DIGITAL BRICKS

LEONARD

together @ VINCI

LATAM CONTECH REPORT 2023

Contents

Preface

THE TIME HAS COME!

Much has been written about the topic of enterprises and the emergence of a new way of doing business in a technological environment that is advancing by giant steps. Businesses that we now consider essential may soon disappear because of accelerated advances, which often come from ingenious entrepreneurs.

Until very recently, the construction industry felt that it was divorced from these trends and, although the sector has changed slightly in recent decades, we will now begin to see truly significant changes in our industry.

For the Grupo VINCI, innovation has always been a fundamental pillar in its strategy for differentiation and customer care. It is a tool that enables us to identify innovative construction methods, new or improved equipment, technological innovation and effective and productive ways of managing projects,

However, 5 years ago the Grupo understood that this was insufficient and decided to totally embrace open innovation, the fundamental reason for creation of the Leonard innovation platform. In doing so, we expect to evolve, adapt and rapidly transform our business in accordance with the new trends and needs of an increasingly demanding market. During this period, excellent results have been obtained, especially in Europe, to the point where new Business Units have even been started, which, just a few years ago, we could never have imagined.

Extending Leonard to Latin America (Leonard: LatAm) will not only enable us to quickly gain access to the latest in innovation in the region, but our collaborators and the effervescent innovative ecosystem will have the invaluable opportunity to make ideas that have always seemed utopian into reality. This will also enable the Grupo VINCI to advance in the rapid assimilation of opportunities in the innovative environment of the region, providing greater productivity, increased mobility in our cities (which we so desperately need!), environmental care and improvements in the safety of our collaborators and projects. Leonard: LatAm is most welcome!

As we have done in Europe, with this report we take a step forward towards innovation in Latin America, which will give us the opportunity to identify the state-of-the-art of Contech in the region. It will be a valuable instrument to focus our efforts on Leonard: LatAm, which at the same time becomes a unique opportunity to capitalize experiences from the nascent entrepreneurial environment in Latin America.

Pierre Guiot Du Doignon
Director of the Iberian-American Zone Soletanche Bachy (Grupo VINCI)

INTRODUCTION

Building the foundations of the ConTech ecosystem in Latin America

Although construction generates 13% of GNP in Latin America, only a small percentage of companies invest in ConTech solutions, whether for their development or implementation. The latter, nonetheless, has changed in recent years due to such factors as the pandemic, changes in legislation, competitiveness, and sustainability requirements, among others.

Additionally, another of the factors that are defining the Latin American ConTech panorama are the challenges of the construction sector in the region; those that the entrepreneurs can also view as opportunities, which include: the lack of comprehensive urban planning, the gap in infrastructure, the need to decrease environmental impact generated by projects, lack of skilled labor and unpredictability of project management.

In the face of so many challenges, the use of innovative solutions becomes a great ally for overcoming them through technology and new approaches. In the present report drafted by Digital Bricks, under the sponsorship of Leonard, the innovation platform of the Grupo Vinci, we seek to identify the context of the development and implementation of ConTech solutions, identify trends by getting to know some of their exponents, and share some of their predictions for the innovation ecosystem.

At Digital Bricks, we believe that for the ConTech initiatives to successfully be consolidated in Latin America, there needs to be synergy among the actors; so that there will be legislation, viability and a climate of innovation for the emergence, development and use of these technologies in the sector. To develop and consolidate the ecosystem, all of those involved need to collaborate in it. The role of investors becomes relevant for acceleration of the initiatives; that of the chambers and organizations of the construction industry to disseminate the use and benefits of these solutions; that of the universities to develop professionals that can create and execute these new technologies; that of the enterprises to generate innovative ideas, considering the challenges and needs of the sector; as well as the construction companies and suppliers, who will forgo traditional methods to implement solutions that make their projects more profitable, sustainable and safe.

Germán Elera
Director and Cofounder of Digital Bricks.

/Chapter I: Context for the development of ConTech solutions in Latam

According to a report in EY (Forbes, 2021), investment by Latin companies in digital transformation has increased by 57%. Although innovation in the construction industry has not yet massively taken off, there is nonetheless open interest in solutions that have already proven effective in their own countries:

"While we see that whenever additional initiatives are implemented in the sector, the construction industry has shown a greater tendency towards the traditional regarding application of the new technologies. It is instead a sector that seeks to apply already-proven solutions for implementation."

- Carlos López Ramírez, general manager of CDT.

CONSTRUCTION TOP 10 IN LATAM

According to CLA50 Ranking, created by Construcción Latinoamericana, these are the construction companies with highest incomes in 2021 in the region:

1. Sidgo Koppers (Chile) – 3 096.9
2. Sacyr (Spain) – 2 022.0
3. MRV Engenharia (Brazil) – 1 319.1
4. Carso (Mexico) – 1 255.7
5. Techint (Italy) – 1 100.0
6. Aenza (Peru) – 987.1
7. Salfacorp (Chile) – 798.5
8. Mota-Engil (Portugal) – 809.7
9. Besalco (Chile) – 798.5
10. Echevarria Izquierdo (Chile) – 568.6

COUNTRY OF ORIGIN OF THE TOP 50 CONSTRUCTION COMPANIES WITH THE HIGHEST INCOME IN 2021 IN LATAM

CHILE	6.821,8	29.9%
BRAZIL	5.921,7	25.8%
SPAIN	2.728,3	11,8%
MEXICO	2.612,8	11,3%
PERU	1.684,4	7,3%
ITALY	1.100,0	4,8%
PORTUGAL	809,7	3,5%
COLOMBIA	604,8	2,8%
COSTA RICA	556,8	2,4%
ARGENTINA	180,0	0,8%

Values in MMUS$

Due to the growth of this interest in tandem with the needs of the sector, initiatives that foster their own digital transformation process and the creation of innovations in the market have become evident. While in some cases it is still considered part of Proptech, currently, according to each country, the ConTech or Construtech denomination has now become the standard, using more precise terms that take into account the real estate sector.

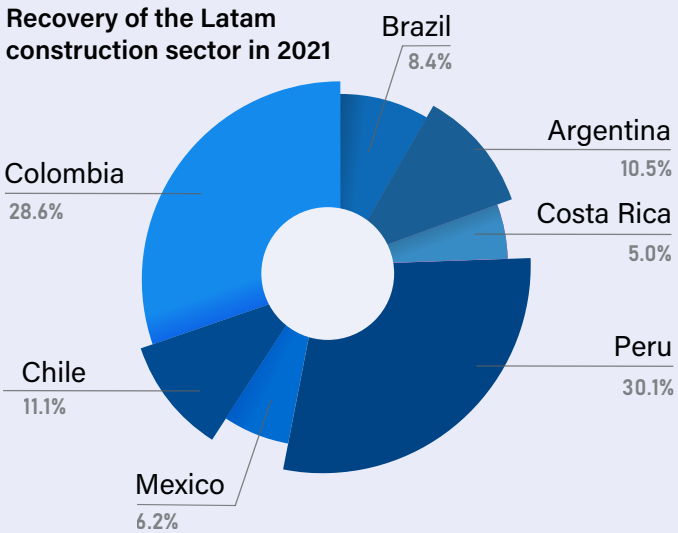
Even though the term is used globally, we must clarify that the context of initiatives and implementations in Latin-American countries is different than in other parts of the world; because here, there is a different panorama, along with the pace of implementation and the priorities for adoption of this type of solutions.

