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| No | Speaker |
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| <p>1</p> | <div style="display: flex; justify-content: space-around;">   </div> <p>Mr Hansjörg Schmidt-Kraepelin CEO BG BAU, Germany</p> <p>and</p> <p>Mr Christopher Wohland BG BAU, Germany</p> <p><u>Keynote Speech: Covid-19 and Lessons Learned in the German Construction Industry</u></p> <p>Coronavirus pandemic has changed life and the world of work.</p> <p>Almost all over the world, Coronavirus lockdown measures have been put into effect for two years in order to slow the spread of the virus.</p> <p>In Germany, there were also numerous restrictions on public and economic life due to partially high infection rates with Covid-19.</p> <p>However, the German construction industry continued its work unabated throughout the pandemic.</p> <p>The Berufsgenossenschaft der Bauwirtschaft, in short BG BAU, the German social accident insurance institution for the construction sector, provided information and advice to their members, i.e. construction and facility management companies.</p> <p>Since comprehensive protective measures against SARS-CoV-2 were taken at an early stage, there were no major corona incidents on construction sites in Germany.</p> <p>In his talk, CEO Hansjörg Schmidt-Kraepelin will illustrate how German construction industry has mastered the corona crisis to this day and the crucial role Occupational Safety and Health played in it.</p> <p>It will also reflect the lessons learned and how we can benefit from this knowledge to further contribute to safe and healthy workplaces.</p> |
| <p>2</p> | <div style="display: flex; justify-content: space-between;"> <div style="width: 80%;"> <p>Professor Karl-Heinz Noetel President ISSA-Construction, Germany</p> <p><u>Vision Zero tools developed by the ISSA Construction</u></p> <p>“Vision Zero” is a prevention strategy with the vision of a world without occupational accidents and work-related diseases. Its highest priority is to prevent fatal and serious work accidents and occupational diseases. Vision Zero is the goal of a comprehensive culture of prevention.</p> <p>The concept of Vision Zero has gone hand in hand with the work done by the International Social Security Association ISSA and its Sections for many years. Vision Zero in context with safety and health at work is not an illusion or a target of its own; it is a basic strategy and a mindset at the same time. Vision Zero is the fundamental strategy for developing a comprehensive and holistic culture of prevention that takes into consideration the safety, health and well-being of employees.</p> </div>  </div> |

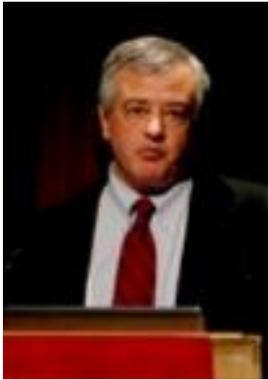
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| | <p>However, in order for Vision Zero to become a reality in practice, prevention work must always be realigned to this goal. This broad and networked approach requires everyone in society to get involved. Vision Zero is a strategic, comprehensive and qualitative approach</p> <ul style="list-style-type: none"> • where objectives are formulated and agreed upon, • which is geared towards risks and hazards, and • which takes into consideration all the circumstances behind accidents at work and on the road, occupational diseases and work-related health hazards. <p>The goal of zero accidents might seem difficult, but it is the only ethically correct goal that we must work on in the future. Vision Zero provides a strategy to achieve this. Under Vision Zero, safety and health at work are values that companies, organizations and society appreciate and strive for.</p> <p>Based on the global ISSA campaign communication elements, approaches and tools for the implementation of Vision Zero in the construction industry on the way to establishing a prevention culture in practice will be presented.</p> |
| <p>3</p> | <p>Mr Helmut Ehnes Dipl. Ing. Secretary General ISSA Mining, Germany Chairman of the VISION ZERO Steering Committee of ISSA</p> <p><u>Train the Trainers Program for Vision Zero</u></p> <p>The VISION ZERO Strategy of the International Social Security Association and its famous 7 Golden Rules is a success story and makes a difference towards prevention culture. It has made positive impact already around the globe. To support implementation ISSA has developed a comprehensive VISION ZERO Toolbox and a Competence Development Model for VISION ZERO.</p> <p>The presentation will offer a closer look at what can be done to develop competences of management, leaders and experts and describe the concepts and aims of VISION ZERO Trainings offered by the ISSA Sections. Examples and contents from those VISION ZERO training activities for industry and alternatively for organisations and associations in other countries will be presented to use the experiences for similar training activities for committed enterprises from Cyprus.</p>  |
