Imti

GOOD TO KNOW



Press kit



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Imti - A new dimension of affordable housing

Stadthagen, October 2021 - Imti Enterprises GmbH has the answer to a key socio-political issue. In Stadthagen, Lower Saxony/ Germany, the company presented the prototype of a new generation of residential buildings offering everything required to make the housing of the future affordable, liveable and climate-friendly to a group of international investors.

The concept is based on digitalised modularity technology developed by Imti and registered for patent - Modultecture[®]. Thanks to digital planning it is not only possible to shorten construction times by months but also to build houses and apartments which are at least 20 percent cheaper than those constructed using conventional means while also meeting all sustainability requirements.

Climate protection plays a central role in this construction method. The modules are manufactured using sustainably produced wood; have standardised façades and greened envelopes. Roof-mounted photovoltaic systems provide electricity for the entire building, with any surplus power sold to electric vehicle charging stations.

"The entire digital design process is new and unique. The digital twin not only steers architectural planning and the construction process but also all subsequent use applications. It is even possible to manage reuse or recycling via the platform," explains Ulf Bohne, CEO of Imti (Intelligent Modultecture Industries) and the architect who founded the company.



Following presentation of the prototype, affectionately known as "I'm One", manufacturing at the factory in Stadthagen is scheduled to begin in a few months. Robots supervised by some 230 employees will produce modules which are ready for shipping by rail. "If we want to make a real contribution to the fight against climate change and the housing shortage," says Bohne, "then our homes and buildings must not only become more climate-friendly but also more profitable, attractive and ready for use more quickly. I'm One is the successful answer to fitting this square peg into a round hole."

Intelligent Modultecture Industries (Imti) employs 120 staff at locations in Düsseldorf and Stadthagen, Germany. The patented Modultecture® digital platform steers construction projects from the initial plan to the end of their life cycle, bringing regional and national suppliers together in a wide-ranging network.

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Ulf Bohne

Ulf Bohne is a graduate engineer, architect and the founder of Imti. He lives and works in Berlin and Barcelona. For over 30 years now Ulf Bohne has been a successful entrepreneur in the field of building planning and consulting. He specialises in issues such as the digital transformation of the construction industry and building information modelling (BIM). Ulf is the co-founder and CINO of Imti Enterprises. He is also a member of the North Rhine-Westphalian Chamber of Architects (AKNW).



Boris Beckmann

Boris Beckmann is a qualified export manager with a degree in Business Management (MSc Dist) from Herriot-Watt University in Edinburgh. Since 2014 he has been the managing director of a consulting company which he founded to develop and realise disruptive business models for innovative enterprises. Prior to this he spent many years working for an international strategic and management consulting company in London. In addition to his position as a founder of Imti, since 2019 Beckmann has been an active member of the Senate of the Economy Europe, the international arm of the Senate of the Economy Germany, a group of leading individuals from the fields of economics, science, society and culture whose goal is to engage in a social welfare-oriented dialogue with policymakers.





André Pilling

André Pilling has been a successful architect and businessman for over 25 years. He is the founder and managing director of POS4 Architekten Generalplaner GmbH, a company specialising in the areas of greenfield strategies and revitalisation. In addition to this, he is the managing partner of DEUBIM GmbH, a consulting company which since 2014 has focused on the digital transformation of the building and real estate industries through the implementation of building information modelling (BIM). The company's EDUBIM BIM training and e-learning brand has become an established training provider in the industry.

Parallel to his activities as the CPO and co-founder of Imti Pilling also teaches at various institutes of higher learning such as the Bauhaus-Akademie in Weimar and, since 2018, at the Academy of Biberach University of Applied Sciences. He is a frequent speaker at BIM-related conferences and has published numerous specialist articles and books on the subject (e.g. "BIM das digitale Miteinander" (2016) and "Das neue Bauen mit BIM und Lean" (2021).

André Pilling is a member of the Executive Committee and the Industry Advisory Panel of the building SMART International Professional Certification Programme and the spokesman for the executive committee of buildingSMART Germany.





Sven Rickes

After leaving school Sven Rickes initially trained as an artisan craftsman before later gaining a business qualification. He has over 30 years' management experience in the building and real estate industries and has been an independent entrepreneur since 2003. His professional career includes working as a founding director of Landmarken AG. Prior to becoming self-employed he worked for the HOCHTIEF company as a division manager responsible for system integration of planning and building software. In addition to his activities as a founder of Imti Rickes currently holds an interest in a number of industrial and commercial parks which are being actively developed by his company. Rickes lectures on general management practices at Dessau University of Applied Sciences and his book "So gewinnt der Mittelstand" was published by Gabler Verlag in 2007.





When sailing on the high seas Ulf Bohne experienced at first hand just how frighteningly real the dangers of global linear plastic production and disposal, often highlighted by environmental campaigners, are. It took many hours for his boat to plough through a huge carpet of plastic waste.