"We work very differently compared to what is done in the USA and Europe; additionally, the Latin American C series is small compared to the C series of the USA "

- Juan Camilo Boreto, CEO of Glasst

We must understand that the challenges and demands in the Latin countries are different from those of other continents. For example, labor is cheaper and abundant in contrast to Europe, so that the need to replace it with robots or autonomous machinery will have less demand if this implementation is more expensive than paying the salaries of the workers. Whereas, for example, if increasing safety on the job is a priority to guarantee the well-being of the personnel, reduce the rate of risks and accidents, and to avoid paying settlements along with the delays that these can cause.

A look at recent challenges for the construction sector in Latin America



Source: Own elaboration based on CMIC (2022) , CEPXXI (2022), MEF (2022), Mora D. (2022), Diario Estrategia (2022), Real Estate (2022), Cámara Costarricense de la Construcción (2022)

Knowing about the challenges in Latin America enables us to understand the most widely accepted ConTech solutions and opportunities for growth in this part of the globe. The main challenges could be summarized in the following points:

- The gap in infrastructure in the region
- Lack of comprehensive urban planning
- Use of unskilled labor
- Deficient handling of information in projects
- Lack of unified management in on-the-job safety.
- Local legislation that seeks to rapidly take the lead.
- High levels of self-construction
- The environmental impact generated by the sector and lack of commitment regarding environmental matters

These challenges can be dealt with through the different solutions developed in Latin America itself or imported from other parts of the world. While these challenges can be considered constant, in the last five years there has been growth in the acceleration of developments and implementations of ConTech solutions due to specific and concrete factors.

One of the most influential recent factors has been the pandemic, through the health restrictions established during the first year; these made it necessary to adopt remote work methods and solutions to reduce physical contact among the employees. In this context, it was found that builders rushed to allocate a larger percentage of their funds for digitalization of their processes; for example, for the use of platforms in the cloud, along with digitalization of plants, use of 3-D models, the employment of drones to monitor the worksites, the use of sensors to gather data in the field, and even the use of AI for predictions, among others.

We must also mention constant updating of local rules and regulations, for example, legislation on the widespread use of BIM methodology in recent years. We must specify that here BIM has a much more significant importance than in other regions. It tends to be viewed as a first step in innovation, in much of the sector, because of the wide spectrum of integrations offered by this technology. This is reflected in the creation of diverse implementation plans aiming towards 2030. Additionally, the **Red BIM de Gobiernos Latinoamericanos (BIM network of Latin American governments)** has been set up.

Due to the context and the approach that the solutions could offer, as well as the future acceptance and panorama of ConTech, we may conclude that the balance is positive. Juan C. Germano, CEO of Augin, tells us that in response to this disruption, the time for consolidation of the maturity of businesses, companies and entrepreneurs will end. He also emphasizes that the culture of companies that wish to innovate must be aligned to obtain good results and that it is important to provide incentives for entrepreneurs to enable them to turn their good ideas into good businesses.

Opportunities for ConTech solutions in Latam

ConTech solutions are attractive as a tool for facing challenges inherent to the sector. However, it must be borne in mind that there are certain barriers for its adoption to be widespread and fluid. These may be surmounted if they are addressed as opportunities to adjust the discourse and the technological product, as follows:

a. The budget allocated for ConTech must be seen as an investment opportunity.

One of the main aspects under discussion is the budget, which involves not only the developers of these initiatives but also the leaders of projects tasked with innovating.

Regarding the developers of ConTech projects or products, according to CAPECO it is necessary for the different countries to adopt public policies for innovation and sectoral research and to invite the private sector for their implementation and participation. We must therefore mention that there are multiple initiatives that are currently being developed. The general panorama is as follows:

- In Latam, laws are being implemented that promote the use of ConTech as a solution. For example, the Law for Energy Efficiency in Chile makes it obligatory for public housing projects to have the Calificación Energética de Vivienda (CEV) (Energy Qualification in Housing) and to establish the obligation for energy efficiency labeling of housing beginning in 2023. This is an opportunity to offer sustainable materials or with less environmental impact, as well as for software developers to optimize the use of materials and the management of waste products on site.

- There are local state initiatives that finance or promote technological innovations. On the one hand, there are those that deal with different sectors but that also benefit construction sector projects, for example the Ministry of Housing (Ministerio de Vivienda) and the ANID in Chile, or the Ministry of Economics and Finance (Ministerio de Economía y Finanzas) and ProInnóvate in Peru. On the other hand, among those that belong to the sector itself, we can mention such examples as the CTEC (Chile), Construa Brasil (Brazil) and Construye 2025 (Chile).

- The private sector is interested in financing, promoting or encouraging the implementation and development of innovative solutions. Such is the case of builders (Echeverría Izquierdo), cement companies (Cemex and Argos), and steelmakers (Aceros Arequipa); along with organizations and entities such as: CAMARCO (Argentina), CBIC (Brazil), ACATE (Brazil), CChC (Chile), CAMACOL (Colombia), Consejo Colombiano de Construcción Sostenible (Colombia), Colombia Proptech (Colombia), Asociación Proptech Construtech Perú (Peru), Digital Bricks (Peru), La Mezcladora (Peru), CAPECO (Peru), BIM Forum Uruguay (Uruguay) and ANIPPAC (Mexico).

- There are Latin American and foreign investment funds and investors participating in projects, some of which are entirely focused on ConTech; Zacua Ventures is one such example. As a result of the investment by these companies, diverse startups have been able to expand outside of their regions; this has happened with different Chilean, Peruvian and Colombian initiatives. In Brazil, although international expansion seems not to be the main priority for most of the startups, private Capital has enabled them to increase their range of functions offered.

- There are university initiatives supported by private parties, that enable the development and funding of innovative solutions. One example of this is in Brazil, where in 2020, the **Universidad de Sao Paulo** along with **InterCement,** developed a type of concrete able to save water. Another is the **Pontificia Universidad Católica de Chile** that has the **Centro de Innovación del Hormigón (Concrete Innovation Center).**

In terms of project leaders, it is important that they view the innovation budget as an investment; and therefore, evaluate and understand the benefits that this will bring. To do so, **Robinson Fuentes,** CEO of **Calidad Cloud,** indicates that it is important for company management to be involved in the implementation process. In this way, each area will find value and form a commitment to carrying out the process. **Gerardo Freire,** CEO of **Cosapi** affirms that adopting new technologies responds to an approach to provide value to clients while being more profitable as a company.

b. There needs to be a change in organizational culture.

While implementation is a big step, it needs to be accompanied by change management in how work is currently performed. The comfort zone in which certain potential ConTech customers now work, can hinder the advantages offered by the new technologies compared to those that they are accustomed to using.

