

EFFICICENCY CONSTRUCTION AI

A CHANGE TO DEAL WITH

FORTODAY

wakecap





DATA INTELLIGENCE THAT MATTERS TODAY

In The News

THIS MONTH

Sep 2020

CON-TECH

A change to deal with

04

DATA INTELLIGENCE

For today

06

BUSINESS BEYOND

Covid-19

08

10

IMPROVING

Efficiency with construction site Al

Uptown Dubai by DMCC Begins to take shape

12

WakeCap technology proves to be a reliable partner for Data Intelligence



WakeCap is a Real-time Location Service (RTLS) engineered to provide a contactless solution for any construction or industrial work site.

Our unique employee sensor connects with the purpose build Site-Mesh-Network to enable accurate and consistent reporting for business improvement and project management action. WakeCap is the ultimate, next generation - IoT solution, engineered to provide time, location, and motion analytics for all site activity. With WakeCap you will improve your site productivity, efficiency, and safety. Our WakeCap Analysis Platform and customized dashboards provide detailed insights to your site operations and the ability to constantly monitor: site workflow, site congestion, all activity, safety concerns, Employee tracing for health risks, such as Covid-19, and so much more.

WakeCap provides the SITE SOLUTION for you to make the intelligent decisions necessary for continuous and profitable business improvement.

A CHANGE TO DEAL WITH

The past 3 months have only heightened the need for construction to run the cleanest and saf-

est jobsite in order to maintain productivity throughout this time of crisis and recovery.

The term "Social Responsibility" has never had a stronger meaning than it does today with businesses needing to ensure additional care for each and every employee at both office and site.

ssessment of each jobsite to provide protection for the health of each employee has been a critical requirement for each company to avoid site closure – all while trying to maintain project budgets and progress.

This has been the practical responsibility of each employer as we have battled with just another pressure to the business process – as if it wasn't hard enough.

No doubt this has been a difficult year for all - and while we may be edging through the crisis period of this pandemic, we still need to face, head-on, with the longer and just as costly recovery phase.

What we are faced with in business today can only amount to increased costs with:

- ♦ Site slow downs.
- ♦ Increased need for Covid-19 protection.
- ♦ Reduced productivity.
- Economic slow-down affecting all industries.
- Immediate reduction of new contact award.
- Resulting in increased market competition
- ♦ Resulting in market price pressure in order to win new contract.
- Ongoing responsibility to ensure health security in the workplace – for many months to come.

You don't need a business degree to understand these pressures will have consequences to the financial operations of our business process and the inevitable bottom line. In order to survive we need to find new ways for operational efficiency that will take the "Work Smarter" message to a new level.

To survive in the business world tomorrow contractors must be ready to deploy

the most agile resources to support managerial solutions providing for rapid business response. Project and business management must be ready to identify real-time issues in real-time, no longer will tomorrow, or the day after, be good enough.

We have heard so often of how the construction industry has been slow to pick up the pace for digitization - and while this may be the case for most, it's not the same for all.

But what does digitization really mean? The Digital Revolution, which is also known as the Third Industrial Revolution is the shift from mechanical and analogue electronic technology to digital electronics which began in the latter half of the 20th century, with the adoption and proliferation of digital computers and digital record-keeping. Implicitly, the term also refers to the sweeping changes brought about by digital computing and communication technology.

Central to this revolution is the mass production and widespread use of digital logic, integrated circuit (IC) chips, and their derived technologies, including computers, microprocessors, digital cellular phones, and the Internet. These technological innovations have transformed traditional production and business techniques.

During the past 10 years there has been significant progress with computerized services with the customization specific for the construction industry. Such development includes customized EPR systems with developing artificial intelligence technology for document scanning and account processing.

Building Information Modeling (BIM), a process that begins with the creation of an intelligent 3D model and enables document

management, coordination and simulation during the entire lifecycle of a project (plan, design, build, operation and maintenance).

And more recent initiatives for the Internet of Things (IoT), meaning: "the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data" adapted to provide data reporting in various forms of intelligence that could provide insight to real-time activity and process.

While it may be so that some companies within the construction industry are slow to adopt digitization it's not true for all – many companies have implemented ERP, are using BIM and similar digitized design systems, and others have already incorporated specialized IoT systems – all of which have provided a higher level of intelligence to support the business operations of the contracting company today.