This disturbing experience reinforced the feeling which the Düsseldorf-based architect had already begun to experience in his professional environment - stagnation rules. Since the 1950's there had been no real progress in building methods. Despite people's changing needs and, in particular, the threat to the environment it had not been possible to initiate change. Instead the major players continued to pursue yield oriented goals when constructing commercial buildings, while architects and users were expected to accept this strategy.

The trend was lateral, lacking in dynamics and without any solutions for two of the biggest socio-political challenges - climate change and affordable housing. Decades of experience and an early interest in digitalisation finally put Bohne on a path which enabled him to tap into new creativity, both when building and in his private life.

Bohne was fascinated by the possibilities offered by the digital twins used by the pharmaceuticals industry and also automotive and aeronautical manufacturers for initial computer-based product development, simulation and testing. It seemed only logical that computers could also be used to develop apartments and houses before automated production lines manufactured modular building elements. And Bohne's vision went further - ideally the digital twin should exist "parallel" to the physical twin for its entire lifespan. Just like a property manager, the digital twin would keep an eye on the real one, notifying it when repairs were required and reminding it about maintenance work.

His working title for the concept was 'Intelligent Modultecture® Industries', or Imti for short, and this soon became the name of a new company. While Bohne was in the process of drawing on technical literature and the advice of specialists to further refine the idea, he met the three co-founders of the subsequent company more or less by chance. Sven Rickes came on board just after purchasing a French automotive company's production facility in Stadthagen near Hannover, which Bohne had also been considering.



He then met Boris Beckmann at the DigitalBau exhibition in Cologne and immediately realised that to get off the ground his idea would need the help of such a digitalisation and corporate development specialist. The fourth member of the group was his former student worker protégé and present colleague, André Pilling, who had become an eminent authority on BIM, the networked planning of architecture and building. All three men were fascinated by the Imti concept and, in addition to this, got on well with each other. The founding circle, all music lovers, now also like to refer to themselves as "the band".

In May 2020, the GmbH limited liability company was set up and at the end of that year the first investors became involved. They are Mathias Düsterdick and Christoph Hüttemann, the founders and CEOs of the Düsseldorf-based Gerch Group (the official investor is the Marathon GmbH family office). In the initial critical stage around 70 people were working on the project, with the RWTH Aachen University a close cooperation partner.

Going forward Imti will produce one apartment every hour. Seen in terms of its planned matrix production, the advantages over conventional building methods are soon clear:

- The modular, automated planning and building process shortens the time to completion from many months/years when using conventional methods to just a few weeks.
- Full control over time, quality and costs guarantees a fixed price and project timeline which are at least 20 percent below market price.
- In addition to this, sustainability is a key feature of the concept, itself based on the Cradle2Cradle design principle. Buildings are constructed using sustainably produced wood and are supplied with energy from roof-mounted solar collectors and other innovative technologies. The modules are reusable and recyclable.
- In contrast to normal "affordable housing" projects, Imti allows plenty of room for architectural freedom and offers features which are high quality.

What is Imti and what can it do?

The prototype for the Modultecture® construction method has been named "I'm One". It is a 48m² lightweight, flexible residential module or studio working environment which can be located close to where the user lives (co-working, co-living). In common with existing Scandinavian modular systems multiple modules can be combined in one structure. All



planning details are initially tested, checked and approved using the digital twin. Module dimensions are designed to be suitable for environment-friendly rail transport. The modules are manufactured using sustainably produced wood, have standardised façades and greened envelopes to reduce their impact on the climate. Roof-mounted photovoltaic systems provide electricity for the entire building, with any surplus power sold to electric vehicle charging stations. Buildings are installed on prefabricated slabs made from upcycled concrete, creating retention areas and sealing less ground. On the downside, there are no basements. All the apartments in the buildings can be remotely controlled using smart apps. Thanks to their flexible construction design these modules are a sustainable, cost-effective option for utilising vacant building plots and increasing residential density to create affordable housing in large cities.

The development of the Modultecture® design form, functional language and manufacturing platform have finally enabled the idea and concept to become reality. They represent open processes, participation and dynamics thanks to artificial intelligence with learning units. All drafts are imported into in these units, creating a continuously growing library whose archives can be used to assemble endless new design combinations. Additional asset classes such as office buildings, day care centres and larger residential concepts have already been envisaged and created. Product brand names reflect primary uses - 'I'm living' for residential buildings; 'I'm working' for office buildings and 'I'm happy' for day care centres while Imti's town concepts are called 'We are together'. The names have been purposely chosen to communicate the focus on community, which is also at the heart of Imti's mission to achieve co-existence of people and the plant.

A new way of thinking has dawned. Planners, architects, technicians and regional and national suppliers are becoming Imti partners, embarking on a cooperative journey. The company has already successfully completed its first round of financing, raising a two-digit million figure. The Modultecture® construction technology and design language has also been registered for patent (patent pending).