For **Carolina Briones,** executive director of the **CTEC,** the sector must experience a cultural change aimed at collaborative work models, for early planning and comprehensive contracts, to share both the risks and the gains. These models must also be supported by the technologies, which must make it possible to manage the information from the projects in an accurate, anticipated and integrated form.

To overcome these obstacles in the traditionalist organizational culture, there is a need for those who offer innovative solutions to provide their customers with the necessary accompaniment throughout the implementation process. For **Mauricio Tessi Weiss,** founding partner of **Zacua** Ventures, it is important for the growth of ConTech startups to be able to develop easy to implement products. Additionally, according to **Germán Elera,** accompaniment is essential for correct adoption and is frequently neglected by companies because they do not wish to invest more; this endangers the initial technology investment, when in reality, guidance could better anchor innovation within the DNA of the company.

c. The implementation of ConTech creates new employment opportunities

Another point that hinders the adoption of new tools by users is the belief that their implementation will generate a reduction in personnel. However, far from this being the case, its development and use encourages the emergence of new professional profiles that will be greatly in demand in the coming years, which will provide new and better employment opportunities for the sector. The workers of the sector must therefore reinvent themselves, develop skills and be trained to continue to be employable and even aspire to better and more remunerative jobs.

d. Scalability of the solutions

In addition to the previously mentioned factors, we must add the complexity of introducing innovations and training in ongoing projects, of variable duration or context.

It thus becomes necessary to provide scalable solutions that requiret low initial investment and do not greatly affect the budget of the work; or even better, will increase its profitability:

"In our experience, we see that the concept of MVP, or Minimum Viable Product is important, with the understanding that we can perform mini-experiments in a project, assume small risks, learn, improve and create a virtuous circle of innovation in a construction company and then extrapolate those experiences"

- Diego Dean, CEO of Ubicuo.

According to **Fiorella Fortunic,** CEO of **BIOD,** for the solutions to be easily implemented, it is also necessary to show that they have worked at other competing companies. Measurable benefits must also be provided with data showing the value of their implementation; for example: to be more profitable, useful, environmentally friendly, safe, etc. Additionally, **Martín Gómez,** founder of **Wymaq,** says the ConTech needs to be in constant communication with the customers to know their needs and thus detect specific problems to be resolved. In this way, the expected benefits or returns from investments in new processes and/or technologies may be estimated.

A change of mentality among project leaders becomes necessary at this point, because we must begin to understand innovation as an ally that favors productivity and offers return on investment; an inclination that is escalating with the passage of time.

The ConTech ecosystem from the perspective of the actors

What is needed for successful adoption of the ConTech in Latin America?

There is an ecosystem in Latin America, however, it is not yet a unified movement at the regional level, because it involves multiple initiatives that are still being developed in a dispersed manner. In this context, from the perspective of **Juan Saldarriaga,** founder of **Bimbau,** there is a need to create trade associations focused on ConTech innovations that not only promote the implementation of new disruptive ideas and technologies in the sector, but also show the positive effect stemming from that implementation. **Gabriel Borges,** CEO of **ConnectData,** agrees that there is a need for sectoral actions to promote the adoption of technologies, because that will enable companies to better understand and know about the benefits of their implementation. For **Diego Dean,** CEO of **Ubicuo,** it is crucial that the entire ecosystem gives its support to the new initiatives that arise in their countries to thus have greater possibilities for expansion in the rest of the continent.

How to expand use of the ConTech in Latin America?

Regarding growth of the ecosystem, for **Emiliano Pinto,** CEO of **ObraLink,** there is a need to increase the technological capacities of the startups in R&D (research and development), an idea that is supported by **Martín Gómez,** the founder of **Wymaq,** who states that capturing the necessary talent to develop new technologies will enable the growth of new initiatives. This talent must cover areas such as programming, artificial intelligence, and machine learning, among others. On the other hand, to obtain better acceptance and loyal customers, according to **Robinson Fuentes,** CEO of **Calidad Cloud,** there is a need to implement a knowledge transference stage, because acceptance and assimilation of the innovations by companies depends upon this.

Another point on which the actors agree is that there is a need for greater dissemination of success cases involving the use of ConTech to increase the possibilities that more companies will innovate. For **Germán Elera,** dissemination is important because if more companies and engineers become aware of all the advantages that their competitors have gained, they may become more open to using them. There is agreement on this point by **Katherine Saavedra,** CEO of **Digital Bricks,** who indicates that, if those in charge of decision-making are aware of the benefits, adoption could proceed more quickly; regarding this point, she adds that continuous training is extremely important so that the industry will acquire a more accelerated pace.

A change of mentality is needed...

it becomes crucial for builders that wish to stay up to date be contextualized at the worldwide level. Regarding this point, **Franco Giaquinto,** CEO of **Proplanner,** affirms that one of the reasons why Latin America is behind in this aspect is because the majority of leaders of construction companies are from past generations, with little direct exposure to new technologies. The few innovators that exist are those who have traveled and gotten to know what is happening in other more advanced countries so that they have lost their fear regarding the implementation of new technologies and are now outstanding members of the ecosystem.

investment during the early stages is indispensable.

Finally, for **Bruno Loreto,** Managing Partner of **Terracota Ventures,** angel investors and financing during the early stages are essential for the success of the ecosystem, because they make it possible to accelerate the adjustment of products for the market, and because they also provide intelligent advice that is frequently lacking from the initiatives that emerge.

/Chapter II: A look at Latin ConTechs undergoing growth.

The ConTechs are innovative solutions that the sectors of architecture, engineering and construction need to overcome their challenges. Although ConTech ventures and developments are not as popular or common as those of the proptech or fintech sectors, this poses no obstacle to interest in investing in them, because they tend to have great potential. Such investments come from both the countries of origin as well as from investors outside of Latam. Such is the case of the USA, Spain, France and even more distant countries, such as Korea, to mention a few.

To identify the type of ConTech initiatives that are most attractive to users and investors, because of their potential for coming years, it is interesting to propose categories and identify some of their principal exponents.

From this perspective, the Latin ConTech categories best positioned, due to their popularity and being in the vanguard, are modular and industrialized construction. We could add the creation of new innovative or sustainable materials for the sector, and even new construction methods, such as 3D printing. Similarly, the growth experienced by the marketplace in the sector, both in services and products, is noteworthy. Not only do these fulfill the role of digitalizing a catalog of products but also revolutionizing the management of construction resources. We must also consider the regional development of a broad spectrum of software focused on resolving different problems of projects. Some are associated with the IoT (Internet of Things), to analyze data, 3D, AR and VR models, among others. The use of drones and products associated with BIM and LEAN are also of interest in Latin America.

Credits: UTEC

Modular and industrialized construction facilitates optimization of costs and times, while also reducing waste and improving productivity.

If we focus more on solutions involving modular and industrialized construction, they are attractive for builders and investors, because they facilitate lowering costs, reducing the percentage of waste generated in a project and optimize the time for completing projects. However, while there are many companies in this category, only some seek to generate added value through innovation.

