BuildCentrix

CONSTRUCTION IN THE CLOUD

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Benefits of Blockchain Dashboard Reporting

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A WORD FROM THE PRESIDENT

As construction technology continues to advance in the virtual world, integrating the complex realities of real world construction will be critical for keeping the model on track to maintain a single source of truth about a project.

Building in the virtual world provides a living, breathing 3D digital vision of a project as conceived by the architect and designed virtually by Revit/CAD detailers. About the only thing missing from the building model these days are the complexities of the physical jobsite and the people charged with turning a 3D model into reality.

The real-world is never as clean and flexible as the virtual world, plans change, deliveries are late, trades are delayed, cranes don't arrive on time, and vendors don't always send the correct materials—the list goes on. In the real world, things happen for all sorts of reasons, which is also something almost impossible to account for in the model, but critical to measuring the success of a project.

For most contractors connecting the constantly changing materials, tradespeople, and workflow processes from a brick and mortar project to a virtual project can be slow and painful undertaking. At BuildCentrix we've already connected materials, people, and processes in the real world. Now we're connecting data from the real world to data from the virtual world into a seamless process for all trades.

From the project's model to the people, materials, equipment, and processes that make it happen, BuildCentrix will provide the digital and human interfaces to help contractors improve efficiency and reduce costs on every project. ∎

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The Benefits of
BLOCKCHAIN

By Joe Perraton

Construction is in the midst of a rapid transformation, from an "old school"industry to a technology driven lean and efficient industry. Every aspect of the industry is undergoing change from time the architects design a project all they way through to how employees and vendors get paid at the end of the work day. The industry is ripe for change due to the amount of time and materials lost on project due to inefficient process and a lack of detailed and timely project information and intelligence.

Disruptive technology companies are targeting many areas of the construction process to help deliminate waste. One of the newest technologies being used startup companies looking toprovide services for the industry is Blockchain. While Blockchain has typically been associated with cryptocurrencies they are two very different concepts. Cryptocurrencies are are presentation of value, similar to dollars or Euros, whereas Blockchain is a decentralised database which chronologically and securely records transactions of "value" which could be cryptocurrency, dollars or euros but the "value" could also be products or services.

In construction the value may be a contract or part of a contract. For example, if the agreed upon contract milestone is the installation of plumbing fixtures in a project, Blockchain can be used to administer the contract milestone from conception say in BIM to contractor payment. In this case Blockchain would be used to track and verify the products the plumber uses, when he's done the installation, when he requested inspection and when inspector has agreed to it's accepted in quality and when the inspectors approved the milestone for payment.

Another application of Blockchain is the ordering, delivery and installation of materials from suppliers. For example payments to a supplier can be staggered as materials are ordered, shipped, arrive on the job site and final payment can be made when the

Positive Disruption

Disruptive technologies are business processes that reinvent new markets or force larger companies and sometimes entire industries to reinvent incumbent business practices. Some great examples include e-commerce and ride-sharing.

Typically, it is a small company with limited resources, such as a startup, that successfully challenges a larger established business (or invents a new market) because they have the flexibility to adapt to the market and respond to threats. Disruptive companies eventually grow and adopt new customer segments over time. Usually, larger companies focus primarily on their most profitable demographics, overlooking less demanding customers and laying the ground work for disruptive companies to move in with new, more efficient ideas that appeal to that forgotten or neglected deomographic.

Risk-taking companies may recognize the potential of disruptive technology and target new markets to try and find ways to incorporate it into their business processes – the "innovators" of the technology adoption lifecycle. Larger companies typically take a more risk-averse position and adopt an innovation only after seeing how it performs with a broader audience. Companies that fail to account for the effects of new, disruptive technology may find themselves losing market share to competitors that have discovered ways to integrate the technology into managing labor and capital as well as other resources.

Blockchain and Disruptive Technology

Blockchain, the technology behind Bitcoin, is a decentralized distributed ledger that records transactions between two parties. It moves transactions from a centralized server-based system to a transparent cryptographic network. The technology uses peer-to-peer consensus to record and verify transactions, removing the need for manual verification. Blockchain technology has enormous implications for financial institutions, such as banks and stock brokerages. For example, a brokerage firm could execute peer-to-peer trade confirmations on the blockchain, removing the need for custodians and clearing houses, which will reduce financial intermediary costs and dramatically expedite transaction times. Learn more about Blockchain at youtube.com/watch?v=r43LhSUUGTQ. ▪

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products are installed. Every stage in the process can be stored and accessed in Blockchain provide more opportunity for direct transactions and less middlemen. Large project can be broken down to smaller blocks of work with materials and labor being tracked, inspected, verified and paid on successful completion.

By using Blockchain and BIM in tandem, along with other quickly advancing technology , there is an opportunity to create a leaner procurement method which better engages the individuals who make up a project team. This will result in reducing costs by removing intermediaries, where a client has more control and transparency of cost, time and scope on their project.

