

# White Paper

# Construction Workforce Productivity: Digitalise or Die

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## **Executive Summary**

With industry indicators pointing towards some tough times ahead for construction, it goes without saying that the companies with higher productivity levels will be well-placed to survive the storm. This paper explains why, for many, it will be a case of **Digitalise or Die**.

Productivity gains amongst the construction workforce have been virtually non-existent for the past 20 years, yet through new and emerging technology the status quo may finally be about to change. With COVID-19 acting as a catalyst for rapid digitalisation in the management of construction workers and processes, the opportunity to improve productivity is ripe for the taking.

This paper explores several productivity inhibitors in the construction sector, namely:

- Transient Labour & Poor Organisation
- Complex Labour Supply chains
- Performance Management
- Labour Scarcity
- Lack of Training Standardisation
- Weak Communications.

Neil Norman, CEO and Founder of MSite, looks beyond the technology that will deliver immediate safer working conditions during the current COVID-19 pandemic and explores the longer-term opportunities for technology innovation to solve the construction industry's age-old conundrum of low productivity.

# Construction Workforce Productivity: Digitalise or Die

## Introduction

In "The Wealth of Nations" Adam Smith stated productivity and therein growth lies in the continued division and specialisms of labour complimented by the progress in technology. In many ways construction embraces the core aspects of Smith's theory by virtue of the varied trades congregating on a build project, yet productivity gains have remained non-existent for the past 20 years. The lacklustre gain in productivity and the gap when compared to other industries is staggering; so why is the Construction industry lagging so far behind?

## The Workforce Productivity Problem

The key principle to be lifted out of Smith's productivity hypothesis is that labour divisibility, trade specialisms and incremental technology improvements deliver productivity. However, there are a series of subtle factors that are not delivered in the Construction ecosystem: standardisation of the task at hand coupled with gains through familiarisation, the "supply-chain" effect where sub-tasks are assembled in a time-efficient manner and a working environment conducive to uninterrupted production where workers are familiar with both their physical environment and their colleagues. By their very nature, Construction sites are all different, temporary and represent an assembly of sub-Contractor companies bringing people together that are unfamiliar with each other's work and standards.

## Figure 10: Labour productivity Whole economy with sector breakdown, 2007 to 2017

Output per hour (£), seasonally adjusted, chained volume measure, UK



Source: Office for National Statistics- Labour productivity: Breakdown of contributions



Construction lags many industries with recent McKinsey research evidencing Construction has delivered no productivity gains in recent decades in contrast to Manufacturing, which has doubled productivity in the same timeframe. But Construction is different with a series of key inhibitors that keep that elusive productivity at bay:

- Transient Labour & Poor Organisation: projects last for relatively short periods ranging from 6 to 36 months with labour onsite for varying periods within that time, making it difficult to align work with workers.
- Complex Labour Supply chains: typically, the main Contractor will only provide 10% of the labour force with the remainder being drawn from a complex, multilayered supply-chain across numerous companies, each with their own ways of working.
- Performance Management: effectively non-existent at the Worker-level due to the short-timeframes, everchanging priorities and demands and the difficulty in rolling out accepted standards or protocols across the Labour supply-chain.
- Labour Scarcity: Contractors are in constant fear of losing their sub-contractor Workers to another nearby project due to labour supply constraints and consequently they are nervous of "imposing" onerous rules or processes.
- Lack of Training Standardisation: whilst there is a Certification standard in place for certain Trades, this does not translate into a standardised approach to the continuous improvement of labour skills through effectively delivered and industry-standardised training.
- Weak Communications: communication with the worker is often paper-based, third and fourth-hand and lacks any form of interaction or confirmation that important information has been received.

# Low Productivity in Construction Diagram



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#### Institutionalised Obstacles to Digitalisation

Construction has been notoriously slow at embracing the Digital revolution that has engulfed most other industries in the past decade, but there have been recent signs that this is changing in a number of areas including Design, Tendering, Planning, Sub-contractor management and Invoicing. However, Workforce Management remains the last bastion of the "paper rules" generation. It is important to point out, however, that the introduction of "technology" does not denote "Digitalisation". Digitalisation is only achieved when technology, people and process align to drive continuous improvements in productivity through improved efficiency, better joined up processes and data insights. But there are numerous obstacles that the Construction Industry needs to be brave in tackling head on:

- Standardisation: put simply, it rarely exists in Workforce management. Each site adopts different standards and processes from the data they collect on registered workers onsite, to the way they interface with Sub-contractors, to the way they define Trades, to the way they perform inductions. This makes data collection, normalisation and comparison difficult.
- 2. In-house Technology: in-house grown solutions were the norm and necessary in the absence of vendor solutions. However, there is a danger that these boutique, internal "development" capabilities are embedding bad habits and superficial solutions that stop evolving once the in-house "development project" is closed. Consistent with other industries served by specialist Technology Vendors, "Off the Shelf" solutions enable Construction companies to benefit from huge annual software development budgets and a continuous improvement agenda because of competition between the vendors. No inhouse Development team can compete with these deep capabilities, let alone keep up with the latest technology and security knowledge.
- 3. Site vs Centre: fed by the irony of ironies, the distributed nature of construction site P&L obligations at site-level is constantly in battle with the central Finance and Commercial teams who are trying to increase Corporate margins.

This behaviour is inherited across the operation, with sites often holding the power and preventing the cross-company adoption of standards, the opportunity to effect collective buying power or the ability to invest in Enterprise-level software. If Tesco allowed every Store Manager to purchase their own EPOS systems, how would the company oversee price management or stock replenishment?