Such is the case of the Mexican company **Modulbox,** which has set the goal of industrializing vertical construction and bringing buildings of more than 15 stories to anywhere in the world with an instruction manual understandable in a universal language. This company´s success has enabled it to scale up and reach countries such as Argentina and Uruguay; it even has participation in China and soon plans to expand to the USA, Guatemala and Peru.

Another interesting example of modular construction is the Peruvian company **EcoBuildTec,** which is developing quickly assembled housing, particularly for the mining sector. These include the new Megalodón project, a rapidly built mining hotel that does not require heavy machinery for its construction. Designed using a circular economy strategy with Thermo Panel walls as its acoustic isolation and with the patented Kaiteki technology. The company's modular products are also exceptional because they do not require skilled labor for assembly, have low logistical costs and do not require a metal structure for support.

Along with these companies, **Brasil Ao Cubo,** is using a volumetric modular technique to reduce construction time, an initiative that enabled them to obtain financing of 11 million dollars from **Gerdau Next** in 2022, and subsequently an additional 13.5 million from **Dexco,** an investment fund focused on startups and scale-ups.

New construction materials and methods are attractive due to their properties and because they generate less environmental impact.

While the traditionalism of the sector still dominates in the region, this has posed no obstacle for adopting new construction materials and methods, when these have been shown to offer the same or greater benefits, along with better prices.

A notable example is the Colombian company Glasst, which is developing disruptive innovations in materials, including biodegradable plastic films for protection during construction, thanks to which, for each kilo sold, at least 16 kg less of CO2 are emitted into the atmosphere. They have also created the first removable architectural paint on the market, along with other competitively priced products:

"Our prices are not above those of the market. Good and sustainable things do not have to be more expensive. They can cost the same, no more than an additional 10%, or even be less expensive than the current solution."

- Juan Camilo Boreto, CEO of Glasst.

Another interesting development is that of **Materiales Avanzados,** which has created Vetro+, using nanotechnology. It is a screen-printed tempered glass with antibacterial and antiviral characteristics, and with copper nanoparticles. This development generates healthy spaces, in accordance with the corresponding regulations, for the food, health, and transport industries. This has enabled the Chilean company to expand into the Mexican market and soon into the Colombian one.

The need to reuse materials that are generally discarded, has also served to create new products in the industry. In Bolivia, for example, there is an outstanding initiative by the Mamut company, which manufactures floors for diverse industries, by recycling the rubber from unused tires. In fact, thanks to its production, until now they have recycled more than half a million tires in that altiplano country. A similar approach is being applied in Costa Rica, where the **CRDC** Company creates construction materials as additives to concrete using plastic waste. The company's creation has been disruptive, sustainable and profitable, which has enabled it to rapidly grow since 2018.

Currently, according to **Donald Thomson,** its CEO, the company has presence not only in countries of Latam, but also in the USA, South Africa, United Kingdom, New Zealand, Hong Kong and Samoa.

Regarding construction processes, **Baumax** has carried out important work in Chile, because it is the only company that uses robotic construction and 3D printing in reinforced concrete. This solution has enabled the company to reduce construction times by 30%, providing savings of 50% in labor and reducing the debris generated by 65%. It also enables them to produce six homes of 140 square meters in a single day and assemble them in only three days. Finally, in Peru, there is a ConTech **BioD** solution of interest to treat water at construction sites, which has created biodigesters able to reduce water expenses by 70%. This is another example of how ConTech solutions become an alternative for generating decreased environmental impact.

Credits: CRDC Global

Marketplaces energize the construction market.

For many years, the industry has been accustomed to seeking suppliers of materials or services through processes that take longer or become complicated; however, the creation of online marketplaces has facilitated dynamism in the industry. The creation of platforms that connect contracting parties with contractors or suppliers, makes it easier to find the products that are needed and when they are needed. Similarly, it is much faster when comparing prices or proposals, which can encourage a wider range of suppliers and therefore a bigger offering of prices and products.

The success of the marketplaces, in fact, can be measured in figures for investment, because they have been able to obtain significant amounts in rounds of this type. One of the most recent is Tul, a Colombian company that has closed a B series investment round for 181 million dollars, with which it plans to expand to the Brazilian market. The solution offered by **Tul** is digitalization and management of inventories in the hardware sector. **Bimbau** is another marketplace success case (2022 1st prize for best Latam Proptech Startup), which offers solutions for builders, sales personnel and designers, including booksellers with BIM objects. They are known to achieve efficiencies as high as 80% in operational purchase times along with savings of as much as 10% in the purchase of materials. The success of this Colombian company has made it a beneficiary of the investment fund in **Startco 2022.** The company also plans to soon expand to Mexico and the US markets. Success can also be measured in forecasts for expansion, such as the Peruvian company **Equip Construye,** which is a marketplace that will soon open in Mexico and seeks to reduce the time and money allocated for purchasing processes.

These solutions have not only appeared to connect materials with buyers, but also to connect services to suppliers. **Wymaq,** in Argentina, is outstanding in this category. Its service facilitates renting construction machinery in less than 48 hours, thus accelerating processes that previously could take many days or weeks. The initiative has had such great acceptance in the country that it has achieved 85% annual growth and been able to expand in the region. The Chilean company **Arrienda Tu Máquina,** which is considered the premier machinery hub of Latam, has also been highly successful. Using this platform, the owners of machinery can publicize their products for rental or sale, and customers can obtain what they need from a single place more quickly. On the other hand, **RendaloMaq** offers a similar solution, and its business model has recently obtained financing from **Y Combinator,** with whom it plans to expand to Brazil and Mexico.

There are many other successful marketplaces. It must be pointed out that in response to this broad offering, companies tend to contribute their own added value based on local factors, integrations, management tools, BIM or complementary services. **GoBox,** for example, focuses on connecting suppliers with independent builders and receiving orders in no more than 90 minutes. Recently, the Bolivian company has closed an investment round with Bolivian and US investors.

Software for construction developed by Latin American startups attracts investment and enables optimization of construction processes.

The number of Latin American companies that have developed software for different stages and areas of the building process is relevant, whether to monitor the progress of the work, quality or safety, the use of materials or the generation of data, among other aspects.

As previously analyzed, optimizing processes and showing tangible improvements with numbers generates a higher rate of acceptance in the market for such innovations. For example, it is essential for projects that optimize the use of materials to make proper use of their workers and reduce the time lost in repetitive tasks. In response to this need, solutions have emerged such as those offered by **ConnectData,** a Brazilian company that has cases in which it has reduced the consumption of materials during construction by as much as 60%, improved labor productivity by 14% and reduced costs of monitoring processes by 30%. This is possible due to the creation of sensors that trace and monitor the movement of materials, equipment and people throughout the lifecycle of the project.