At a round table event the 2018 Autodesk University in Las Vegas, Autodesk CEO Andrew Anagnost, stated he believes Blockchain technology could be used to reduce corruption in the construction industry and reduce the lack of trust between stakeholders.

Since buildings are now built first in the digital world they can more quickly and efficiently be built and maintained in the real world by leveraging new technology. Blockchain represents a shared and transparent way to facilitate and administer contracts, reduce waste and improve efficiencies for everyone in the construction process from building owners and designers to contractors and suppliers. ▪

DASHBOARD REPORTING

By Joe Perraton

In the information age data is the new "gold mine" from which contractors extract cost and time savings from their field and shop operations. Getting timely and accurate data can reduce waste and improve margins for big and small projects alike. Today, many companies look to data visualization tools such as PowerBI and Domo to aggregate data and report on specific areas of their operations. While BuildCentrix supports and uses data visualization tools, we know not everyone has the time and resources required to implement these complex tools. We also know there are times when real-time interactive mobile reports provide users the information they need to quickly focus on urgent areas of operation that need attention.

This month, our development team is releasing a new reporting dashboard to help users see what's happening in the shop and field as well on specific jobs and phases. For the first iteration we've included these basic reports, which can be filtered by date range and job or project.

· Material weight by type and gauge

· Shop hours by job and labor code

· Field hours by job and labor code

· Order delivery "hit" rate

· Tool tracker summary

The reporting dashboard is a permission based feature that must be toggled on for users to be able to view the report data.

Our goal with dashboard reporting is to provide a basic set of generic reports our clients can use to find areas of improvement and cost savings. Once we get more client feedback we'll add more reports and further functionality such as a CSV download option for all reports. Anyone using PowerBI, Domo, or other data visualization can use our generic dashboard reports and access a full data set through our public API.

Like the saying goes, if you can't report on it you can't improve it. Instant access to good data creates actional opportunities to reduce waste and improve efficiencies. For more information on BuildCentrix dashboard reporting or data visualization please email support@buildentrix.com. ▪

CONSTRUCTION A MASSIVE UNTAPPED MARKET FOR TECH INDUSTRY

While other industries are being transformed by technology, construction remains largely ignored, a recent survey shows.

The British Columbia Construction Association (BCCA) released the results its recent State of Construction Technology survey which showed B.C.'s construction employers feel underserved by the tech sector.

According to the BCCA, B.C. technology companies are helping transform other sectors like gaming, entertainment, transportation and communications, yet research shows that many of the 25,000 companies in the construction sector haven't found the technology products they need.

The survey included more than 300 companies across all eight economic regions. It examined how aware companies are of the types of construction technology available to them in the administration, job site, and construction project categories. It also asked companies who have adopted the technologies how satisfied they are with them. The results showed that while the overwhelming majority of employers are aware of technology solutions and are interested in using them, the adoption rates are extremely low.

On average, 87 per cent of the companies surveyed were aware of the 14 subcategories of administration, job site, and project tools used in the construction sector;

Beyond estimating software, which is used by half the companies surveyed, the average rate of adoption of tools in each category is only 27 per cent.

The highest scores in the survey, 89 per cent average, were registered by adopters indicating they were highly satisfied with the technologies they are using.

"Making the switch to new technologies can be hard, especially for small companies that are more comfortable doing things the way they always have or who don't have the time or staff to research different options," said Stephen Richter, BCCA project manager. "But construction is changing, and with a skilled labour shortage and industry pressure to reduce costs and increase competitiveness, it's more important than ever to innovate and become a future-forward construction company."

The association is advocating for better cooperation between the two sectors and is asking B.C.'s tech sector to realize the construction industry as a massive business opportunity.

The association asked producers of products that might aid the industry to contact Richter at 250-475-1077 or stephen.richter@bccassn.com) and to also link employers to their company or products via social media using the #BCTechTools hashtag. ∎

THREE TIPS TO PROFITABLE CONSTRUCTION TECHNOLOGY ADOPTION

Construction productivity could increase by $1.6 trillion if it could catch up to the global economy: equivalent to about half of the world's annual infrastructure need

Forconstructionpros.com—Remember when you had no desire to have a camera, phone and computer in your pocket but now you can't imagine life without that cellphone? That's how tech adoption happens. You don't know you need something until you can't live without it. Unfortunately for the construction industry, tech adoption is happening far too slowly and it's impeding our growth.

The global engineering and construction sector holds the dual distinctions of being one of the world's largest industries, yet one of its least efficient. According to a study by McKinsey & Co., construction-industry productivity growth has averaged just 1% each year over the past two decades, compared with a 2.8% growth rate for the global economy as a whole.

