

For many years, Inros Lackner has been planning and implementing projects for erosion prevention and coastal protection on Germany's Baltic Sea and North Sea coasts and on many other coastlines around the world. These include the construction of flood protection embankments and sea dykes as well as sheet piling and flood protection walls, taking the relevant geotechnical reports into account. Our activities in this field often include work on revetments, dyke access paths and farm roads, cycle paths, paved dyke crossings and dyke openings.



NEW SCHOOL INFRASTRUCTURE IN MOZAMBIQUE

Reconstruction of schools after destruction in cyclone



3,150
classrooms
damaged

Coordination:

Johannes Augustin
Project Manager

When Cyclone Idai hit the coast of central Mozambique in March 2019, it caused severe damage to the region's public infrastructure. The province of Sofala was hit particularly hard, with over 2,350 conventional classrooms damaged and almost 800 so-called "precarious" classrooms, constructed from locally available materials, completely destroyed. In response to the disaster, the government of the Federal Republic of Germany made funds available, through the KfW Development Bank, for the renovation/reconstruction of the damaged schools. The scope also includes the schools' administration buildings and their water supply and sanitary facilities. Where necessary, additional classrooms will also be built. In August 2021, Inros Lackner was contracted, on behalf of KfW and the Ministry of Education and Human Development (MINEDH) of the Republic of Mozambique, to provide planning and design services for eight of the worst affected schools in the Beira and Buzi districts. The services cover the entire life span of the project, including initial plan-

ning, environmental and social impact assessments, site inspection, detailed design, tender documentation and construction supervision. In accordance with the UN-Habitat "Safe Schools Initiative", the aim is to rebuild the schools in a climate resilient manner, making them better able to withstand future natural disasters.

Services provided:

- Site Inspection
- Preliminary Design
- Detailed Design
- Tender Documents
- Environmental and Social Impact Assessment
- Construction Supervision



Destruction of many schools in Mozambique



Temporary facilities are required



Temporary use of tents for classes following destruction of schools

IMPROVING QUALITY OF LIFE

Rural infrastructure development in Cambodia

Project manager:

Rainer Israel

Director, INROS LACKNER Cambodia

Inros Lackner is proud to have been selected to play a leading role in a major project to improve rural infrastructure in large parts of Cambodia, positively affecting the lives of much of the country's population. The "Rural Infrastructure Development Programme for Cambodia" (RID4CAM) project, which will run from 2022 until 2027, will include the upgrading or new construction of about 540 km of roads at a cost of approximately EUR 80 million, and the establishment of a road asset management programme, as well as other measures relating to water supply, drainage, irrigation and various other infrastructure.

The project is co-financed by the German development bank KfW, the French Agence Française de Développement and the European Union. It will support the goals of economic and social development, and poverty reduction, in rural Cambodia by:

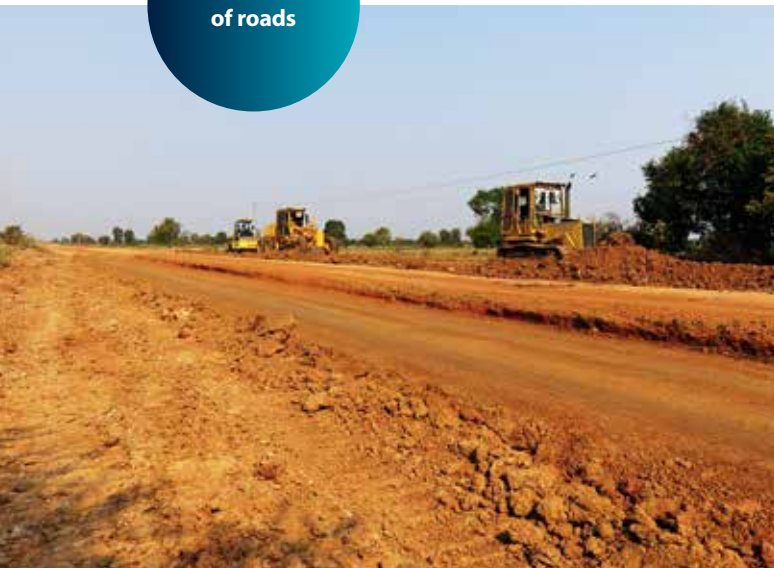
- improving all-year access to markets, schools, health centres and public administration by constructing and rehabilitating rural roads to a climate-resilient standard;
- encouraging developments of local infrastructure such as water supply and sanitation facilities, schools and health centres;

- developing the ability of local project partners and the local population to maintain the new and improved infrastructure in the future; and
- improving agriculture productivity by means of small-scale investments that complement the Water Resources Management and Agro-ecological Transition for Cambodia (WAT-4CAM) project.

