



HILTI IT COMPETITION 2021

The annual IT competition is organized to set up a platform for the young talents with the opportunity to tackle some daunting challenges faced by the construction industry. Undergraduate and postgraduate students from all parts of the globe are encouraged to participate to not only display their innovative ideas but also pave a way to kick-start their careers.

/ THE COMPANY

Hilti is a multinational company that offers premium products and services for professionals on construction sites around the globe. Behind this vast catalogue is a global team comprising of team members from 133 different nationalities located in more than 120 countries. While we have achieved success in the past, we are never complacent. As a future ready company, Hilti is always committed in providing innovative solutions that allow the company to serve its customers better.

/ OBJECTIVES

The objective of this competition is to provide students the platform and opportunity to showcase what you can do. By joining this competition, you may build your skills, experience, and career.



Build your skills

You will be able to build your skills within the area of IT. You will also have an opportunity to build your presentation and communication skills by showcasing your project to industry experts. You will receive constructive feedback from these experts on how to better improve yourself and take your work further.



Build your experience

Compete against like-minded individuals from all over the world. You will have the chance to meet leading technologists, subject matter experts and build network with those present in this event. This is an opportunity to put yourself, your educators, and your university on the world map.



Build your career

All finalists will receive a fast-track application to a paid internship with Hilti. The internship will provide finalists with the chance to develop their ideas and bring it to life at Hilti. This will also allow us the opportunity to identify talented individuals such as yourselves to be a potential hire at Hilti.

/ ELIGIBILITY

- Participants must be pursuing one of the following higher educations:
 - Bachelor's Degree
 - Master's Degree
 - PhD
- Team Size: 1-5 person(s)

DEFINE THE FUTURE

of Remote Work and Collaboration
in the Construction Industry



THE TOPICS

The Hilti IT Competition 2021 focuses on remote work and collaboration in the construction industry through the following themes:

- Developing new and secure remote work and collaboration solutions
- Investigating future working and collaboration solutions
- Overcoming the problem of remote work and collaboration

Topic 1: Developing new and secure remote work and collaboration solutions

Hilti is constantly developing innovative ways to allow our users to communicate effectively with each other better, which in turn, will assist in generating additional business values not only between our own team members, but also to our customers. Our customers are located all around the world and due to this multi-location nature of the business, it is important that the proposed solution is easy to use, reliable, and secure.

Your task: Design and develop new and secure solutions that promote effective and efficient communication for the intended users including our own team members and/or the customers. The solutions must be robust with regards to security and data protection.

Topic 2: Investigating future working and collaboration solutions

As a customer-centric business, the increasing trend of remote working has certainly impacted the collaboration in our day to day operations. However, we also see this as a golden opportunity to enter a new era of a remote collaboration, both driven by the need to have a more effective method for human interaction within and outside of the company, and also the recent accelerated adoption of more advanced telepresence and mixed reality solutions such as AR, VR, and robots.

For example, some companies transform an annual event to a virtual summit so more people from different locations could participate and conduct on-site product demonstration using a live webinar where audience are engaged directly via online interaction. The availability of such wide range of novel remote collaboration solutions provides us an unprecedented opportunity to discover what is the best way to close the physical barriers using technology. Hence, it is both a requirement and a challenge to maintain the same level of communication that can be achieved via physical meeting in these virtual solutions.



Your task: Investigate the current and future solutions that are available for remote work and collaboration. Based on this result, develop an innovative solution/framework to use the solution within the Hilti landscape.

Topic 3: Overcoming the problem of remote work and collaboration

For successful deployment of solutions above, many challenges need to be overcome, for example:

- **Difficulty in Creating Presence Across Different Communication Mediums:** Humans are social beings that interact with each other through a wide variety of different senses e.g. touch, sight etc. Hilti direct sales approach requires frequent touch points with our customers. Translating such physical interaction virtually would require the consideration of how such information interacts e.g. two users in two different mediums may need solutions that interact differently with the same content.
- **Compatibility and Longevity / Standards:** The lack of standardized technologies, protocols, data models, and hardware make it difficult to integrate existing telepresence technologies, particularly if some of them require further support even if the underlying technology was deprecated.
- **Information Privacy and Cyber Security:** The unprecedented opportunities of data collection via online to realize close-to-life interactions in remote work and collaboration may raise potential privacy problems, which is further compounded by the multi-national nature of Hilti. This requires new concept or solution on how to address the users' concerns and protect the data in accordance with the legal and regulatory challenges on a global scale.