The consideration is, are you implementing systems that support the SMARTER operation of your business – are you looking to improve efficiently, productivity and, as such, increased profitability?

During the next 12 -18 months the construction industry will face - head on - the financial pressures associated with the COVID-19 pandemic and consequential economic restrictions that will affect business profitability, no matter how positively you try to spin the narrative.

We must be ready to implement systems and procedures to our business to discover more efficient means to drive business success – ARE YOU READY?

Written by: Phillip Higgins



DATA INTELLIGENCE

for today's construction site

The WakeCap Solution allows companies to improve operations on construction sites by giving crew chiefs, project directors, and managers a much clearer idea of who is on the site and how well they are moving around relative to their work packages. At the heart of the solution is a helmet-mounted, ultralight, ultra-long battery device that's easy to use while providing visibility into the workforce activity and protecting worker privacy.



The WakeCap Solution makes any construction site a smart worksite. Every worker wears a standard safety helmet fitted with a lightweight, WakeCap designed sensor. This sensor replaces the standard ratchet knob on a helmet, making it clean and out-of-the way to ensure wearing it feels no different than any other helmet, and to ensure it's never left behind. The device connects to a WakeCap wireless mesh network installed on the job site to guarantee coverage even in challenging structures and to promote a safe working environment and a more productive workforce.

The Digitization of a Construction Worksite

Replacing clipboards, manual recording, and labor-intensive tracking of time and location is a thing of the past with modern Internet of Things (IoT) products for Construction. Today we have the ability to automate data collection for input as the backbone for analysis and automated reporting.

The WakeCap system is a major step forward for construction site digitization. It's the ultimate in next generation data intelligence – capturing data, as it happens, to provide site management with the ability to:

- Ensure workers check in and out accurately and find the physical location of all workers on the site throughout the work day, without being able to track them at home or off the job site
- Map the construction sites on the blueprints or 3D imaging and overlay workforce location and movement in relation to all zones of the site, from the basement to the highest floor.
- Monitor activity in real-time with indication of the worker is moving or not.
- Detect falls, since the device identifies any event of sudden aggressive movements to immediately report the probability of a fall greater than 1.5 meters and take appropriate emergency steps.



WakeCap is a true IoT System

The definition of IoT continues to evolve as we see the costs drop while still improving with the convergence of real-time analytics, machine learning, powerful sensors, and practical battery life.

A simplified definition of the Internet of Things (IoT) is:

"A network of Internet connected objects able to collect and exchange data."

One of the advantages of the WakeCap system is its ability for two-way communication. WakeCap will be able to know if workers venture into unsafe zones, or if there is a need for immediate evacuation. Signaling to an individual worker is even possible, with the worker acknowledging by a simple press of the button built into the helmet harness. Like other mature, secure, sophisticated but simple IoT products, the WakeCap technology is built on the ability to upgrade the helmet with firmware and security updates, via the network, to prevent operational down-time.

Immediate Usefulness

The WakeCap solution provides immediate return on investment to contractors who adopt it. Several use cases are offered out of the box, with the easy option to extend to more key metrics based on customer ideas. The comprehensive, web-based, user-friendly, dashboard includes:

- ♦ Attendance Automation
- ♦ Location of crews and workers across the site relative to work zones defined by the customer.
- Key productivity metrics, like how much of each shift's time is spent in designated work zones vs. being stuck waiting for elevators or traveling to and from tool warehouses
- Increased safety by knowing where workers are, and by speeding emergency evacuations and identifying stragglers
- ♦ Site performance comparative analysis

WakeCap a Journey - Not a Software Solution

The benefits of implementation of WakeCap on any construction site are both tangible and intangible. Every company wants to see a return on investment for any capital expense - with WakeCap the cost saving starts from day one.

But the journey doesn't stop there. Integrating the operational data from the WakeCap solution with your core business processes provides the competitive edge needed for your business to work better overall, learning from other industries to operate like a 21st century construction organization.

Most construction firms track costs by associating work to cost codes reflected in certain work types associated with the construction site. The ability to link the time worked by all crews to these activity codes allows cost controllers the opportunity to monitor, in real-time, the site productivity from any office.