| <p>4</p> | <p>Dr Gregoris Panayiotou MSc PhD CEng MIMechE Executive Mechanical Engineer, Head of the Maintenance and Operation Sector, Sewerage Board of Limassol-Amathus, Cyprus</p> <p><u>Vision Zero – The View of the Client: A Zero Accident Project</u></p> <p>The main sewage collector pipe of Limassol was constructed in 1995 and after 25 years of continuous operation under very harsh conditions the need for extending the lifetime of the pipe was imperative.</p> <p>The obvious solution was to remove the existing asbestos cement pipes through extended excavations along the very busy main coastal road of Limassol and reinstall new pipes. The risks and dangers in terms of health and safety of all people involved in such an operation were very high while on the other hand a pipe failure/collapse would</p>  |

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| | <p>result into catastrophic consequences for the entire city through the severe pollution of the sea that would affect both the socioeconomic life and activities of the citizens of Limassol and the environment.</p> <p>Facing this dilemma, the personnel of the Sewerage Board of Limassol-Amathus and specifically the engineers, the technicians and the management team, decided to apply a creative solution that will not only extend the lifetime of the pipe but also avoid all excavations and thus eliminating almost all health and safety issues and risks. The solution was to refurbish the existing pipes using Cured-in-Place-Pipe Lining (CIPP) which is an innovative and technologically advanced trenchless method for the refurbishment of sewer pipes that does not require any excavations at all and was never before applied in Cyprus. The result was to bring the pipe into a near-new condition and the pipe lifetime to be extended for another 50 years.</p> <p>Throughout this project, a total pipe length of 8km was renovated using a low-risk method and the entire project cost was around 8 million euros. All actions applied throughout the entire project lifespan, from the preventive thinking during the conception of the idea until the strict health and safety measures applied during the execution of the project, resulted into the successful completion of a zero-accident project (in line with the 7 Golden Rules for zero accidents and healthy work) that is worth studying and using as a benchmark.</p> |
| <p>5</p> | <p>Mr Avijit (Hash) Maitra BSc CEng FICE AIOSH Director 3EA Consultants, UK</p> <p><u>Vision Zero – The View of the Civil Engineers</u></p> <p>Golden Rule 2 asks the construction industry to identify hazards and control risks; designers are not excluded from applying Golden Rule 2 to what they do. In the UK, designers are required (by CDM Regulations since 1994) to apply Golden Rule 2, on the basis that risks eliminated (or with designed-in controls) before work starts on site will make a significant contribution to health and safety on sites. However, it was also recognised that not all hazards can be eliminated or controlled and this led to the idea of designers having to think only about “significant” risks, as defined by the enforcing authority (HSE). This presentation will set out the definition of a significant risk and by using practical examples will attempt to explain what a significant risk is.</p>  |
| <p>6</p> | <p>Mr Phillip Scott BA Arch MCSD RFaPS TechIOSH AIIRSM Architect, CDM Expert and H&S Consultant (Retired), UK</p> <p><u>Vision Zero – The View of the Architects</u></p> <p>Similar to Vision Zero, in the UK CDM Law, designers are required to Eliminate, Reduce, Inform about significant hazards (ERI). Significant hazards are defined in authoritative guidance as hazards that are not obvious, unusual or difficult to manage. The Contractors are required to Control, provide PPE and Discipline (Manage the Hazards and Risks).</p> <p>It is the duty of the architect (frequently the Principal Designer, the Coordinator Role, in the UK) to coordinate the hazard identification of all the other members of the design team, with</p>  |

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| | <p>the hazards he/she must also identify. Particularly during the Design Phase. This can be done using a Hazard Log/Risk Register.</p> <p>This document should be taken into the Construction Phase, to ensure that design changes are picked up and hazards identified for the Principal Contractor. (Who may be Principal Designer in this Phase)</p> <p>This presentation will outline how Architects can decide what is a significant hazard, coordinate hazard design management and allow the design team to concentrate their efforts to achieve safety by design where they should. (Also, how the Architect can operate during the Construction Phase whether Principal Designer or not).</p> |
