



We offer support throughout all stages of the construction value chain.

### Our services can support you:

- with problem-solving in a dedicated process or value-added step
- with the development and implementation of comprehensive solutions that cut across sectors

We are the perfect partner when you seek support in the context of the development of complex, technology driven solutions that require systematic coordination involving multiple factors, partners and stakeholders.

#### 1. Design and planning

Design and planning processes in the construction industry are changing radically. They determine the success of an effective use of technology in all subsequent value-added steps.

Our services support you in various areas, such as:

- Real estate and architectural planning for the effective use of digitalisation, automation and robotic approaches in the actual construction phase
- Design and engineering for X (including design for manufacturing and assembly, robot-oriented design, etc.)
- Development of high-level business and supply chain strategies
- High-level modular coordination
- Selection of the right intensity of automation and the required partners
- Digitalisation approach: methods, models and tools
- Efficient data and process pipelines from building data to machine control

#### 2. Off-site construction

Off-site approaches are gaining in importance since they allow for control over logistics complexity, on-site construction processes, quality, cost and construction speed. The off-site approach (e.g. intensity and type of prefabrication, type of modularity etc.) is a powerful tool for the effective facilitation of the effective use of automation and robotic technology in the factory as well as on the construction site.

Our services support you in various areas, such as:

- Prefabrication, modular construction, modular integrated construction (MIC)
- Design, detailed planning and engineering of building products (parts, components, modules, etc.)
- Balancing and coordination between off- and on-site approaches
- Assembly strategies and connectors
- Logistics, supply chain and material handling
- Factory strategy and automation planning
- Development of solutions for automating and robotising specific processes
- Ergonomics and human-machine collaboration
- Design of next generation work environments for a diverse and highly skilled workforce



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### 3. Advanced equipment

We are seeing an increasing diversification of construction equipment. Existing construction equipment is getting smarter, modular and digitally connected. Additionally, we see new types of mechanised, automated and robotic tools and machines emerging that complement and, in some cases, substitute existing equipment.

Our services support you in various areas, such as:

- Automated/robotic tools and equipment for off-site construction
- Automated/robotic tools and equipment for on-site construction
- Automated/robotic tools and equipment for progress monitoring and quality inspection
- Automated/robotic logistics and material handling equipment
- Robotic end-effectors
- Equipment modularity and platform strategies
- Tools/equipment ecologies
- Strategies and processes for integration of advanced tools and equipment into the digital construction site
- Human-centered and selective automation of equipment and construction processes

### 4. On-site construction

The role of on-site construction is transforming considerably. Due to increasing digitalisation in the construction industry, the use of prefabricated components and the emergence of new automated/robotic tools and equipment increases.

Our services support you in various areas, such as:

- Site strategy and site-automation planning
- Balancing and coordination between off- and on-site approaches
- Modular coordination, assembly strategies and connectors
- Logistics, supply chain, and material handling
- Development of solutions for automating and robotising specific processes
- Ergonomics and human-machine collaboration
- Strategies, site organization, and processes for integration of advanced tools and equipment into the digital construction site
- Human-centered design of on-site work processes and selective automation of equipment and construction processes



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## 5. Building operation and maintenance

Renovation, disassembly, and recycling: Advanced technologies and automated/robotised devices add value to the performance of buildings and the services linked with their operation. They are also key tools for the implementation of Green Deal and Circular Economy goals. Enterprises around the world need to embrace these technologies to make built environments more sustainable.

Our services support you in various areas, such as:

- Design and digitalisation of inspection and maintenance processes
- Automated/robotic equipment for building inspection, cleaning, and maintenance
- Ambient sensing and mechatronics
- Advanced building technology (e.g. for independent living and health care)
- Design and digitalisation of renovation, disassembly and recycling processes
- Automated/robotic tools and equipment to support in renovation and building upgrading
- Automated/robotic tools and equipment to support in structured building demolition, disassembly, and recycling
- Human-centered design of processes and selective automation of equipment
- Construction and building technology to support implementation of Green Deal and Circular Economy goals
- Sustainable construction in adverse environments such as sea and space

## 6. Digital technologies for future cities

Energy- and cost consciousness, climate adaptation, novel living environments such as space or sea for residents and businesses, resilient as well as responsive connectivity of future cities will be driven by accelerating robotic process automation. Intelligent work-life environments of homes, office buildings and (health)care facilities that consider many factors such as data governance and user acceptance as well as a constantly growing number construction safety standards and smart (health)care systems will also play a key role. Circular economies and sustainable building construction in adverse environments such as sea and space will be future living concepts of our societies in the context of the global Green Deal. CREDO's team of out-of-the-box thinking pioneers in this market is your competent partner for Future Robotic Evolution.

Our services support you in various areas, such as:

- Environmental, structural & architectural development of automation and robotic approaches in future construction sites such as sea and space
- Strategies and processes for the realization and integration of advanced tools and equipment into automated construction sites as sea and space
- Sustainable construction in adverse environments such as sea and space considering energy-efficiency (e.g. automated waste recycling systems producing their own energy)
- Human-centered design of processes and selective automation of new living environments
- Construction and building technology to support the implementation of Green Deal and Circular Economy goals
- We help and enable you to transform the construction and building sector and lead change and innovation: CREDO Construction Robotics Evolution – DO it