These tools, which can acquire and process data in real time, have great value in projects, particularly if they enable automation. This has been one reason why the Chilean company ObraLink has gained such wide acceptance in the sector, with the development of ciBot. This tool enables the generation of automation of daily and repetitive activities in projects. According to its CEO, **Emiliano Pinto,** this includes the measurement of progress, planning and obtaining the strength of the concretes to accelerate construction. Recently, the company has expanded its presence to Peru and Spain and will also soon enter the Mexican and Colombian markets. The Chilean company won the **2021 Construction Startup Competition**, a worldwide event co-organized by global ConTech actors, including **Leonard.** The company recently raised 2 million dollars in a round led by **Cemex Ventures.**

Knowledge of the needs of the market is essential for the success of ventures, especially if we bear in mind that reducing errors is essential for the profitability of projects. One company that offers this type of solutions is **Holo XR,** thanks to which the number of projects under simultaneous supervision can be increased. Its product offers a decrease in the number of errors on the ground and during the time of execution, using extended reality in combination with BIM. Good acceptance of solutions that use augmented reality can also be seen in Brazil with **Augin,** which, since 2019, facilitates visualizing projects on a scale of 1:1 using tablets or cell phones. It is a clear example that solutions simple to understand and implement are advancing rapidly in the market, to the point where currently, more than 200,000 users employ them. Another aspect mentioned at the company, and which has facilitated its growth, is that its implementation does not represent additional costs in hardware. In Colombia, **SpyBee** is another Latin company that seeks to digitalize the industry by connecting digital twins obtained through 360 cameras with BIM models and soon plans its entry into the Chilean market.

Another approach involving successful and accepted solutions deals with project planning. In this field, we can consider **Proplanner (Ipsum)** as a benchmark in Chile and which now has a branch in San Francisco. This software makes it possible to integrate subcontractors in the productive process, eliminate double digitalization, includes the customers in the control of the project and avoids legal proceedings. The **Ipsum** solution attracted the attention of Procore, and its current partnership, which, as of the present, already has presence in 10 countries. Also, with a focus on planning but with Lean Construction, **Prevision** is being used in more than 1500 projects in Brazil. This tool enables agile management thanks to simulations and progress curves in real time.

Software that offers improvement in quality control and safety also has wide acceptance among builders. **Calidad Cloud,** for example, facilitates controlling constructive, productive and post-sales processes in construction projects. The company will invest $1 million to strengthen its international expansion plan to countries such as Chile, Peru, Ecuador, Colombia, Bolivia and Costa Rica. On the other hand, **Ubicuo** undertakes processes for employee safety, along with time sheets, receipt of materials, and quality controls, among other aspects. The Argentine company is in an internationalization stage with markets such as Chile, Uruguay and Spain.

A special mention is also merited for robotic developments in Latam, particularly at **Tumi Robotics** in Peru, which has created robots to control and monitor construction using artificial intelligence. The company in 2020 received an investment by **HAX;** and for 2023 has plans for expansion to the USA and Australia.

The main characteristics for the success of ConTech solutions

If we summarize the characteristics of the ConTech with the greatest potential developed in LatinAmerica or which have gained wide acceptance in the market, we must mention the following:

- There are solutions that are easy to implement progressively and which are designed to be friendly in their standardization.
- They provide a solution to a specific problem of the sector or progressively present a range of tools.
- They make it possible to reduce costs, in processes or in managing waste, among other aspects.
- The implementation cost is accessible, they have the option of being scalable and offer a clear return on investment.
- They enable the industry to generate less environmental impact, whether directly or indirectly
- They have an innovative and disruptive character.
- They follow up with the client to ensure success of the project.

How to prepare the sector for the acceptance and growth of ConTech? A view from the academic area and the builders

It is in the hands of the construction sector and the ecosystem to continue forging well-prepared professionals both for development of more ConTech solutions as well as for their implementation. The good news is that we are already seeing changes that contribute towards achieving this goal.

At the universities, we are seeing that in various Latin American countries, they have begun to change the curriculum for careers such as engineering and architecture, including not only subjects associated with the use of BIM objects, but in courses that encourage the use of innovations during the different stages of the constructive process. To provide these examples, the **Tecnológico de Monterrey,** in Mexico, has workshops focused on digital transformation, change management programs and innovation management programs. This institution also has created the **Centro para el Futuro de las Ciudades, (Center for the Future of Cities)** dedicated to sustainability of the cities, and to the flourishing of their inhabitants. In Chile, there are also interesting initiatives such as the **E+BIM** educational project, which emerged in public-private and academic collaboration with the aim of creating, implementing and promoting **BIM** in technical professional education in the country. There are other outstanding initiatives there such as the project called "Innovación de Modelos de Negocios Sostenibles para Construcción 4.0" (Innovation of Sustainable Business Models for Construction 4.0) by **PUCV**, whose objective is to create a solution for those who have difficulty in innovating and are thinking about innovation as a business model. In Peru there are also two important educational initiatives. First, at the **Universidad de Lima,** which was the first to have comprehensively implemented a digital transformation program in its curriculum since 2016. On the other hand, we have UTEC, which in 2022 launched the first ConTech graduate
program, designed jointly with **Digital Bricks** and made available in virtual mode for access by all of Latin America.

Although the work in the academic area of Latin American countries is important to accelerate the adoption, implementation and development of ConTech innovations, private companies also play an essential role by overseeing its implementation. Additionally, they frequently give advice on financing its improvement and growth.

In that sense, in Ecuador, for example, we see that the **Holcim** cement company has its own innovation center, which collaborates by sharing technology with professionals of the field. Another case of interest is in Mexico in collaboration with **Cemex.** The company encourages the development of ConTech solutions by students through awarding prizes. It has recently, recognized a project by civil engineering students at the **UNAM,** in which they use sensors with microbial fuel cells to investigate the properties of concrete while it is being transferred to construction projects. A similar initiative was implemented in Peru, where pieces have been created using large volumes of plastic waste, which is part of a project presented by the private sector through **Bananica,** in partnership with the **Universidad de Piura,** and which in 2019 obtained funding in the **ProInnóvate** entrepreneurial innovation competition. In this country, public investment by **Prociencia** also supports universities such as the **PUCP** in the development of a 3D printing system, which enables building housing modules based on the use of sustainable and organic materials.

Builders are other actors of the ecosystem who are contributing to acceleration of the adoption of new technologies. While at present, not all of them do so, there are nonetheless recognized companies that invest in this type of solutions or that even have their own innovation centers. **Echeverría Izquierdo** is a clear example of this, a leading company that has the support of specialized consultants such as **Bluebox** (Mexico), its partner in aspects of open innovation and corporate ventures. Additionally, each initiative for innovation under consideration is a response to the challenges that arise and are reviewed every year, in each of the business units. The company is also currently working with Latin startups to develop two of their projects, which, in addition to being innovative, are sustainable. For example, **ProLab,** which consists of two live prototype buildings, which will involve collaboration by **Baumax,** a startup that offers prefabricated concrete to build 10-story buildings, and **Baumax + E2E** to build the second 8-story building.

Cosapi, is another company in the region with an innovation area, in which processes, innovative ideas and plans are prioritized that can be applied to construction projects incorporating VDC (Virtual Design and Construction) and IPD (Integrated Project Delivery).

This holds that innovation must be aimed at collaborative modalities that facilitate the integration of those involved in the projects, because isolated viewpoints are common in the sector.