| <p>7</p> | <p>Dr Jens Juehling Head of the Prevention Department of BG ETEM, Germany Secretary General of the ISSA Electricity Section</p> <p><u>Vision Zero – The role of the Contractor</u></p> <p>The growing tendency among companies to concentrate on their core business, leads to increased utilization of external companies under contract. Contract work naturally affects the normal workflow and can give rise to an additional and mutual increase in risk. The probability of accidents, other health risks and material damage may rise considerably. Consequently, safety considerations and related precautions will play an important role in the interaction between a client and contractor. This relationship should ideally be a partnership based on collaborative working to ensure an efficient and timely delivery of the contract.</p> <p>In an international working group, the Section for Electricity of the International Association for Social Security (ISSA) has developed the “Guidance on the Safe Management of Contracts”. It contains recommendations on how to manage the processes and relationships between clients and contractors (including subcontractors) in the best possible way, in order to achieve a successful and safe outcome for the benefit of all parties involved.</p> <p>A Contract Lifecycle serves as a central theme for the Guidance, pointing out the most important phases of a project, from initial contract planning through contract completion and review. The individual chapters of the Guidance are based on this Lifecycle and define the tasks and responsibilities of the client and the contractor during the individual phases. Each chapter concludes with practical test questions that help clients and contractors to check whether they have taken all the essential aspects into account. The appendix of the guide contains case studies and examples of good practice for a safe contract management.</p>  |
| <p>8</p> | <p>Professor Alfredo Soeiro Associate Professor of Civil Engineering Universidade do Porto, Portugal</p> <p><u>Vision Zero – Coordinator (Qualification and Competence)</u></p> <p>ISHCCO (International Safety and Health Construction Coordinators Organization – www.ishcco.org) represents a European umbrella association of national professional associations of Health and Safety Construction Coordinators (HSCC). ISHCCO has developed a qualification framework (IQF) that has three types of competences necessary for HSCC: knowledge, skills and attitudes. These required</p>  |

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| | <p>competences for HSCC provide a set of terms of reference that guarantees that these professionals will be capable of implementing the correct preventive measures to progress to a Vision Zero accident scenario. The trainings for these professionals have to be designed so they can deliver the IQF competences to the trainees. This framework addresses levels 5, 6 and 7 of the European Qualification Framework corresponding to professionals as technicians, bachelors and masters. The IQF must be adopted by official safety agencies, by training organizations and by professional organizations as an essential measure to eliminate accidents in construction in the 21st century.</p> |
| <p>9</p> | <p>Mr Scott Kerr Director 4D Technical Consultancy Ltd, UK</p> <p><u>Tools developed in the United Kingdom</u></p> <p><u>Using BIM to support Safety and Risk Management</u></p> <p>Since the early 2000s the use of digital technologies and BIM has become more prevalent in the global construction industry; as a follow-on then using these processes and techniques has been directed to how they can be used to potentially support the management of safety and risk – through the key project stages of design development, preconstruction and then site delivery. From a contractor and site delivery standpoint, through this presentation, practical implementations of BIM, specifically 4D, and related deliverables will be showcased with a focus on how they supported/communicated the identification, management and mitigation of safety issues in advance of real time situations taking place on site.</p>  |
| <p>10</p> | <p>Mr Marcos Hill Construction Engineer BSc BIM Manager, List Digital, Germany</p> <p><u>Tools developed in Germany</u></p> <p><u>Using BIM in the case of fall protection</u></p> <p>Every year, thousands of accidents occur on construction sites in Germany. Quite a few of them end in fatalities. These accidents are caused in particular by carelessness and a lack of safety measures. However, the duty of care of the building owner is also neglected in some cases.</p> <p>The BG BAU has set itself the task of integrating the definition of occupational safety measures already during the planning phase. The planning of occupational safety measures is to be examined and documented in the early project phase. By handling construction processes with the help of the BIM method, the use case of fall protection was developed. Already at the beginning of construction projects, the use case fall protection should be integrated into the planning. Since the responsibility for occupational safety and its appropriate monitoring in the project lies by law with the building owner, the integration of the use case gives the building owner the opportunity to fulfill his responsibility well and demonstrably. For this purpose, the client must decide on the integration of BIM and thus also on the integration of the fall protection use case.</p> <p>Once the decision has been made to integrate the BIM method, the fall protection application is included in the client's information requirements and specifications. Once the specialist planners have been commissioned, the fall hazards are first identified and represented in</p>  |

