



# Unlocking 50% Increase in Construction Site Productivity

Three things you should do in 2022

# Now is the time to unlock 50% increase in construction site productivity

Increasing productivity of the construction industry is a strategic goal set by the UK Government.

This guide highlights new site management practices in terms of MMC, Modern Methods of Construction, and focuses on the on-site process improvements. New practices are applicable not only in housing but also in any other type of construction.

Construction is often described as a complex process. In this guide, however, we speak about three simple things every construction site manager or property developer wants to achieve: delivering construction projects on time, and within the agreed budget and quality standards.

One of the most significant barriers towards this goal is the huge amount of non-productive work, or waste, as it is introduced in lean production.

There are several types of waste, like waiting, defects, unnecessary moving of materials around the site, overproduction, etc.

If we really want to improve the productivity of construction projects, we have to eliminate the root causes of waste and reduce the amount of waste in the process.

For example, a recent research study conducted by the Finnish Aalto University shows that the improvement potential is at least 50%!

**This guide introduces three simple steps and tools for productivity improvement on site. The best thing? You can deploy these tools today.**

**Step 1.** Include digital tools in pre-construction planning. Automate collection of data. It helps you manage the site and incorporate continuous waste monitoring into your daily routine.

**Step 2.** Make the waste visible through real-time situational awareness and keep up with the schedule.

**Step 3.** Utilise real-time productivity analysis and shorten lead time.

The productivity of the whole industry will improve when the same process is followed from one construction project to another.

Enjoy reading! We hope this guide will give you some insights and help you on your way to more productive construction.



Kari Hirvijärvi, CEO of Aiforsite

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# 1. Digital pre-planning helps to manage the implementation of works on site

## Current state

The adoption of innovations and new digital tools in the industry has been slow. Pre-planning of construction projects is still too often done using old familiar tools and planning conducted in isolation by different parties.

The cooperation of the parties involved in the process often lasts only during a single construction project, which makes it difficult to analyse the entire process and improve operations from one project to another. Simultaneously, the importance of speed of learning and knowledge sharing is emphasised.

Adoption of new digital tools as the construction site is ongoing is difficult, because there is no plan or budget for them. How can this be fixed?

## Trend into reality

One measure for better preplanning and productivity growth in construction is digital building information modelling (BIM). This would prevent errors and duplicated work, and enable better coordination of design and implementation.

In the UK, according to the latest report by UK BIM Alliance, 65% of respondents said their organisations are currently implementing BIM.

Remember to include the costs of new digital tools in profitability calculations and budgeting.

In addition to BIM, there are plenty of other digital tools that you should consider already at the pre-construction planning stage

By doing so, you will ensure that the costs of these tools are included in the project's profitability calculations and budgeting before the works on site are commenced.

When digital tools are included in the project plan already at the pre-planning stage, they will be more likely to be deployed. The benefit of new tools accumulates over time, as learnings from previous projects can be smoothly integrated into the pre-planning stage of next projects.

Such technologies like drones, 360 degree cameras, sensors for accurate conditions monitoring on-site, and resource positioning support your daily management on site from the beginning to the completion of the project.

## **What we predict:**

1. Companies utilising data and digital tools during pre-construction planning and on-site, gain a significant competitive advantage over traditional players.
2. The incorporation of BIM will continue to grow and become required by owners and developers both in the private and public sector.
3. Data and digital systems make pre-planning and implementation more productive and accurate, which will lead to cumulative savings down the line.

## 2. Real-time situational awareness is central to keeping up with a schedule

### **Current state**

Delivering the construction project on schedule is one of three main priorities for the site management and developers.

Real-time situational awareness is thus one of the most critical factors to success in it. In addition to this, performing of works in agreed time and order is one of the key ways to improve productivity.

During the last decade, the takt production method, well-known in lean manufacturing, has begun to spread into the construction industry.

Takt production is seen as a way to reduce wasted work time on construction sites, and as a result, shorten lead time and increase construction quality.



Despite whether it is traditionally led or takt production, an academic research study finds the current way of working does not support the creation of an adequate situation picture because the actual workflow deviates from the planned constantly.

Automated data collection is the only way to maintain real-time situational awareness.

Current self-performed reporting practice at weekly or even daily meetings with subcontractors leaves too much space for unevenness. The absence of a real situation picture leads to the lack of feedback loops and so does not support learning. The key learnings from previous projects do not transfer to the new projects.

During the past few years, many digital tools have emerged, but most of them are just reporting platforms that require manual data input by workers on-site to create so-called situational awareness. Manual reporting is time-consuming, prone to human errors and by definition not always up-to-date.