WakeCap takes the nightmare out of site cost management. It automatically reports "time spent active" in each allocated zone, divided by crew, shift, person, trade, or subcontractor.

"We take the guesswork out of site performance to highlight what needs to change to improve productivity, performance and site efficiency".

The WakeCap journey begins when our clients recognize their current business processes are hindering productivity.

But with the right tool for the right job, organizations can get much deeper visibility to understand and monitor performance, with senior management better able to make decisions that altering and speed their current business.

WakeCap is your eye on the ground. We can show you the problems for immediate action, today - not tomorrow. The first step is knowing the true nature of your site activity. With this knowledge you'll have the power to implement real CHANGE FOR THE FUTURE.

IMAGINE THIS You are the project manager with the need to adhere to a tight timeline. You're reviewing the reports provided by your team and everything seems to be going according to plan.

You open your WakeCap system to notice that the actual work hours in Zone 1, Floor 1 are 60% lower than the planned hours for the last 2 days. You immediately call the engineer responsible for this zone, who tells you the chief and crew are all waiting in the yard because the material hasn't been shipped to the site yet. The 20 workers have been idle for the day and there could be a costly consequence for ongoing site. Now your blood begins to boil - you escalate the issue to the store manager, who ensures you the material will be there tomorrow morning. With WakeCap at your fingertips, you've identified an issue early before it got too far out of hand.

If you've ever managed a site before, you're probably remembering other, typical real-life situations as this.

BUSILESS COVID 10

Written by: Phillip Higgins

OVID-19 has changed the way we conduct and manage business activity forever. During the past 3 months many have been forced to work from a home environment, or a combination of both work-from-home and work-from-office. This requirement has driven new business initiatives in efforts for us to "stay connected" with colleagues, customers, and suppliers that have changed the paradigm for what is acceptable in business.

Working from home has been an adjustment for employers with some implementing systems to monitor work commitment accountability; while others quickly extended higher levels of trust to the employee expecting they would remain focused to the workflow with the same dedication to their working tasks as if in an office environment. This new normal required immediate adjustment as adoption of the new requirement was without option.

A working from home arrangement for employers, prior to Covid-19 was rarely an option. Being remotely connected to the office presented concerns for accountability, communication, and control. As we slowly emerge from the quarantined environment, the big question for today is, "will the past 3 months change the way employers view a work from home arrangement in the future"?

Working from home required adjustment for the employee as well unless there was some sort of previous experience. The work from home activity required a home office setup and a quiet place to work - this may not have been suitable for all. Others, who were more socially connected to the office may have found the lack of personal interaction a demotivating fact for their ability to remain task focused. Yet others thrived in the experience with increased dedication and commitment to the opportunity. With less distraction they were able to complete their required assignments with increased efficiency and a new-found capability to accomplish more in significantly less time. Sort of like the day before you go on vacation – where you just seem more focused to complete what needed to be completed – if only we had that same dedication every day!



We were quick to adopt increased use of VoIP technology in the workplace to make vital business connections; meetings became virtual with online scheduling for suitable appointment times. What surprised me most of all was how we become more efficient managers of our time. We were forced to be on time, meetings had a start time and a scheduled end time to create direct engagement to the subject and the need for the meeting. We rediscovered our ability to remain attentive to conversations without mobile phone distractions. I am sure some learnt that the phone has a silence mode or an off switch. If there was an urgent call, we were able to mute the online meeting so not to distract all others in the virtual meeting room.

While we lacked the physical and social connection of meeting in person the online meeting demonstrated efficient values that have changed the business platform today and forever.

As the world begins to end the pandemic lockdowns and as people return to (a resemblance of) normality what we have experienced during this time of crisis will dramatically change the business platform for years to come. Working remotely from the office has proven an advantage for many organizations and online meetings have demonstrated efficiencies that had not been considered in the past. I am confident that we will remain engaged to the remote meeting environment forever even as we migrate back to our workplace office location.

While you may have embraced the online meeting within your own company you need to consider that so has nearly every other company. This new communication style will change the way we connect in the future with clients, prospective contacts, and suppliers.

Let it be known - online meetings are here to stay, a new communication style that has quickly become part of the new normal for business.

No matter if your connection is in the office, the home, or in another country - online meetings are a more efficient management of our time and resource. Driving one or two hours, or flying ten hours, for a one-hour meeting may well be a "thing of the past" forever.