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| | <p>the model of "fall hazards". For this purpose, the fall hazards are first identified by hazard symbols. The hazard symbols are divided into point-type, line-type, area-type and sloping roof fall hazards. Information on the respective fall hazards is attached to the hazard symbols in order to subsequently select a suitable fall protection system.</p> <p>Subsequently, the planners select the required fall protection and model it in the technical model "Fall Protection". Early coordination between planners and contractors is particularly beneficial. In this way, construction methods and planning can be coordinated and the correct fall protection system can be selected. The components of the different types of fall protection are shown in color. In the 2D floor plan, the fall protection systems are also represented by hatching and can thus also be used as a control medium on the construction site.</p> <p>The next step is to implement the safety measures as in the specialist model Fall Protection. As already mentioned, the fall protection measures are also shown in the 2D plan. This also shows the contractors the danger zone during construction and the safety measures to be applied.</p> <p>The fall protection use case provides both building owners and planners with a high level of benefit and motivation to implement it. First of all, early planning and integration of the use case increases the chances of protecting lives. This is because the work safety areas and hazards are presented to the building owners through early visual representation. In this way, the planner can fulfill his duty of care, in the exercise of planning activity, through early documentation. By means of a target representation for planning and execution, quantities can also be derived for the invitation to tender and for the invoicing of the services. This makes the costs more transparent to the building owner. Furthermore, the 3D model and the target representation serve the building owner as a comparison to the actual representation and the protective measures can be better checked.</p> |
| 11 | <p>Prof. Dr. Knut Ringen Dr.P.H., M.H.A., M.P.H. Vice President and Treasurer of ISSA Construction, Senior Science Advisor, CPWR (The Centre for Construction Research and Training), USA</p> <p><u>Tools developed in the USA</u></p> <p>In terms of total number of occupational injuries and fatalities, construction is the most hazardous industry. Other industries (such as mining) may have a higher rate of injuries, but construction employs many more workers, approximately 7-11% of total employment.</p> <p>Within construction we know that the risk is not distributed evenly. The small-medium employers (SMEs) are overwhelmingly more hazardous. Among SMEs, it is especially those working in light commercial and residential construction that are most hazardous, and among these, the ones that hire workers on a self-employed basis carry an especially high risk.</p> <p>In the US, over 90% of employers are considered SMEs (with 20 or fewer employees). They employ about 40% of all workers. One third of all workers are now self-employed, up from 7% in 1980. Only a handful of them are legitimate owner-operators. The rest work for</p>  |

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| | <p>contractors who mostly do work for capital-poor owners who only seek the lowest price. It is in this sector – an informal sector - with several hundred thousand employers, that the most severe risk resides.</p> <p>These are not employers who belong to employer or trade associations, and the workers they employ have no trade union representation.</p> <p>So, how do we make an impact on this sector?</p> <p>First, the overwhelming evidence from around the world shows that in industries with intermittent or contingent employment it is critical to have industry-wide organizations focused solely on safety and health. In the USA, CPWR – The Center for Construction Research and Training (CPWR.COM), provides this platform.</p> <p>Second, change in safety and health in this diffuse and hard-to-reach sector can only come from promoting cultural change. This is the intent of Vision Zero, and CPWR has spent many years promoting safety culture and a climate of safety awareness on construction sites, in construction companies, and among construction workers.</p> <p>Third, very practical tools and messages must be created and provided free of charge, to encourage employers and workers to take action. CPWR has developed many such, which are available on the website.</p> <p>Fourth, adoption of those tools will not come until we have more leaders who are safety conscious on our job sites. CPWR targets front line supervisors – what we call foremen, with a training program aimed at strengthening their safety leadership skills.</p> <p>This presentation will provide examples of the tools we have developed to address this problem, and show the results of this work.</p> |