McKinsey's research also found that if construction productivity were to catch up with that of the total economy—and it can—the sector's value added would increase by an estimated $1.6 trillion, adding about 2 percent to the global economy. Such a gain is equivalent to about half of the world's annual infrastructure need.

So why is our industry so slow to adopt technology when we know it will make our lives easier and make us more money? Contractors who are early tech adopters are using their experience to gain an edge over their competition. This should be you. This entire issue is packed with contractors who are leveraging technology to streamline their business and make more money.

If you're looking for easy ways to start integrating technology in to your company, here are a few:

Streamline Operations: Identify your pain points and then research solutions. Telematics systems are moving to asphalt equipment and the data the technology provides can improve maintenance schedules and operations. Plant control systems on the production side can dramatically improve your processes at the asphalt plant and can help protect your expensive plant investment.

Get Employee Buy-In: Construction technology is only as good as the workers who use it. If a company or project is investing in expensive tech like software or machinery for their workers to effectively do their jobs, it's only going to provide value if it's used.

Provide Tech Training: Purchasing new technology is the easy part. You won't see game-changing results until your employees

are thoroughly familiar and comfortable using it. No matter the technology or software, you need to also invest in a training and support program that will take adoption to the next level.

The pressure for contractors to adopt technology is real. The scale of players in the industry compared to projects available is increasing, making a more productive system attractive to contractors who need a competitive edge. The price of productivity-enhancing technology is also falling, making it more accessible to those who consider cost a hindrance to adoption.

More project owners are demanding data behind the work which is what should be motivating contractors to change. Players that don't rethink their approaches may be left behind and we don't want that to happen to you. Check out the technology the asphalt industry has adopted, or should become familiar with, in the pages of this issue and let's put more money back in your pocket by completing jobs faster and better. ▪

GPU AS A SERVICE (GPUAAS) MARKET TO CROSS USD $7 BILLION BY 2025

The GPU as a Service market is predicted to hike from around $700 million in 2018 to $7 billion by 2025, according to a 2019 Global Market Insights, Inc. report. The market growth is attributed to the increasing focus on product design and development across various sectors, such as manufacturing, consumer goods, and automotive.

Engineers, architects, and designers require fast and seamless GPU cores to run rendering and animation designs to build 3D models and attract investors and customers. The use of 3D modeling and animation is increasing rapidly due to the advancements in high-performance computing capabilities of GPU solutions. Animation is being widely used in movies, and the demand for higher graphical output is consistently growing, prompting companies to introduce advanced GPU solutions. Animation studios are partnering with companies providing GPU solutions for enhancing the quality of their animated feature films.

The continuously rising adoption of the IIoT across various sectors, such as manufacturing, automotive, and consumer goods, for product design, development, and data analysis is empowered and backed by deep learning, Artificial Intelligence (AI) and big data analytics that require high-performing GPUs for scaling and speeding up the process. The GPU as a Service (GPUaaS) market players are developing GPU specifically for deep learning and AI. ▪

TECHNOLOGY HELPS ADDRESS LABOR GAP

North America's labor shortage is affecting the construction industry to unsustainable levels in some locales across the continent. Approximately 65% of general contractors are having difficulty finding skilled labor, and in some specialized subtrades that number is up around 85%. Nearly half of firms interviewed in a US study claimed lack of labor meant delayed project timelines and higher bid prices. Companies have also increased pay and benefits in an attempt to attract workers.

A growing number of construction professionals are turning to technologies as a possible solution. Simpler user interfaces, company implementation support, and on-going education for construction teams has made these technologies more accessible to a wider market, including the construction sector.

Here are some of the challenges technologies can mitigate for construction professionals suffering form a labor shortage.

Field-office connection
Jobsite technology can mitigate or eliminate inefficiencies in communication and data transfer between the field, shop, and office. Being connected means clear, accountable communication and collectible data project managers can analyze to spot areas to increase productivity.

Automation enhances people power
The most obvious and well-documented example of this is self-driving trucks by Caterpillar that are changing the mining industry. Construction companies are also looking into driverless vehicles and drone technologies for surveillance and inspection in safety-compromised areas. At the same time, job prospects for mechanics are projected to grow 12% in the US, indicating with new technologies come new job opportunities for people.

Coordinate between softwares
BIM is the best example of how the construction industry has integrated technology to tackle the labor shortage. The programs allow teams to communicate and share ideas and communicate changes in real time. When BIM speaks to other software, including estimation, time management, and accounting programs, productivity goes through the roof.

Moving forward
Adopting technology in the construction industry demonstrates an innovation mindset and a willingness to be creative in meeting the demands of a busy, fast-paced industry. It is also a calling card for tech-savvy young people eager to test their skillsets and join a forward-thinking company with an eye on the future. With every struggle comes opportunity for growth, and construction firms experiencing labor shortages are sure to find the silver linings in technology. ▪