IMPROVING EFFICENCY

With Construction Artificial Intelligence

Artificial Intelligence is all around us – in our homes, cars, schools, and in our businesses. While the automotive, healthcare, communication and other industries have adopted Al as an integral part of their business processes, the construction industry is still hesitant to adapt to Al-led processes.



Even though construction is one of the top 5 industries that drive the world economy currently, much of it remains undigitized. However, the industry is finally opening to technological advancements that have the potential to change the construction sector for the better.

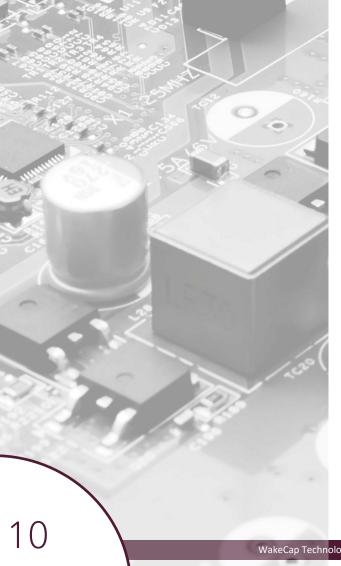
Countries across the globe, particularly Middle East and North Africa, have reported steady growth in their construction projects over the years.

Saudi Arabia is shaping up to be the largest construction market in the Middle East, according to Global Data. The growing population and economy have resulted in a rise for construction work with the countries "Vison 2030" to diversify economic reliance on the oil industry, only, being a contributing factor for future construction industry growth.

Similarly, it is predicted that construction in Egypt will expand by an average of 11.3% in the next few years and currently ranks as the 3rd most active country for construction activity in the MENA region for construction activity.

Likewise, office buildings and retail stores, while experiencing a down-turn during the Covid-19 pandemic, are still expected to be a growth contributor for the economy in the United Arab Emirates with estimates for growth to 2030. This indicates an active progression for construction in the Middle East region.

Despite consistent growth, the construction industry is yet to



witness the widespread adoption of AI as compared to other commercial enterprises.

AI – The Solution for Construction Efficiency

Artificial Intelligence enables computers to demonstrate human-like intelligence. Advanced algorithms, analysis data and then make action to perform tasks usually undertaken by humans.

Businesses and industries worldwide are adopting AI for their core processes and business models.

According to a report published by PwC, 72% of business decision-makers consider AI to be crucial for giving their business a competitive edge. Growth is shown to be a staggering 52% from 2017 to 2025, such that companies in the construction industry can no longer afford the risk of ignoring the advancement of artificial intelligence in business practice.

Yes, it can be daunting for teams to adopt the latest technologies, but when AI and machine learning contribute to more safe and efficient job sites the return on technological advancement with be worth it.

When we talk about construction and artificial intelligence, we are not talking about robots performing trade tasks yet—although this is happening, but we are talking about AI solutions to help make your construction business more efficient. AI devices provide an overall visual of construction sites from Virtual Reality goggles to mini robots and even

the WakeCap construction hardhat. These offer clear visibility of on-site happenings, issues and inefficiencies that can be viewed for management correction.

Devices that track construction sites and worker behaviour can help identify discrepancies in the system and SOPs. They are also a great help to businesses that require data for future decision-making for training and task allocations.

Optimizing the Construction Processes

Conventional systems make it quite challenging to track the construction process. However, applications powered by AI can manage the scheduling and allocation of tasks to increase your business efficiency manifold.

Sixty Thousand (60,000) fatal accidents occur on construction sites throughout the world – In Africa, 26% of all injuries considered fatal occurred on job sites.

It is possible to prevent such occurrences by installing safety cameras or devices near construction workers – these can detect unusual or dangerous behaviours and alert the construction company in real-time.

Many companies, like WakeCap, offer digital solutions to improve safety on construction sites, intelligent solutions that are now ready of immediate site deployment as stand-alone systems or with integration to existing site management software.

Quality Control with Better Data Analytics

Drone collected images using AI can be used to compare construction site models and inconsistencies. Issues and potential threats to the building structure, construction material, and the site workers can be resolved with immediate action.

Artificial Intelligent processes will know your customers better than you do, using stored data to predict trends to propose a combination of services that will service client needs.