| <p>12</p> | <p>Univ.-Prof. Dr.-Ing. Manfred Helmus</p> <p><u>Modern construction management – Work-Family balance</u></p> <p>One of the most recent research projects at the Bergische Universität Wuppertal is concerned with the shortage of skilled workers in construction management. Within the framework of the research focus, the researchers want to examine the working conditions in construction management with a focus on "promoting young talent in construction management" and "reconciling work and family". A contemporary, flexible working model that uses current digital technologies is to be developed and tested for small and medium-sized enterprises.</p> <p>The project is divided into three phases: stocktaking, model development and testing. The stocktaking as the first phase is subdivided into three complementary studies: Survey of students, survey of SMEs and female construction managers, and investigation of the activity profile of construction management. Based on this, a working model will be developed in the second phase. With this model, the possibilities of digitalisation will be harnessed to enable parental leave, part-time work and flexible working time models in construction management. In doing so, both the requirements of SMEs in terms of economic efficiency and the identified needs of potential junior staff will be taken into account. Within the framework of the model development, working aids for SMEs will be formulated to</p>  |

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| | <p>support the implementation of the new forms of work organisation. In the third phase, the developed model will be tested in selected SMEs.</p> <p>In addition to creating a working model for construction management in small and medium-sized enterprises, the project is pursuing the following three core objectives: Increasing the compatibility of family and work in the field of construction site management in building construction projects; minimising the shortage of junior staff in construction management by attracting women to this profession; generating a positive effect on the image of the construction industry, especially in the field of building construction, in order to make it more attractive to junior staff. With the help of the developed model, measures are to be implemented with which, on the one hand, women can be introduced to construction management and, on the other hand, men who, for example, attach importance to regular working hours after starting a family, can be retained in construction management.</p> |
| <p>13</p> | <p>Ms Sabine Herbst Deputy Manager of section “Co-operation”, German Social Accident Insurance (DGUV), Germany</p> <p><u>International Examples for Communication in Prevention</u></p> <p>For more than 30 years now, the International Media Festival for Prevention has been organized every three years as an integral part of the World Congress for Safety and Health at Work by the Sections Electricity and Information of the International Social Security Association (ISSA). Starting as a small side event, the festival has become one of the highlights of the Congress.</p> <p>Why do two ISSA Prevention Sections organize a Media Festival? The answer is quite easy: In order to reach our target groups, we need good media. As communication is an active process, we always need to consider which is the best way to get our message across.</p> <p>A picture is worth a thousand words! Visual media play an important role in safety and health at work. They can reach out and address a large audience, and have the ability to overcome language and cultural barriers. They can help implement relevant information with the goal of convincing and encouraging people to behave safely.</p> <p>It is all about identification and attitudes. The idea, the timing and the right tonality guarantee the success. Not to forget the power of emotions: What gets under our skin, burns itself into our memory.</p> <p>Intelligent, creative storytelling means combining contents and messages skillfully in stories with the result that in the first place they evoke or modify feelings and convictions.</p> <p>In order to reach as many people as possible, diverse multimedia tools with target group-relevant contents can be entertaining, emotional, humorous, surprising, simple and light.</p> <p>With web clips, Web TV, mobisodes, animation, fiction, documentary, TV spots, interactive media, apps and websites, suitable for each target group – from the small and medium enterprise to large national and international organizations –, the International Media Festival for Prevention serves as a platform for the presentation of media in Prevention.</p> <p>All entries for the International Media Festival for Prevention can be viewed at our website. They are available at www.mediainprevention.org, where you will find many good examples for all branches and in all languages.</p> |



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| | Winning productions from the last festivals will be shown and analysed in the presentation. | |
| 14 | <p>Mr Takashi Kawata Standing Advisor of Shimizu Corporation, Japan</p> <p><u>Introduction of construction systems that improve production and safety</u></p> <p>With the ultimate goal of ensuring the safety of managers / workers in the construction industry, we have developed and systematized the use of robots to do things that used to be driven and operated by humans. Furthermore, in the tunneling industry, which is one of the most accident-prone areas of the construction industry, we have taken an advanced approach to systematically manage the entire construction process while ensuring safety by mechanizing underground work, and became the first company in the construction industry in Japan to obtain Safety 2.0 certification. In this presentation, the above-mentioned contents will be presented in detail with various videos.</p> |  |