- 4. Worker Buy-in: in order to gain Worker input and cooperation, which is imperative to the Workforce Digitalisation agenda, there must be something in it for them: convenience, information, empowerment. Without buy-in, there will be pushback, although "pushback for the sake of pushback" should be identified and challenged. Far too often unfounded challenges will be raised: e.g. that Workers will not allow third-party apps on their phones despite readily downloading and using easyJet, Facebook and Betfred apps without question.
- 5. Cost instead of Value Purchasing: Outside of the larger Prime Contractors, the Construction industry is not used to making significant software-based investments and consequently applies the same procurement methods to purchasing software as they do plasterboard. This often results in a cost-based approach rather than a value-based approach. Many if not all of the scalability benefits are enabled by great software.





## **Enhanced Productivity in Construction Diagram**

## Predictions

Covid-19 has been a "sit up and smell the coffee" moment. Many aspects of the Construction process that have been left in the "too hard to solve" bucket are now being reviewed. A sector that is typically nervous of investing in and embracing new technology is being forced to stop dithering and examine how it can be utilised to re-engineer the people and processes involved in the construction of buildings and infrastructure. And right at the centre of this change must be the way in which the Workforce is engaged and empowered.

Other industries slow to change are already feeling the disruptive influence of Digitalisation: Travel, Retail and

Banking to name but a few. And in each case, the disruption has come from Companies that are not traditionally in the target space, but have perspective and look at the sector and think "there must be a better way", such as Amazon, which has completely transformed the Retail sector, rented technology infrastructure and logistics. We predict this change will not come from Construction Companies that buy technology point solutions, but those that use data to inform and re-engineer processes. A key area of focus must and will be Labour, which represents 35% of Construction costs and is a prime cause of delays without optimisation. In the coming years, the Digitalisation of the designbuild process, offsite construction and sub-contractor systems integration will continue to expand and will yield varying degrees of productivity through a combination of improved integration, offsite design and production reducing onsite effort or reduced delays through poor quality or safety issues. However, the greatest opportunity for productivity improvement will reside in Workforce Management because the Worker is at the fulcrum of all these elements as the resource that "gets things done".

Initially, the productivity gains will disappoint against expectation because the dramatic increase in data collection and processing will be inhibited by the non-standardisation of sites. But this will force change and a new wave of solutions will be introduced to focus on Workforce planning, engagement, realtime task allocation and general job data collection to identify inefficiencies in processes, better predict delays and direct resources more effectively. Through new levels of "direct-to-worker" connectivity driving improved engagement and empowerment with information, the worker will be able to better integrate disparate processes, act on anomalies to the plan or correct failures with greater speed and work more collaboratively and cohesively across disparate organisations. The new "Digitised" Worker will be the convergent point of unlocking all these combined productivity gains brought about by digitialisation. Given the scale of the opportunity it is likely, however, that new, non-traditional Construction Prime contractors will enter the market, perhaps to build their own infrastructure, for example Amazon building its own warehouses.



## Digitalise the Workforce or Die

People unfamiliar with Construction may be shocked to discover the major Contractors on average generate lacklustre net margins of 1.5%. This does not leave much room for failure – or pandemics! Yet Construction Companies are their own worst enemies because they continue to entertain the methods of the past in the hope they generate different results, procedurally and financially. Fundamentally, things need to change and the obstacles to change already introduced in this whitepaper need to be addressed head on otherwise their days are numbered and the future will be reserved for the bold.

But first, it is important to be clear about what we mean by "Digitalise the Workforce". It does not mean introducing a collection of software solutions that address the myriad of workforce challenges from inductions to biometric access control to work scheduling. It is more than this. It is about providing a Digital ecosystem that enables the Project, Worker and Supply-chain to operate together in concert to deliver high-quality product, cost effectively and safely. But this means trusting the Workforce and inviting them into the ecosystem. It means putting technology into their hands to inform, engage and empower them as opposed to only affording technology to the QS's, Project Managers and Supervisors. Ultimately, notwithstanding all the challenges working at a construction site presents, a new wave of productivity solutions need to be put in the hands of PMs, Supervisors **and** Workers in order to deliver a Direct-to-Worker level of engagement and feedback, all in real time.



# True Digitalisation Achieved Through a Fully Digitised Eco-System

Key areas include resource scheduling, job and time allocation, performance reviews, feedback and training, skills and competency management, advanced communications and engagement, electronic Goods Receipting etc. Basically, all the processes that demand people interaction. And once in place, the data collected will drive a new level of insight. The key difference here is interaction, because this is where much of the ambiguity stems: current Construction systems work on the principle of design, instruct, do, check with the move between each step thus incurring delays due to clarification, validation, confusion and misalignment of processes. Through better information that will result from digitalisation and enabling real-time informed decisions at the point of task, productivity will improve.

There is a huge "but" though: different to many Office working environments, it is challenging to build up a managed Worker Identity repository that brings together Prime, Sub-Contractor and one-man-band tradesmen into a single, trusted and managed Identity repository. Unlike traditional office working environments, Construction workers are not afforded the traditional "IT Account Credentials" such a Corporate email, Payroll number or mobile phone because most do not work for the main Contractor, but instead are associated with a wide range of sub-Contractor organisations. It is imperative to have an accurate, current and governed (in terms of biographic, trade, Credential and other important Worker information) Workforce Identity repository that overlays the complex web of sub-contractor organisations working on the site in order to drive the activity authorisations that underpin a Workforce Management ecosystem.



## How to Digitise a Workforce?

Firstly, recognise that empowering, engaging and better interaction with your Workforce will deliver significant productivity gains. Secondly, contact the MSite team at digitise@msite.com and we can show you how we have taken our customers on a Workforce Digitalisation journey and the benefits it has delivered. MSite is a Workforce Productivity Platform platform that uniquely offers a dynamic series of tools across Registration, Induction, Productivity and Site Attendance and currently manages 1.2 Million Construction workers in the UK.