The strong focus on road infrastructure will make a significant contribution to economic growth in the country – not only directly, by employing people and local suppliers and helping them gain valuable project experience, but also indirectly, by generating increased trade and improving access to markets. The new roads will also contribute to social inclusion through improved access to basic social services and lower costs of consumer goods.

Inros Lackner SE, in joint venture with GITEC IGIP GmbH, has been appointed by the Ministry of Rural Development of Cambodia as project implementation consultant. Inros Lackner (Cambodia) Co., Ltd., which has gained extensive experience in managing such projects in the region since it was established there in 2002, will support the project in the role of national consultant.

540 km
of roads




 A white silhouette map of the British Virgin Islands is centered on a light blue background. A dark blue location pin is placed on the island of Tortola, with the word "Tortola" written in white text below it.

Tortola

British Virgin Islands

RECONSTRUCTION OF A CARIBBEAN PORT

West End Ferry Terminal, British Virgin Islands

Project manager:

Dr. Karsten Galipp
Division Manager

The West End Ferry Terminal is located on the Caribbean island of Tortola, the largest of the British Virgin Islands. It is the busiest passenger port in this British Overseas Territory, and very important from a tourism and an economic perspective, partly thanks to the connections it facilitates between the British and American Virgin Islands. During the 2017 hurricane season, the terminal was severely damaged by Hurricanes Irma and Maria, leaving it out of service until it reopened in August 2019 following the erection of temporary terminal facilities. In order to return the port to full capacity, while taking the opportunity to modernise and expand it to meet future requirements, the owner has initiated a project, financed by the Caribbean Development Bank, to rebuild the port as a resilient, efficient, state-of-the-art transportation hub in accordance with international good practice and its various users' requirements. On behalf of the Government of the Virgin



Islands Recovery and Development Agency (RDA) commissioned Inros Lackner to provide consultancy services for the reconstruction and modernisation project, which commenced in 2021. Inros Lackner is responsible for the planning and design work, from the initial planning and preliminary design stage, including preparation of environmental and social impact assessments, to the detailed design stage including preparation of tender documentation. Following award of the construction contract, Inros Lackner will also be responsible for construction supervision, representing the client's interests while the work is carried out on site. Construction of the new terminal is expected to be completed in 2023.

Services provided:

- Initial evaluation
- Preliminary Design
- Detailed Design
- Tender Documents
- Environmental and Social Impact Assessment
- Construction Supervision

PORT OF POINTE-NOIRE – PREPARING FOR THE FUTURE

Technical support for environmental certification process



Project manager:

Simone Urmoneit

Head of Congo office

Inros Lackner has been planning and managing projects in the port city of Pointe-Noire in the Republic of the Congo since 2007. One such project involves the ongoing development and expansion of the “Port Autonome de Pointe-Noire”, which opened in 1939. From its beginnings with a quay of length 200 m, the port has developed in recent decades into a modern deep-sea port with 13 berths along its two kilometres of quay. In 2017, the area of the port was increased from 65 hectares to around 84 hectares, with Inros Lackner planning the work from an environmental point of view and monitoring the implementation until the new port area was put into service. The port can be accessed from the water via a channel of length approximately 1.2 km, and on land by road and rail.

Development of the port’s environmental management system

As part of a joint venture, the Inros Lackner team is currently supporting the port’s QHSE department in developing specialist technical proposals and integrating appropriate environmental policy into all areas and processes. In addition to the administrative management of the joint venture, Inros Lackner’s role involves evaluating and improving the organisation and efficiency of the port’s environmental department. Following a review of the existing port regulations and practices, and an initial on-site assessment, proposals for structural and organisational changes and for the use of new technical equipment are now being developed. In order to optimise long-term performance, the project encompasses the port’s entire value chain and includes all aspects from the preparation of tender documentation to the completion of implementation. Training courses are being provided to give the port staff the specialist knowledge they need and training in the use of the new equipment. Their on-site presence enables the members of Inros Lackner’s local team in Pointe-Noire to regularly check the implementation and daily application of the measures, and the use of the equipment, while also documenting any deficiencies or errors. Follow-up training courses to reinforce and build on what has already been learnt will help ensure ongoing correct application of the new environmental management system in day-to-day port operations, and successful certification in accordance with ISO 14001.

The development and certification of the port’s environmental management system not only promotes the sustainable use of resources, but also improves work quality and enhances safety. All of the port’s staff and visitors, and the residents of neighbouring areas, will benefit from the heightened awareness of environmental, health and safety issues. The certification is thus an important milestone for the future of the port.