If we continue to take note of examples of how companies positioned in the sector are investing in the development of new technologies, then we must mention **Conconcreto,** which has placed its bets on 3D printing in Colombia, recognizing its potential to reduce execution time in the execution of work, accidents during construction and waste. Similarly, as a solution to the real estate crisis in the country, they have developed the first large-format 3D printer with the aim of massively creating social interest housing. The company has already launched successful prototypes, such as the "Casa Origami", a housing prototype developed with additive manufacturing in Colombia. made with 32 pieces that were printed in 26 hours. In the field of 3D printing, it is also pertinent to mention **Cemex** (Mexico), which has associated itself with **COBOD,** through its **Cemex Ventures,** a risk capital unit to develop the first 3D printer that uses conventional concrete in the process. This is possible thanks to the "D.fab" additive patented by Cemex, which enables conventional concrete to be adapted to 3D printing construction.

Finally, there are two interesting projects that show the interest on the part of large supply companies to innovate in the sector. Cementos Argos is a company that has brought an industrialized modular technology to Colombia. The company is building a factory to produce modular housing parts in Cajicá and its own innovation Center at the Universidad EAFIT, through which it plans to initially manufacture 2,000 apartment units and, in the future, double or triple that figure (Semana, 2022). And Aceros Arequipa has its TSC Innovation unit, through which it creates services aimed at automating and increasing the level of industrialization of construction projects through innovative methodologies.

Although these are just a few of the many examples found in Latin countries, it is important to observe that there are academic initiatives that are facilitating the training of the professionals that the ecosystem will need. Similarly, there is probable support and interest by the companies in the sector, whether builders or suppliers, to contribute, both in the training of those professionals as well as in encouraging development and investment in new solutions.

Finally, the decision by the Grupo Vinci to extend their Leonard platform to Latin America will surely in the medium term become an interesting locomotive for the growth and empowerment of ConTech initiatives in the region.

LATAM CONTECH

México

3D360 · MODULBOX · STRUCTURALL · prysmex · WAS Co.

Colombia

HippoBuild · Licify · Spybee · GERPRO · GLASST · BIMBAU · hometuls · Til. · SmartBrix · ZILPER

Costa Rica

CRDC · MAWI

Ecuador

CONSTRUEX

Perú

BIOD · Ecobuildtec · EQUIP · MAQU · mettatec · TOOL BOX · TUMI · SIC

Bolivia

GOBOX · Mamut

Chile

ARRIENDA TU MAQUINA · AIMA · BAU MAX · CALIDAD CLOUD · iconstruye. · gauss CONTROL · HOLO · HUELLA ESTRUCTURAL · isolcork · Obra Link · ProPlanner · RECYLINK · re STUDIO · RENDALOMAD · TECNO FAST · VETRO

Uruguay

HOUSE ONE

Argentina

Arqlite · [build]box · Bilderit · coefdigital · NUQLEA · UBICUO · wymag

Brasil

Agilean · ALTO Qi · ambar · augin · BRASIL AO CUBO · ConnectData · CONSTRUCODE · CONSTRUCTIN · construflow · Construmarket · INBUILT · hiperdados · LANDAPP · maply · oico · prevision. · QualiTab · sienge · stant · Sooper · TECVERDE · vobi

LATAM CONTECH

Industrialized and modular construction

BAU MAX · BRASIL AO CUBO · Ecobuildtec · TECNO FAST · TECVERDE · MODULBOX · SmartBrix · STRUCTURALL

Data analytics

AIMA · ConnectData · CONSTRU CODE · gauss CONTROL · GERPRO · HUELLA ESTRUCTURAL · hiperdados · Obra Link · TUMI

Materials and Sustainability

Arqlite · BIOD · CRDC · GLASST Innovation Company · isolcork · LANDAPP · mamut · RECYLINK · strong by form · VETRO · WAS Co. · ZILPER

Building Information

ALTO Qi · augin · CONSTRUCTN · construflow · HOLO · INBUILT · maply · mettatec · re STUDIO · Spybee

Project Management

ambar · Agilean · Bilderit · CALIDAD CLOUD · Construmarket · coef digital · DD360 · HippoBuild · Licify · MAWI · prevision. · ProPlanner · prysmex · QualiTab · sienge · stant · SIO · UBICUO · vobi

Marketplace

ARRIENDA TU MAQUINA · BIMBAU · [build]box · EQUIP · CONSTRUEX · GOBOX · hometuls · HOUSE ONE · construye. · oico · MAQU · NUQLEA · Sooper · RENDALOMAQ · TOOLBOX · Tul. · wymaq

/Chapter III: An approach to the future of the ConTech ecosystem in Latin America

According to the plans in the region, and the trends and ongoing projects of some of its main exponents, we are hereby formulating certain future scenarios in the short-term.

Investments will encourage the development of Latin American ConTech

When talking about the future, is also necessary to mention the importance of the role of investors, both governmental and private, to encourage the growth of interesting solutions and avoid premature closure of startups that could have opportunities for growth, not only through funding, but with adequate strategic accompaniment.

The role of investment firms is important during the different stages of development and that the companies be aware of those that are available, according to their degree of maturity. On this point, it is important to mention present initiatives in the region, such as with **Newtopia VC** (Argentina), **Terracota Ventures** (Brazil), **Invest Tech** (Brazil), **Gerdau Next Ventures** (Brazil), **BR Angels** (Brazil), **Smart Network** (Brazil), **V Angels** (Brazil), **Canary VC** (Brazil), **Fondo CLIN** (Chile), **Sudamerik** (Chile), **99 Startup** (Mexico), **Cemex Ventures** (Mexico), **ProInnovate** (Peru), **PECAP** (Peru), **Utec Ventures** (Peru) to mention but a few.

The startups also need to know investors outside of their own countries and Latam, so that they may create universal proposals that would help them to obtain funding while at the same time scaling up to other parts of the world. For example, there is a significant number of investors from the USA looking for promising solutions; many have made investments in Latin American startups, such as **Y Combinator,** which has invested in the Colombian company **HippoBuild** and in the Chilean **RendaloMaq.**

It is important for entrepreneurs to be informed about companies that have announced their interest in investing in Latin initiatives, such as the **CAF,** which is currently working on technical cooperation to explore the benefits of BIM and the region's evaluation in the incorporation of these technologies or other derivatives. Another interesting case is that of **Nova by Saint-Gobain,** which recently has announced that it will invest 35 million dollars over the next three years in Chile.

There are many others, proof of which can be seen in the 76 investors who took part in the **Construction Startup Competition,** 21% of whom are in the USA and Canada, whereas 33% came from Europe. To manage this, we will need a consolidated ecosystem that facilitates communication and the dissemination of information among the different actors and encourages participation in competitions to apply for funding.

The types of ConTech with greater investment possibilities

The particular needs of the Latin American market demand the development of diverse innovations that streamline and optimize the development of construction and engineering projects.

Solutions that prioritize data generation have greater opportunities for growth.