Your task: Identify a challenge that is hindering productivity and quality in remote work and collaboration. Design and develop scalable concepts or solutions to address the challenges and justify your idea.

THE CONTEXT

Please also consider one or more of the following scenarios that are observed in the day to day operations of the company. In order to stay ahead of the curve, it is important that we constantly seek for solutions that addresses the following communication scenarios:

- Between company to potential/existing customers (Hilti stores, construction jobsites etc.)
- Internal communication
- Users working from different locations, different time zones, and different devices etc.

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/ SOLUTION DELIVERABLES

These include, but are not limited to:

- Prototype implementation to evaluate the collaboration solution in its application context
- Novel business models and business value creation enabled by people, data, and things
- Key technology affordances and capabilities that influence use patterns and shape individual, organizational, market, and societal behaviors
- Whitepaper of concepts, languages, and architectures
- Detailed proposal report in word document and visual aid in presentation format

/ THE CONDITION

- You need to make the necessary assumptions
- You may use any open-source communication protocol, platform or cloud-based solution to craft your solution
- You are not restricted to any kinds of hardware, programming language, database or platforms. You may choose any tools that are suitable for your solution
- You are required to define the scope of your topic (e.g. the idea, the front end, the back end, any special algorithm etc.) and the output of your idea
- You are encouraged to demonstrate your solutions with case studies
- Your solution can be in the form of a framework and/or supplemented with slides

/ TO GET YOU STARTED

It is highly recommended that participants consider the following areas to create value when developing their respective solutions:

- **Business Model:** The development of a new solution implies the definition of the involved stakeholders, the required resources, the key activities and the channels for distributing the new solution, both for internal communication and when communicating with external parties.
- **Technological Innovation:** The development of a new solution is based on the utilization of different technologies. The question is which technologies provide the biggest potential and how to overcome related challenges in line with the current telecommunication climate.



- Internal User's Perspective: The integration of the new solution into the current system should be straightforward and not resulting in increased downtime or constant need for workarounds.
- Customer Perspective: We are not solely focusing on solution based on the most innovative technologies. Instead, it is important to make use of technologies in a way that create additional value for the customer. Thus, the questions that need to be answered is for whom the proposed solution is developed and what value propositions will be offered in each specific use case, e.g. providing remote support to the user or enhancing customer experience in trying a new product.

Possible topics of interest include, but are not limited to:

- Haptics, AR, VR, and MR for immersive remote meeting or workshop communication
- Robotics solutions for offsite telepresence-based communication in the construction industry
- IT offices of the future that offers cost-effective collaboration
- Others

REGISTRATION

Participants may register between 11th September 2020 –30th November 2020. This can be done through online registration found in the link hilti.to/lqaonp. Take note to keep yourselves well informed about competition updates. Participants are to ensure that the registration form is completed with all relevant information, failure to do so will result in your registration being rejected.

SUBMISSION

Submissions will close on 21st December 2020. Participants should submit their:

- Prototype (if applicable)
- Word and Presentation Document
This document should explain the purpose of your idea and how it supports Hilti and our customers. Use an illustrative and attractive way to present typical application situations, a proposal for the design, and the benefits your idea will bring to Hilti.
- Short Video
The short film should not exceed 5 minutes. It should be interesting and include sufficient details to explain your ideas. You may use visual aids to demonstrate your work.

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JUDGING CRITERIA

Upon the deadline for submissions 21st December 2020, all competition submissions will be reviewed by Hilti's internal subject matter expert judges. The judges will score them based on the following criteria: innovation, originality, design, mutual benefit, quality, sustainability and overall presentation.



Innovation and originality

Judges look for innovation and inventiveness. Build an idea that finds a new way to address a problem, a fresh application to provide value or a novel solution within the topic of remote work and collaboration in the construction industry. Your submission may be an innovative technology, or an existing technology which is used in a new way. How you market the product may also be innovative.



