

**THE  
BEST WAY  
TO PREDICT  
THE FUTURE  
IS TO  
INVENT  
IT.**

**Alan Curtis Kay**

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*/\* CREATIVE SPACE FOR TECHNICAL INNOVATIONS \*/*  
Hamburg University of Applied Science (HAW) · Steindamm 94 · 20099 Hamburg  
<https://csti.haw-hamburg.de>



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## Mission

The /\* CREATIVE SPACE FOR TECHNICAL INNOVATIONS \*/ (short: //CSTI) empowers people to come up with new ideas, problem statements, and solutions. We provide an experimental laboratory for people of a wide range of disciplines and offer an unifying platform to support iterative prototyping in the field of Human Computer Interaction and advanced User Experience.

Our mission is to build a bridge between academics, designer, and entrepreneurs. We team them up and we give them their individual creative space with the right conditions, methods, and technologies to experiment in an agile and independent way. Our mentors and students provide further support by sharing ideas, exchanging knowledge, and forging links. Together we create new ideas, and we create them by design. Start-ups may arise from these creations and products may evolve. Our strong relationship to the city of Hamburg and the University of Applied Sciences (HAW) Hamburg can even accelerate this process. Especially local small and medium-sized enterprises are invited to benefit from our network and platform which allows simple and uniform access to any kind of technology - be it a sensor network to measure skin activity, a matrix of capacitive displays, or a deep learning machine - everything is possible. Its central location enables the //CSTI to be a spark for cutting-edge creations, a hub from where talents and projects rise and get connected all over the city. The //CSTI is driven by diversity. We believe in a holistic discourse to dissolve isolation and approach problem statements from different academic perspectives, for example, cultural, environmental, social, or technological. The clash of diversity and digitalisation is a crucial point of our platform created for a new age of discovery in which the well-established is going to be reshaped by yet uncharted ideas and inventions.

## From the past into the future

In the year 1991, Mark Weiser predicted that computers will become ubiquitous and invisible. He referred to intelligent (smart) environments like cars or homes. Today, we are on the brink of his vision and smartness is about to disrupt the world we are used to know. A long history and various studies have been made in this field at the HAW Hamburg. And these reason topics are now the roots of the //CSTI:

- Companion technologies (based on context and emotions)
- Virtual Reality, Augmented Reality, Blended Reality and Mixed Reality
- Internet of Things combined with 3D manufacturing
- Urban and Smart Home environments
- Data Mining and Recommender Systems

In the year 2007, Mitchel Resnick published his idea of a “Lifelong Kindergarten”, an approach to stimulate creative thinking for a more creative society. It is based on five phases: imagine, create, play, share, and reflect. The //CSTI adapts his approach as a basis for creative team work, projects, workshops, and hackathons.

## Facts and details

The //CSTI is a 250 m<sup>2</sup> laboratory located at the campus of the HAW in the centre of Hamburg. A truss with the dimension of 25 m<sup>2</sup> is located within the lab. It is the starting point for experiments. The truss holds stage lights, studio speakers, microphones, tracking sensors, various cameras (depth, high-speed, or thermal), and projectors. This set-up allows very diverse experiments and scenarios like caves, ambient lighting, 360° sound, recognition of emotion, faces, gestures, or speech. Our infrastructure is based on:

- Powerful workstations for high quality rendering and modelling
- Render farm for real-time rendering, data mining, or deep learning
- Various augmented and virtual reality devices
- A wide range of electronic components for embedded computing
- 3D printers and 3D scanners for rapid prototyping
- A huge selection of professional tool kits

Our partners grant us access to additional resources within the HAW like the central workshop for manufacturing, the sound laboratory for wave field synthesis, the living place for smart home environments, and the 3D Space for rapid prototyping. Further resources exist due to various collaborations with other labs, companies, and institutes. Finally, the //CSTI offers a platform to allow quick and easy access to all of the stated technologies. It is a nexus that makes any combination of technology possible. Our platform assists people in sharing their results and adopting results for future projects making each project more effective and sustainable. It is based on a “publish / subscribe” architecture for loosely coupled multi-agent systems to enable rapid development cycles.

The //CSTI is still in the build-up phase (2015-2019). It is funded by the “Hamburger Behörde für Wirtschaft, Verkehr und Innovation” and by the “Zukunftsfond” of the HAW Hamburg.