ConTech can be adopted in countries where there is a need to build highways, housing and greater urban infrastructure, such as for data analysis involving information gathering, which facilitates identifying viable projects and the needs of final users. Not only in specific cases such as this one, but in general, any software development that we employ can be compatible to export additional data that can be used in new projects or as input for new processes. Technologies under this category enable companies to have information about decisions made and future ones as well; they also make it possible to know in what to invest after evaluating the general performance of the project. For **Katherine Saavedra,** CEO of **Digital Bricks,** it is important to have a data strategy in construction companies, because if not, there is the risk of losing valuable and casuistic information. On this point, she adds that, to have such a data strategy, it may be necessary to use technology such as collaborative platforms, AI, drones or connected objects. These provide the raw material to be processed.

Sustainability is a factor that will increasingly attract the attention of investors.

There is great interest in investment in solutions that promise to help reduce the environmental footprint of the sector; whether in materials or in construction processes. There are investors betting on financing projects of this type, such as **Zacua Ventures,** who are thinking about investments in materials manufacturing projects with a reduced carbon footprint, solutions that promote construction waste management and in technologies that enable optimization in the consumption of energy in assets.

After all, the future importance of sustainability is clear for the sector, as shown by companies like **Echeverría Izquierdo:**

"Sustainability standards will be more widely adopted. Every type of customer will demand more sustainable standards about deadlines or economic aspects. This is part of a differentiating seal in the case of principal clients."

- Pablo Ivelic, CEO of Echeverría Izquierdo.

Modular construction will become a profitable investment and facilitate cost reductions in projects and improve the safety of self-constructions.

It is important to mention the role of ConTech "turnkey solutions", in other words, those that not only consider large builders and corporations but also final users. After all, self-construction continues to be a big challenge for local industry. In this group, it is important to emphasize the potential for modular construction in Latam, which is forecast to undergo growth over the next 10 years. Bets on modular technology go hand-in-hand with the need in Latin countries to build spaces for medical attention and for lower-cost education with greater speed (El Comercio, 2021); it is also due to the need to create more efficient mining camps, an activity involving numerous projects in the region.

In this regard, it is also relevant to mention industrialized construction, which will involve works and is no longer limited to traditional materials, but also with new alloys and even the use of new methodologies such as PPVC (Prefabricated Prefinished Volumetric Construction).

"In general terms, I would venture to say that the industrialized modular world is already a reality and requires only a few years of new designs to enable each person to live in their modular house, ready for installation, with no waiting times."

- Gonzalo Verón, CEO of Modulbox.

BIM solutions will have dynamism in the market based on new legislation in Latam

Regarding BIM, massive adoption is predicted during the next five years; this is due, according to **Germán Elera,** not only to new laws in these countries, which require the adoption of this method, but also to the demands of the market for tools to compete. In this regard, the multiple ConTech Latin solutions that use or import BIM models to offer new functions, will have an ever more dynamic market.

New solutions encourage the emergence of new professional profiles and new jobs.

There is a need to train professionals able to create, adopt and implement these technologies in the projects of the sector in general. According to **Hector Barrios Piña,** national director of the civil engineering program at the **Tecnológico de Monterrey,** the universities have a mission to disseminate and apply innovations and technologies with the students during their training, to thus encourage them to create new proposals that would be technically and economically feasible. However, to make this possible, there is a need to train the academic faculties and for investment to enable the purchase of equipment and instruments. Similarly, there is a need for financing sources for projects for educational innovation, aimed at the construction sector. For **CAPECO,** the transformation of the sector also requires specialized technicians and operators trained to work with these innovations. The reformulation of curricula is therefore essential.

"If an engineer is not trained, lacks curiosity or desire to go with technology, it is possible that over the next 5 years they will not be up to speed with the market and so the gap will be very notorious."

- Germán Elera, Co-founder of the Asociación Proptech y Construtech Peru

In this regard, along with improving hard skills, it is also necessary to develop soft ones and this idea is emphasized by Hector Barrios Piña, who says that: "Graduates should have self-learning abilities for their constant training. They should also have abilities in entrepreneurship that enable them to not be afraid to propose new materials, technologies and procedures." Similarly, according to Raúl Salinas, BIM methodological consultant at Digital Bricks in Chile, graduates in construction must have "An innovative profile to evaluate opportunities, not only in terms of costs but regarding benefits. This from a social responsibility perspective and the need to have skills in terms of the management of opportunities, agile methodologies and a long-term vision."

While training in current undergraduate programs is essential, so is the current labor market, which should contribute its experience and background in this transition, in which the sector is transformed.

For **Katherine Bobadilla,** Director of Productivity and Sustainability at **CAMACOL,** there is a need for professionals with greater abilities for adaptation to changes, which are in constant technical reference, and above all, with the ability to identify solutions in the fabric of ConTech startups.

Similarly, for **Alexandre Almeida,** director of the Scientific Research Institute at **U. Lima,** some professional profiles will be replaced, while others will be created or will evolve:

"The new profiles will be more focused on digital fabrication, with experience in unaided construction systems. They will also have well-developed generic skills in communication, problem solving, information technology, English, and meta-learning"

- Alexandre Almeida, Director of the Scientific Research Institute at U. Lima

Of the positions that will be necessary in this panorama, one that is projected to have greater demand will be the innovation manager, as defined by **Diego Dean,** CEO de **Ubicuo** como

"A person in the area of the company that is in charge of evaluating, selecting and coordinating the technologies that are best adapted to the objectives of each organization."

What do the actors of the ConTech ecosystem in Latam predict?

What next for ConTech in Latam? In general, the actors of the sector project an active role for the ecosystem that will stimulate the creation and dissemination of new technologies. They consider that time and competition will encourage companies and entities of the sector to adopt and regulate the innovations. They stress that there is much Latin American potential and that, as proof of this, there is the ability to grow in a fully mature sector that is actually migrating to other territories. We now share some specific predictions for this report:

The active role of the state and partnerships with the private sector

"The state will only be a proactive actor if they implement a policy of innovation and research in construction, allocating funds to stimulate the dissemination of new technologies."

-Jorge Arévalo, General Manager of CAPECO

"Governments must view the private sector, and particularly the ConTech, as an ally to generate quality jobs, promote exports of specialized services and reduce inequality due to the importance of construction in the economy."

-Martín Gómez, Founder of Wymaq

"The key to developing ConTech innovations is public-private cooperation funds for innovation available to entrepreneurs in response to those disruptive companies."

-Jan Rush, Co-founder of ArriendaTuMáquina

"It's necessary to advance towards standardization and a common regulatory framework to enable software developed for the construction and real estate sector to communicate and act within a single universe."

-Jorge Ignacio Prieto, Founder of Asociación Proptech and Construtech Chile

"There are many angel investors within the sector who have helped with the initial growth of many of the startups and we are increasingly seeing funds that have opened their doors to the ConTech companies of LATAM. The main reason for this increase is that they have been able to show that market sizes there are interesting for venture capital. "

-Felipe Garzón, cofunder of SpyBee

"Investments in Contech and Proptech are increasing. Investments in Contech have doubled over the past decade, reaching +$25Bn. Which has enabled us to raise venture capital from funds and angel investors."