Al systems use sensors to understand signals and patterns, and the resulting data can provide real-time solutions to avoid mishaps, decrease delays increase deliverables and reduce costs.

With AI systems data is retained, tagged, and categorize for analysis to make recommendations for future decisions relevant to materials, cost, and design.

Prevention of Cost Overruns

Mega construction projects, the kind we are used to seeing in MENA territory, are often built over budget - despite employing the best managers and project teams.

Construction business now has the power of Artificial Neural Networks that can correctly predict cost overruns based on prior data as well as information on project scope, contract size and experience of project managers.

Artificial Intelligence makes it easier than ever before to envision realistic timelines and true future project cost.

Al Is the Future For Construction

Experts forecast that over US \$4 billion will be spent on AI in construction in the next six years – it seems like the construction industry is finally ready for digitization, especially in the MENA region.

WakeCap Technologies provides construction site safety and enhanced productivity solutions using Artificial Intelligence. WakeCap offer an Al-powered device that can digitize on-site information ranging from attendance, logistics, tracking activities and safety measures.



he Uptown Tower, a 81storey, 340-meter-tall,
building will provide breathtaking views of Dubai's waterfront
and iconic skyline. Designed by
Adrian Smith + Gordon Gill Architecture, the Uptown Tower is designed
to replicate the brilliance of diamonds through its faceted glass façade to illuminate the interior spaces with natural light while filtering
out harsh glare.

DMCC, the world's flagship Free Zone and a Government of Dubai Authority, is

the master developer of Jumeirah Lakes
Towers (JLT). DMCC awarded the construction contract to BESIX, through its
Dubai-based entity Belhasa Six Construct, to build the first super tall tower
in its Uptown Dubai district.

Ahmed Bin Sulayem, Executive Chairman and Chief Executive Officer of DMCC, said in a statement, regarding the award to BESIX, "Awarding Six Construct the contract to construct Uptown Tower is an important step in bringing the muchanticipated Uptown Dubai district to life. The quality on show from the bids received was incredibly high. This reflects the level of interest from the global mar-

ketplace to partner with DMCC and be a part of an ambitious project that will add a new landmark to Dubai's iconic skyline".

"Winning this contract is a significant moment for Six Construct given that DMCC's Uptown Dubai district is one of the most exciting projects in the region, and we look forward to working alongside DMCC to deliver to the emirate of Dubai a truly unique and inspiring new destination," said Olivier Crasson, General Manager, BESIX Contracting Middle East.

This impressive tower has now exceeded the 20% completion stage and sits at the





Having the capacity to monitor the geolocation of each and every worker will provide management teams with valuable information....

Lius Miguel Monterio



heart of the Uptown Dubai district – a 24-hour neighborhood with high-end dining and retail options, a central entertainment plaza and several high-profile hotels and businesses.

AccorHotels is set to bring its luxury hospitality and residential boutique brand to the project, with Uptown Dubai being the brand's debut property in the Middle East.

Talking about the project development, Paul Ashton, the Executive Director – Property with DMCC said that the, "Uptown Tower will deliver a compelling proposition for employers looking to attract and retain talent due to its onsite lifestyle amenities, walkable proximity to thousands of residences in the area as well as substantial retail and entertainment options, and metro accessibility through a planned air conditioned link bridge. Strong interest has already been registered by prospective tenants".

At a planned height of 340 meters, the Uptown Tower will push its way into 14th place on the tallest building chart for topped out buildings in Dubai, pushing back icons such as the newly completed SLS Dubai Hotel and Residences that today stands proud at 336m, and the DAMAC Residenze building that saw completion back in 2018 at a height of 335 meters. Holding this position is just a matter of time until the icon project is built.

While known as the "Uptown Dubai Tower", the current building in con-

struction is part of the wider Uptown Dubai project development.

BESIX is making impressive headway to the project's construction, despite recent difficulties that the Covid-19 pandemic has thrust upon business activity. Fortunately, construction progress has remained for most construction sites in the Middle East region and the Uptown Tower is no exception.

To ensure continuous site efficiency BESIX has implemented the latest technologies of construction site digitization, technologies that have enabled superior site control and the ability to assess the construction progress in real-time – both in planning and in execution.

