Seven areas to tackle poor productivity in construction with contech

BY **ANGELICA KRYSTLE DONATI**

In the 2017 report "Reinventing construction through a productivity revolution", McKinsey argued that, if construction sector productivity were just to catch up with that of the total economy, there would be a cumulative productivity boost of up to 60%, translating into a 2% global GDP boost. The report highlighted seven areas which, if acted in simultaneously, would permit us to achieve these gains. **Here they are – with some startups that are making waves in these areas**, curated by Chris Stephenson, partner at venture capital firm Concrete VC.

1) Regulation

This is considered to be an enabler for the other efficiencies. The goals are to streamline permitting and approvals processes, reduce informality and corruption, and encourage transparency on cost and performance. Innovation and training grants are also encouraged.

2) Collaboration and contracting

Today's hostile tendering process must be replaced by a collaborative approach. This can be achieved by basing projects on a "single source of truth" such as BIM, as well as steering away from cost only based tenders. Incentives should be aligned at the project outcome level.

Genie Belt Copenhaghen-based GenieBelt (which just merged with Aproplan and became LetsBuild) is a construction management platform centred on the project schedule that allows owners, designers, contractors, and manufacturers to collaborate across programmes, seamlessly and efficiently.

PlanGrid San Francisco-based PlanGrid was acquired by Autodesk in one of the biggest contech buyouts ever. It is construction productivity software providing real-time updates and seamless file synchronization over Wi-Fi and cellular networks.

3) Design and engineering

The report points to value engineering and standardisation to limit the amount of bespoke work necessary. It further recommends thinking of construction as a production system, with as much offsite manufacturing as possible.

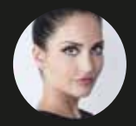
Revizto San Francisco-based Revizto unifies BIM intelligence and makes it immediately accessible and actionable for the entire project team, allowing members to identify and models based on 3D space and on 2D sheets, as well as follow progress in real-time on mobile and VR.

Architizer New York-based Architizer is a digital architectural project database and building materials marketplace, allowing architects to catalogue what products they use in their projects.

4) Procurement and supply chain management

Centralised digitised procurement and supply chain workflows that improve planning and increase transparency would reduce delays, as well as enable more sophisticated logistics management and just-in-time delivery.

Katerra Softbank-backed, Menlo Park-based Katerra aims to optimise every aspect of building design, materials supply, and construction. It seeks to approach construction like an efficient mass production factory, rather than the current method of assembling disparate components in a less organised fashion.



About the author

Angelica Krystle Donati is an entrepreneur, proptech expert and author. She is CEO of the Donati Immobiliare Group, a property development and investment company operating in Italy, the UK and the US, which grew out of the family business Donati SPA, a 40-year old Italian construction company. She is also a venture partner at Concrete VC, a London-based proptech venture platform with a focus on disruptive property technology, founded by Taylor Wescoatt.
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3) On-site execution

The report highlights four key approaches: introducing a rigorous planning process, reshaping the relationship between owners and contractors, improving the mobilisation for new projects by ensuring that all pre-work has been completed prior to starting onsite, and careful planning and coordination of different disciplines on-site along with the application of lean principles to reduce waste and variability.

Alice Menlo Park-based Alice automatically produces and updates detailed construction project schedules and resource allocations by implementing artificial intelligence and optimisation techniques. Algorithms are based on machine learning of historical schedules.

BuildSafe Stockholm-based Build-Safe is a digital solution that improves the process of reporting, documentation, and monitoring of risks on construction sites.

Zlien New Orleans-based Zlien helps construction supply chain actors manage liens and bond claim rights to facilitate successful projects by fixing slow payments and eliminating bad outcomes in the construction industry.

Biosite Solihull based Biosite provides biometric workforce management, site security systems, and business intelligence solutions giving standardised biometric site access control, fire safety and workforce management at site level - and for the intelligent analysis of data and visibility of multiple site operations at the corporate level.

4) Technology

Universal use of BIM (preferably 5D BIM) coupled with IOT-driven advanced analytics and digital collaboration and mobility tools to better track progress and collaborate would be a great start. The report states that "on-site productivity can be increased by as much as 50 percent by implementing a cloud-based control tower that rapidly assembles accurate data in near real time that is both backward-looking and predictive."

Doxel Palo Alto-based Doxel is an artificial intelligence and computer vision-based system that delivers significant productivity increases to commercial construction projects. Doxel uses autonomous devices to visually monitor every inch of a project, then feeds this data to its proprietary deep learning algorithms. The algorithms then inspect the quality of installed work and measure installed quantities in real time. This enables project managers to react to inefficiencies almost immediately and boost productivity as much as fifty percent.

TraceAir San Francisco-based TraceAir is a construction site monitoring platform whose drones and software help measure, verify, and quantify progress of construction during site work stage, significantly reducing budget and timeline uncertainty for developers, contractors and other parties involved in a project.

7) Capability building

The aging construction workforce needs to be reskilled and trained to use the latest equipment and digital tools, as well as replenished through migration.

Rhumbix San Francisco-based Rhumbix is a mobile platform that modernises construction field operations, helping builders go paperless in the field and improving how they measure and manage labour productivity to be more profitable.

CONTECH: A LONG WAY FROM MATURITY

According to global proptech data provider Unissu, there are currently 957 known contech companies globally. Of these, over 60% fall into the following main categories:

1. Workflow Management	**28.9%**
2. Data Analytics	**10.4%**
3. BIM	**9.9%**
4. 3D Modelling	**9.6%**
5. Internet of Things	**4.8%**

Though it's difficult to fully reconcile this data with the seven areas indicated by McKinsey, it is clear that much of the sector's attention is currently on site and workflow management technology. Contech is a long way from maturity, and there are many untapped opportunities for incumbents and newcomers to boost productivity in the remaining areas. Let's not forget that to achieve the purported 60% gain in productivity, all seven must be tackled simultaneously.

Proptech start-ups line up for battle at Amsterdam trade fair

BY **LUCAS LIGTENBERG**
AND **SEBASTIAAN ROGGEVEEN**

Twenty property-related start-ups will be doing their best to convince investors of their worth at the **Provada** real estate trade fair in Amsterdam in early June.