-Tiago del Río, CEO of Equip Construye

Technology, competitiveness and sustainability

"Without technology, the building sector cannot change. Environmental impacts and new social proposals must be on the agenda of every construction professional, and the new technologies constitute the best formula for success."

-Juan Saldarriaga, Founder of Bimbau

"Nanotechnology in compound materials can generate significant changes in construction materials by providing them with physical-chemical properties that they originally do not have. Post-pandemic architecture will permanently require antimicrobial materials adapted to healthy lifestyles."

-Christian Aguilar, CEO of Materiales Avanzados.

"To create a ConTech ecosystem, one must continue creating a shared language among companies, while creating capacities at the level of companies and professionals of the sector to close knowledge gaps that limit their progress."

-Katherine Bobadilla, Director of Productivity and Sustainability at CAMACOL

"In order for the ConTech companies to grow, they must first have proprietary technology (hardware and software) that enables them to be differentiable. Secondly, they must be innovators regarding the business model. And thirdly, they must work hard at networking."

-Francisco Cuéllar Córdova, founder of Tumi Robotics.

The most important factor in the growth of startups is the acceptance of new construction models within the construction sector. That is why the mission of Ecobuildtec is to educate users that we have more rapid assembly construction systems that are environmentally friendly, logistically low cost, of optimum comfort and with accessible prices."

-Daniel Rivera, Innovation Manager at EcoBuildTec

"The use of technologies and the digitalization of this sector of the AEC (Spanish language acronym for Architecture, Engineering and Construction) is a significant trend due to the great need of companies to be more competitive, sustainable and to continue in the sector."

-Brenda A. Cerda, founder Plan Bim México

"Considering that the construction sector is the biggest worldwide contributor to greenhouse gas emissions, there is no alternative to continue innovation aimed at reductions with a net zero carbon vision. This, along with a population in exponential growth, means that sustainability within the constructive environment would be essential for development and prosperity."

-Donald Thomson, CEO of CRDC

"There will be a demand for more sustainable materials at better prices and with greater quality to satisfy the needs for improved quality of life."

-Manuel Laredo Garnica, CEO of Mamut

Greater opening to ConTech new solutions

"This sector has become much more open to the adoption of new technologies. Most of the companies have realized that it is a path of no return. As a result, they have increased their openness to new projects and specific developments."

-Gabriel Borges, CEO of ConnectData

"With the aim of having better input for industrialized solutions and to ensure good planning, digital tools will be a standard, particularly those that support methodologies with BIM/AWP or digital twins."

-Pablo Ivelic, CEO of Echeverría Izquierdo

"The only way to generate a significant impact on the industry, in the short and medium terms, is through automation. And to do so, there is a need for the development and proliferation of more solutions that use hardware."

-Emiliano Pinto, CEO of ObraLink

"The new generations must sell solutions with technology. It needs to be brought to companies, chambers, and projects and they need to see improvements to existing ideas so that the path becomes shorter."

-Gonzalo Verón, CEO of Modulbox

"The incorporation of technology should have repercussions on efficiency and greater productivity. Then, without this involving additional costs, it should provide transparency, traceability and facilitate information sharing, from the entire project or regarding aspects independent of the project, but without losing sight of the project itself. "

-Alejandro Forero, Principal Executive of CAF

"It is essential to have professionals in a technological company with knowledge of the tasks that are being improved; because having faced the need makes a difference when a solution is offered."

-Daniel Quevedo, CEO of Holo XR

"The technology is evolving, increasingly enabling the creation of new approaches and focuses for problem solving. I think that the capture of data and information regarding construction projects can be optimized with artificial intelligence and so this area will grow considerably."

-Juan Carlos Germano, CEO of Augin

"ConTech solutions must be the easiest to use and demonstrate the results obtained by the first people who adopted them, while also showing that innovation and the digital world have arrived to bring economic results."

-Paula Lunardelli, CEO of Prevision

"Technological implementations in the sector will lead to greater efficiency in the industry and will have a direct impact on construction costs, making it possible to lower costs and benefiting more Latin American families who will gain access to dignified housing"

-Eduardo Galarza, co-founder GoBox

AGKNOWLEDGEMENTS

Digital Bricks and Leonard express their gratitude to the following experts who generously shared their time and knowledge for this report:

Christian Aguilar, CEO of Materiales Avanzados
Jorge Arévalo, General Manager of CAPECO
Héctor Barrios Piña, National Director of the civil engineering program at the Tecnológico. de Monterrey
Katherine Bobadilla, Director of Productivity and Sustainability at Camacol
Juan Camilo Boreto, CEO of Glasst
Gabriel Borges, CEO of ConnectData
Carolina Briones, Executive Director of CTEC
Brenda A. Cerda, Co-founder of Plan Bim Mexico
Francisco Cuellar, Founder of Tumi Robotics
Diego Dean, Founder of Ubicuo
Tiago del Río, CEO of Equip Construye
Alexandre Almeida, Director of Civil Engineering at Universidad de Lima
Felipe Garzón, Co-founder of Spybee
Juan Carlos Germano, CEO of Augin
Germán Elera, Co-founder of Asociación Proptech y Construtech Peru
Fiorella Fortunic, General Manager of BioD
Franco Giaquinto, CEO of Ipsum
Eduardo Galarza, CEO of GoBox
Martín Gómez, Founder of Wymaq
Gerardo Freire, CEO of Cosapi
Alejandro Forero, Principal Executive of CAF
Robinson Fuentes Valenzuela, CEO of Calidad Cloud
Pablo Ivelic, CEO of Echeverría Izquierdo
Manuel Laredo Garnica, CEO of Mamut
Carlos López Ramírez, General Manager of CDT Chile
Bruno Loreto, Managing Partner at Terracota Ventures
Paula Lunardelli, CEO of Prevision
Emiliano Pinto, CEO of ObraLink
Jorge Ignacio Prieto, Founder of Asociación Proptech y Construtech Chile
Daniel Quevedo, CEO de Holo XR
Daniel Rivera, Innovation Manager at EcoBuildTec
Robert Rocha Bohórquez, Representative of Leonard for LatAm
Jan Rush, Co-founder of Arrienda tu Máquina
Katherine Saavedra, CEO of Digital Bricks
Manuel Saez Prieto, Consultant of Agora Smart City
Juan Saldarriaga, Founder of Bimbau
Raúl Salinas, Professor of Process Management at UChile
Mauricio Tessi Weiss, Founding Partner of Zacua Ventures
Donald Thomson, CEO of CRDC
Gonzalo Verón, CEO of Modulbox

Leonard is an innovation and prospective platform created by VINCI, an international actor in activities involving concessions in energy and construction employing more than 270,000 people in more than 120 countries.

leonard.vinci.com

Digital Bricks is an international digital transformation consultant
in the engineering and construction sector.
We help companies to achieve their data-driven technological leap
with ConTech solutions to perform a more collaborative,
efficient and profitable project management.

digitalbricks.com.pe