In a recent webinar interview with WakeCap, Luis Miguel Monterio, Project Director at BESIX explained how WakeCap has been a contributor to the digitizing success of this project, providing the ability to assess real-time site inefficiency that ensured real-time corrective action could be taken.

In a statement to WakeCap Luis explained that, "Construction and infrastructure projects must accommodate hundreds, and in some cases, several thousand workers. Having the capacity to monitor the geolocation of each, and every, worker will provide management teams with valuable information in terms of improving both workers' health & safety, and efficiency in the workplace.

Each sensor located on-site has the capacity to provide information about temperature and humidity, allowing our HSE management teams to take real-time measures with respect to workers' safety, particularly with respect to monitoring heat stress. Having a platform like WakeCap in our project has provided us with valuable information on workforce geolocation trends, allowing our teams to take improvement measures on the project's logistics, especially in terms of optimization of site access. location of welfare facilities, and vertical transportation".

Luis said, "In the current situation, through WakeCap, we can get historical data on workers' movements if a worker tests positive for Covid -19".

The Uptown Tower by DMCC is scheduled for completion in 2022 and with the site management that BESIX has implemented for this project - delay is not an option.

Covid-19 Tracking

To keep job sites open in 2020 all construction companies were required to implement suitable health management controls to ensure employee safety at site. This included implementation of regular heath checks before entering the site and monitoring employee activity to ensure suitable social distance was being maintained.



Case Study

IndustryConstruction

Activity
Covid-19 Tracking

Increase Site Efficiency
Automated Action

Specific Objective

During the early stages of the 2020 covid-19 pandemic, our client identified an immediate concern for one of their sites. An employee had contracted Covid-19, presenting a risk for the closure of the entire site by government official bodies.

Our client was more concerned to the well-being of all employees and sub-contractors and so turned to WakeCap for support. Their requirement was to understand who had been in contact with the contagious employee during the past 14 days - asking, "what were his site movements during the 14-day period. Was it possible to understand the high risk considerations for this new construction

The WakeCap Solution

The WakeCap system was not built specifically to monitor for the Covid-19 disease, but the WakeCap System was built to record employee movement, in real-time, to create detailed data points of every employee 24/7. This is achieved using a standard construction hardhat fitted with the revolutionary WakeCap Knob with built-in specialized sensors that wirelessly connect with the WakeCap site network.

The WakeCap System was deployed to this particular site months earlier and so we had already collected the data necessary for our team to analyze the movements of this one employee. We were able to provide a detailed report that showed the movements of the employee during the past 14-days and prepare a comprehensive list of other employees he had been in contact with during the

The Proven Results

The quick response from the client and the WakeCap development team ensured the site remained open during a very difficult time as we all came to understand the new requirements for management of the Covid-19 2020 pandemic.

Since this time our development team has worked to implement an automated report system, specific to Covid-19 Track and Trace. Detailed reports have been built into the WakeCap Dashboard that today allows our customers to keep a close connection to site movement should any employee, or sub-contractor, be reported to have contracted the Covid-19 disease.

New features built into the WakeCap dashboard allow our client to generate lists of site personnel who are at higher risk of contracting Covid-19 due to the time spent with an infected worker and within regulated social distance requirements. Our clients are able to identify affected employees and sub-contractor affected trade roles due to previous interaction with infected workers. Our clients are able to keep their sites safe as the system maintains lists of quarantined workers to identify who is disqualified from returning to site - both employees and sub-contractors.



The Challenge

Managing our response to Covid-19 has been a challenge for all, not just the construction sector. During the 2020 crisis period most constructions sites remained open - however, due to various quarantine regulations and the affect the crisis had for all industries, work activity slowed.

To keep our economies moving the construction sector needed to remain active and with the support of governments and various authorities, all around the world, we were able to see continuous site activity.

Covid-19 presented new challenges to ensure the safety of all employees everywhere. New health measures needed to be implemented requiring immedi-







Pier 9, The Embarcadero San Francisco, CA 94111 United States P: 415-409-8672 us@wakecap.com

United Arab Emirates

302 & 303, Makateb-2, Dubai Production City United Arab Emirates P: +971 4 589 6359 info@wakecap.com

Saudi Arabia

Office 27 - 6882 Al Takhassusi St. Al Mathar Ash Shamali Riyadh, KSA P: +966 531 991 9115 info@wakecap.com