Port Autonome de Pointe-Noire

Certifications as a seal of quality

Apart from its regular container handling, the port’s activities are largely dominated by oil and gas handling and by facilitating maritime traffic to the region’s numerous offshore platforms. Therefore, safety and quality are crucial aspects of the port’s operations. The certification in accordance with ISO 9001 of the port’s quality management system for ship handling was completed at the end of 2018. In this next step, the environmental management system of the entire port operation is to be certified according to ISO 14001. For this process, Inros Lackner, in joint venture with Antea France and Le Floch Depollution, has been engaged to provide technical support to the port’s environmental department. The financing is being provided by Agence Française de Développement and the European Union. When the port’s processes have been adapted as necessary, the roll-out of a new, fit-for-purpose environmental management system is expected by the end of 2023.

Quay
“Quai G”
Length: 800 m
Berths: 3



Quay construction phase



DSR IMMOBILIEN GMBH

DSR Immobilien GmbH, part of the Deutsche Seereederei group of companies, is one of the leading developers of holiday hotel properties in Germany.

The activities of DSR Immobilien GmbH and its subsidiary, DSR Asset Management GmbH, cover the entire life cycle of a hotel property. They include site and project development, project management and project control services in relation to construction and fitting out (FF&E), and facilities and property management including technical operations management. With successful, well-known brands such as A-ROSA, aja and HENRI, the group has been one of the major players in the German tourism market for almost 25 years.

aja resort in Garmisch-Partenkirchen: Opening in June 2021

Imposing peaks, turquoise-blue lakes and rustic mountain huts – just in time for the summer season, the new aja resort in Garmisch-Partenkirchen opened its doors on June 18 against the picture-perfect backdrop of the Bavarian Alps. The resort's highlights include its unique location at the foot of the mountains, its approximately 2,000 m² of spa area with indoor and outdoor pools and the aja experience concept. In the 229 comfortably designed rooms and suites, guests enjoy modern living with alpine flair. Whether in the way the hotel is fitted out or in the restaurant: sustainability is an important issue throughout the property.

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Facts & figures:

- 229 rooms in five categories
- Room types: 193 double rooms, 12 family rooms, 3 accessible rooms, 12 junior suites, 9 suites
- Restaurant with front cooking, hotel bar, pool and sauna bar
- Underground car park with parking for cars and bicycles
- Free WiFi throughout the resort
- Shop with a selection of snacks and drinks, 24/7
- Fitness area and a meeting room
- aja's "Wunscherfüller" approach to sustainably contributing to an improved holiday experience beyond its hotels' perimeters
- Approx. 2,000 m² of spa area with bathing and sauna facilities
- Sauna and swimming pool facilities: Indoor approx. 1,600 m² including swimming pool of dimensions 10 m x 20 m, outdoor pool of dimensions 8 m x 12 m, NIVEA shop and treatment area of approx. 300 m²
- Restaurant and bar: approx. 850 m² plus terraces, approx. 510 seats



Copyright: Erik Gross



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www.dsr-immobilien.com

Planning for DSR Immobilien GmbH

Inros Lackner has provided various planning and design services for DSR Immobilien over the years. For the new aja resort in Garmisch-Partenkirchen, the Inros Lackner team was responsible, among other things, for the structural design and the technical building systems. Inros Lackner also played an important role in the construction of the aja resorts in Warnemünde and Ruppolding, providing specialist planning and design services and contributing to various site development and infrastructure provision projects.

STUDY AND WORK COMBINED

With a great fascination for hydraulic engineering, Dr. Bashar Ismael has brought his academic and professional work together since joining our Dresden office three years ago.



The journey Dr. Bashar Ismael has come is an impressive one. While he was finishing high school in his native Syria, a dam broke in the neighbouring town, with devastating consequences. Villages were destroyed, there were numerous casualties and thousands of people were left homeless. This dramatic event prompted him to enrol for a degree in hydraulic engineering. He studied for five years at the Tischnr University in Latakia, and then received a scholarship from the Syrian ministry of higher education for Germany. After a six-month language course, he furthered his studies at the Institute for Hydraulic Engineering and Technical Hydromechanics at the Technical University of Dresden. It is here that the annual Dresden Hydraulic Engineering Colloquium takes place, where the young hydraulic engineer became acquainted with Inros Lackner during an encounter one year. He has been working since 2019 as a project engineer in hydraulic engineering at our Dresden location. Here, in addition to his normal day-to-day work, he has conducted research into the transport of fluids and solids in pipe systems and pumping stations. He successfully completed his doctorate on this topic last year.



Dr. Bashar Ismael, online defence with reviewer Prof. Dr.-Ing. habil. Hartmut Eckstädt (live online from Rostock)

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