The future has already begun

The regional state of Lower Saxony has issued a funding eligibility certificate worth millions of euros for development of the infrastructure at the production site while Lower Saxony's Minister of the Environment, Olaf Lies (SPD), and North Rhine-Westphalia's Minister of the Economy, Andreas Pinkwart (FDP), have personally promised their support for the project. In



September 2021, a memorandum of understanding for a second production site in a neighbouring European country was signed.

Negotiations for the second round of financing, which foresees a three-digit million figure, are about to be concluded.

In early 2022 MINDA Industrieanlagen GmbH, a specialist for wood intralogistics and plant engineering, will begin installation of the manufacturing plant in Stadthagen, which will create up to 230 jobs. Production is scheduled to commence at the end of 2022, with glulam and cross laminated timber (CLT) the exclusive raw materials.

On 28.10.2021 many prominent guests from industry and politics will be present when the "I'm One" prototype is presented to the general public in Stadthagen, including a behindthe-scenes look at the planning and manufacturing options and all the partners.

Die Gespräche zur zweiten Finanzierungsrunde, anvisiert ist ein dreistelliger Millionenbetrag, stehen kurz vor dem Abschluss.

Die MINDA Industrieanlagen GmbH, Spezialisten für Holz-Intralogistik und Anlagenbau, wird Anfang 2022 mit dem Aufbau der Produktion beginnen, durch die in Stadthagen bis zu 230 Arbeitsplätze entstehen sollen. Ende 2022 soll die Produktion in den Werkshallen anlaufen. Verarbeitet werden ausschließlich GluLam und Cross Laminated Timber (CLT).

Am 28.10.2021 wird "I'm One", der Prototyp, in Stadthagen einer breiteren Öffentlichkeit vorgestellt, inklusive eines Blickes hinter die Fassaden – auf Planungs- und Fertigungsmöglichkeiten und auf alle Partner – im Beisein vieler prominenter Gäste aus Wirtschaft und Politik.





Products Modular residential units - I'm living (multi-storey residentials),

I'm working (office buildings), I'm happy (day care centres),

further models in development

Price Fixed price at least 20 % below market price

(in comparison to conventional construction methods)

Modultecture® functional platform (patent pending) and Robotic Manufacturing

Sustainability Certified wood and wood panels (glulam and cross laminated

> timber (CLT), open building method, solar roofs (PV), community, urban gardening, algae façades, circular concept (cradle2cradle)

Locations Düsseldorf, Stadthagen/Lower Saxony,

planned: neighbouring European country

Employees 80 freelance and salaried employees in Düsseldorf and Berlin,

planned: approx. 230 employees

Module transport by rail/Deutsche Bahn and e-transporter Logistics

(Mercedes), as soon as available for delivery

"How do you want to live?" - this is a central question for IMTI and we invite anyone who is interested to join us in finding an answer for the future.





How does building with Imti work?

Designs/floorplans are imported using a planning platform (myimti.com). With the help of the patent pending MODULTECTURE® procedure the imported data is used to create a digital three-dimensional twin. The procedure maps the structure in 48m2 modules which are subsequently manufactured using certified wood. MODULTECTURE® enables digitalisation of the entire value creation chain - from the initial design to the first pixel and complete management of the building's lifecycle. Each module knows what it is and what it can do. And because it is modular and intelligent, every lmti building can be modified or the materials can even be reused for other buildings.

Continuously learning algorithms check whether building regulations and standards have been complied with and make corresponding proposals for modifications. Information on prices, delivery periods and the ecological footprint are provided in real time.

Over time an Al-based archive is created with a continuously growing library of building segments. After the planning process has been finalised and an order has been placed, all data is converted into process data in real time and uploaded to the highly automated factory.

What are the most important differences to conventional building?

- **Easier** (digital, faster, integrated planning process)
- **Faster** (instead of 2-3 years completion in just a few months)
- **Cheaper** (fixed price 20% cheaper saves working time, resources and time)
- **Sustainable** (climate-neutral materials, wood, greening, solar power)



What makes Imti different from other modular building technologies?

Imti works with an open-source approach. The platform is used to create a network of partners who collaborate to find solutions and develop their own business models. Third-party services, such as financing, energy suppliers as well as also trades, consulting services or even babysitters, can be offered via the platform. Imti takes users as the starting point for its thinking and planning - to transform houses and residential areas into communities.

Does the system have to be inspected by "TÜV"?

N₂ Imti buildings require only building permits and type approvals. Additional inspection modes are being worked on, such as the research project for an automated approval process (BIM approval process).



() INSIGHTS INTO INTELLIGENT MODULTECTURE INDUSTRIES

Intelligent Modultecture® Industries -

The sustainable solution for increased urban density





Intelligent Modultecture® Industries -

The digital-based modular construction technology for affordable liveable housing



















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