| 15 | <p>Mr Angelos Nicolaou Director, SEKTOR, Cyprus</p> <p><u>Artificial Intelligence in Construction</u></p> <p>Construction companies worldwide have one key safety goal that involves identifying, interpreting, and managing potential worksite risks. No construction project is the same, and sites present a unique set of challenges, which is why the top contractors today are turning to technology and Artificial Intelligence to overcome these hurdles. This presentation by Angelos Nicolaou demonstrates the growing impact of AI-tools on Health & Safety and paints the vision for how construction will change over the next 10 years.</p> |  |
| 16 | <p>Dr Panayiotis Philimis CEO, CyRIC, Cyprus</p> <p><u>A novel IoT-connected smart boot insole for Health & Safety</u></p> <p>Insofeet is a pioneering IoT-connected smart insole that aims to prevent musculoskeletal disorders and injuries of workers. Insofeet is specifically relevant for Occupational Health and Safety (OHS) standard compliance (EU Directive 90/269/EEC manual handling of loads - EU-OSHA). Insofeet stands apart from the competition by offering unparalleled accuracy and bringing the science of biomechanics and gait analysis to OHS systems.</p> <p>Insofeet is the only cost-effective solution globally that offers real-time force/weight distribution sensing of workers' movements at the feet level, while monitoring the gait and movement patterns of a worker. The Artificial Intelligence-powered analytics platform collects and processes data to provide actionable insights for OHS managers. Amongst these are notifications calling them to immediately cease dangerous activities, and in turn train workers not to repeat those. The system is also able to adapt to previously unseen events by automatically re-training its algorithms to account for them in future predictions. The insole integrates highly accurate miniature force sensors in a customisable design, adaptable to different applications. In addition, it may include GPS (Global Positioning</p> |  |

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| | <p>System) for location, health vital sensors and accelerometer for fall detection. Sensor measurements are collected through the hardware, processed by validated algorithms, and presented via the user-friendly software interface. Through machine learning, the analytics platform can adapt to the physical characteristics and needs of the user. This puts personalisation at the core of Insofeet's functionality, driven by our algorithms' ability to adapt to usage in the "wild" by facilitating incremental learning techniques.</p> <p>The Insofeet technology can assist Occupational Health and Safety personnel to evaluate the workload levels and provides live suggestions for correction measures in worker's weightlifting posture and body control through an app on a mobile device. Insofeet can identify if a worker is exceeding OHS standards for weight lifting on either foot and can also provide notifications in real time when and where a possible work accident has occurred enabling immediate help and intervention. Connectivity with other IoT devices at the workplace, such as a construction site, enhances the range of applications and accuracy.</p> |
| 17 | <p>Univ.-Prof. Dr.-Ing. Manfred Helmus and Mr Nils Koch to Krax University of Wuppertal, Germany</p> <p><u>Unmanned Aerial Vehicle (UAV) for Occupational Safety on construction sites – Practical demonstration with drones</u></p>  <p>Block 1: UAV for occupational safety on construction sites.</p> <p>How to generate planning data for construction sites from drone flights. Planning a drone flight and processing the information.</p> <p>Occupational safety on construction sites is an important topic. Many approaches and new equipment can help make working on a construction site safer. UAVs are another such tool. On the one hand, they can minimize hazards by being used to initiate accurate and comprehensive planning and to record inventory in such a way that people do not have to put themselves in danger in the first place. This can then be used as a basis for risk and prevention assessments.</p> <p>In the demonstration, you will see how a drone flight is planned for documentation and surveying, and which settings are necessary and how the data is further processed.</p> <p>Block 2: Evaluation of the data from a drone flight and use for occupational safety.</p> <p>How can the generated planning data be used for occupational safety? What applications are possible?</p> <p>The second major advantage is the fast and precise monitoring of safety measures. Are known risks prevented by the specified safety measures? Are all those present wearing the PPE required for their work? Are any new hazards possibly emerging? All of this can be monitored and documented using a drone/UAV.</p> <p>In the demonstration, you will see the result obtained from aerial flights and the possibilities this recording offers. In addition, other uses of drones will be demonstrated.</p> |