The answer to this challenge is the automation of data collection which enables switching from self-performed manual monitoring to automated real-time situational awareness.

## **Trend into reality**

Automated collection and processing of data provides you with indisputable fact evidence of performance and progress of works. Visual documentation and analysis help you to manage the site even remotely.

New AI-based software can collect and automatically process information collected from a multiple sources – positioning systems and camera networks, 360 degree cameras, sensors for condition monitoring, and drone footage – to form actual real-time situational awareness.

### **What we predict:**

1. Growing interest among contractors and developers towards systems that import and automatically process data collected from multiple sources, to create real-time situational awareness.
2. Automation of data collection and processing will generalise quickly
3. The deployment of AI-backed automated data collection tools will boost the speed of learning in the construction industry.

# 3. Use real-time productivity analytics to eliminate waste

## Current state

When entering the phase of internal works to be done inside the erected building frame, planning of work sequence and orchestrating interaction between contractors become even more critical.

An eye-opening study looked at waste in HVAC and electrical installations on construction sites in Finland. Studies suggest that as much as 70% of time spent on a construction site is wasted.

Many challenges were observed like the general contractor's plans and schedules are superficial, the necessary information and communication are lacking, and the designs do not consider constructability.

Increasing productivity offers serious possibilities for industry players to distinguish themselves as vanguards in deploying modern methods of construction. The real-time productivity analytics is the next big trend of the industry.

## Trend into reality

With real-time productivity analytics you can see the progress of work in real-time, compare it to the planned schedule, identify waste and take immediate actions in case of deviations. The benefit? You keep up with the schedule and save money.

Real-time productivity analytics is the next big trend of the industry.

Real-time productivity analytics help ensure that previous work phases are completed, work-specific plans and drawings updated and available, facilities for productive work are in order, materials and manpower needed for a phase in place, and the conditions are right for the work to be done.

### What we predict:

1. Accurate, real-time productivity analytics is one of the biggest trends of 2022. For the first time in construction history, it is now possible to measure progress in real-time and compare it to what was planned, in order to identify root causes of deviations.

2. A vague abstract productivity term becomes concrete and measurable in quite a simple way. Companies that are first to deploy real-time productivity analytics, will be the winners.

# Aiforsite helps you improve productivity

## Aiforsite is like radar for construction

To use an analogy, the Aiforsite's solution is similar to a radar system used by air traffic controllers. You would not try to manage the massive amounts of arriving and departing flights manually by observing the sky with binoculars now that radars are available.

*"I manage a site of a 31-floor residential tower block with 291 apartments. On average, 160 people work daily on the jobsite. By using Aiforsite, we know exactly what is going on in the entire tower in real-time and see where people and tools are going."*

- Site Manager, SRV (Finland's 3rd largest construction company with annual revenue around a billion euros)

# Objective data replaces subjective guessing

Aiforsite is the first of its kind tool for identification of waste, measurement of productivity in real-time and visual management of the construction site. Aiforsite's tool helps you make more accurate decisions at a faster rate, by reducing the amount of error-prone manual work.

By using this tool, you are always aware of the situation at site, even if working remotely. Keeping up with schedule is easier, and you can measure and purposefully improve productivity on site.

*"The clear benefit of using Aiforsite is that the project makes progress all the time and no production area remains idle."*

- Site Manager, Haahtela (renovation of a 9-floor office building in downtown Helsinki)

# All-in-one system

Simply put, Aiforsite is a cloud-based, easy to use, all-in-one software platform, paired with hardware installed on site.

Aiforsite utilises artificial intelligence for processing massive data streams from 360 degree cameras, site cameras, drones, condition monitoring sensors and the indoor resource positioning system.

The processed data is turned into actionable insights and reports.



# Want to turn trends into reality?

We built our system to turn the trends highlighted in this guide into reality, which you can do in 2022.

If you are interested, book a free consultation with our specialists and see how ongoing construction sites use Aiforsite's AIC in real-time.

**BOOK A CONSULTATION**



Or visit our website at:

**[aiforsite.com/en](https://aiforsite.com/en)**

Aiforsite is a construction technology company, established in Finland in 2016. The company's solution is used in over 100 construction projects of different types and sizes in Finland, Denmark, Norway, India and United Kingdom.

Aiforsite's mission is to solve productivity challenges by enhancing the way of working in the construction industry. Aiforsite's technology allows the monitoring of progress and analysing of productivity at construction sites' in real-time.

It automates reporting, removes waste from the working process, and allows key personnel to manage the site remotely if needed. Aiforsite's tool provides many benefits in one interface.

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