Design and mutual benefit

Core to High Quality Engagement is the design and idea of mutual benefit. We would expect there to be benefits to all those involved – increasing Hilti employee productivity and enhancing customer service and experience.



Quality and sustainability

Judges are interested to know about if and how you measure product quality and the plan for a sustainable solution. This includes the usability of the product and the success criteria of the project.



Presentation

Make it clear what you are doing and why. Ensure your message is clearly communicated to the audience and the judges.

IMPORTANT DATES

Registration Period: 11th September 2020 – 30th November 2020

Submission Period: 16th November 2020 – 21st December 2020

Semi-Final: 20th January 2021 – 20th February 2021

Finale: 6th April 2021 – 9th April 2021



Semi-final

The semi-final of this competition will be held from the 20th January 2021 – 20th February 2021. The semi-finalists will be notified through email. Semi-final session will be through video conferencing where the exact slot for each group will also be communicated through emails. Details on selection schedule and video conferencing details will be shared directly with the semi-finalists.

Final competition and workshop

The finale will be held from 6th April 2021 – 9th April 2021 at Hilti Asia IT Services Sdn. Bhd. The selected finalists will be invited to an onsite-workshop* followed by their final presentations at:

Hilti Asia IT Services Sdn. Bhd.
Level 5, Brunsfield Oasis Tower 3,
No. 2, Jalan PJU 1A/7A Oasis Square, Oasis Damansara,
47301 Petaling Jaya, Selangor,
Malaysia.

The workshop is an avenue for finalists to further develop their ideas and learn more about Hilti business whilst networking with a group of highly motivated and creative individuals. The judges for the finale will consist of an international panel of experts. The judges' decisions are final. No appeals will be entertained. Winners will be announced during the awards ceremony which will be held at the end of the competition. A full list of prize winners will be published on the Hilti IT Competition 2021 website and other means of publications selected by the organizers. Do take note that finalists' airfare, travel and accommodation for the workshop, presentation and awards ceremony will be sponsored by the organizer. Participation at this event is mandatory for prize eligibility.

*Set up might differ depending on COVID-19's situation worldwide.

PRIZES

Sponsored Trip

All members of the champion team will travel to one of our strategic locations: Kuala Lumpur, Malaysia, Plano / Tulsa, USA or Buchs, Switzerland.

A Piece of Hilti

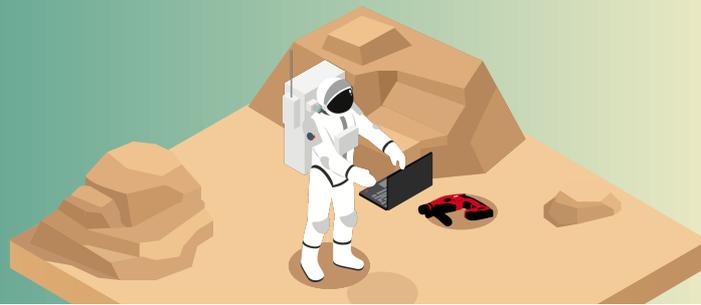
First and second runner up teams will walk away with a Hilti power toolbox.

Internship

All finalists will have access to a fast-track application process to a paid internship at Hilti. The internship provides finalists with the opportunity to develop their ideas and bring it to life at Hilti.

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TERMS AND CONDITIONS

- Detailed technical knowledge of the construction industry is not a pre-requisite to participate in this competition.
- Plagiarism is strictly prohibited.
- Project entry must be the original work of the participants.
- Entries must be made in accordance with the competition instructions.
- Entries received after the specified closing date will not be accepted.
- Participants must take up the responsibility to inform the Hilti IT Competition 2021 committee of any changes to their contact details. Failure to do so may result in the participant not receiving any updates regarding the competition.
- Participants are to agree that their entries can appear on public display. The organizers of the Hilti IT Competition 2021 may use the entry on any form of media such as the internet, radio, television and in print to promote the competition.

By participating in the Hilti IT Competition 2021, participants are deemed to agree to be bound to the above terms.

Register now! At our competition website: hilti.to/lqaonp



For more information, please email us at Hilti-IT-Competition@hilti.com