

COMPANY OVERVIEW



COMPANY WEBSITE
www.exyte.net

Exyte is a global award-winning turnkey project delivery company specialising in the engineering, design, and construction of complex facilities. Exyte is a recognised project partner for clients with challenging project requirements and Exyte operate in the following business segments:

- Advanced Technologies
- Life Sciences & Chemicals
- Food & Nutrition
- High-Tech Infrastructure
- Cleanroom Technologies & Controlled Environments

Operating since 1912, Exyte employ over 6000 people who together deliver a global turnover of over €3Billion per annum. Exyte provide clients with full turnkey project delivery of new facilities and the conversion and extension of existing facilities. Exyte

has a strong, mobile, global talent pool to call upon, which is further supported by robust internal IT platforms that simplify project management and information sharing. With its scale, it offers inter-regional technology management, subject matter expertise, and consulting services.

Midlands Projects Management (MPM) Ltd. is a UK-based projects controls consultancy assisting Exyte in applying Lean Construction methodologies and enhancing its internal knowledge base. MPM specialise in project support and delivering assistance to clients and Tier 1 GC level projects on a global basis, and are currently deployed on project controls and Lean initiative projects in Europe, the USA, and the Middle East.

OVERVIEW & BACKGROUND TO THE LEAN INITIATIVE

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the use of optimum resources, and this can be achieved by using Lean Construction principles and techniques.

Exyte and MPM endeavoured to improve the utilisation of project resources on two separate Data Centre projects in the Nordic region (the locations and clients are not disclosed due to the confidential nature of the projects).

MEP installation on the second project. This challenged our ability to manage two large-scale projects set in a tough environment, with one experienced team coming to a finish and another new project requiring an immediate start.

Specifically, we were trying to change the mindset of stakeholders that if we educated the teams in Lean principles and methodologies of execution there would be a greater benefit to all. We would potentially be able to utilise the same expertise on the second project and reduce time and effort trying to on-board that skillset. The latter could therefore be phased in rather than mobilise one project and then within 12/24 weeks demobilise the previous project when the skillset and expertise required would be almost identical. We developed a better understanding of Last Planner® System (LPS) and of the impacts and variables on downstream performance.

In fast-paced construction projects, it is not possible to manage the project through the conventional methods. It has been observed many times that depleting productivity in construction leads to rework and produces many wastages, including over-production, unnecessary transportation, worker displacement, unused employee creativity, loss of focus and drive. Therefore, practical ideas and techniques need to be used in construction that will help project teams to deal with waste in construction with



Figure 1. Exyte Data Centre Project

The specific initiative sought to allow for an overlapping of lessons learned from the primary DC building, which was nearing energisation and commissioning, with the initiation of

LEAN INITIATIVE UNDERTAKEN – LEAN THINKING, TOOLS, TECHNIQUES

Exyte, assisted by MPM, is already heavily involved in Lean Construction methods including utilising LPS and vPlanner, for example, on a daily basis.

One of the key concerns for any large-scale project delivery organisation would be the ability to secure long-term expertise and knowledge to ensure a level of consistency and cohesiveness is present amongst a team that has worked together on more than one project.

Exyte, whilst based at a large-scale DC project in the Nordic region, and whilst working in new territory and a relatively new business stream, managed to secure a second large-scale Data Centre project located in the same country with what seemed a perfect “dovetail scenario” of allowing Exyte and MPM, plus selected subcontractors, to move to the new site in a methodical manner.

Previous behaviours and traditional mobilisation methods

were already being actioned by regional and central offices to get teams mobilised. The focus quickly turned to a logistical concern, and one that needed to be managed by easing resources from one project to another whilst maintaining momentum on closeout for the existing project and whilst allowing the right expertise to be made available for the timely ramp-up of the new project.

A quick comparison was carried out and an agreed Lean Logistics Strategy was pencilled out in draft. Lean logistics, in the simplest terms, refers to the method of identifying and eliminating wasteful activities from the supply chain. In this case, we treated our EPCM functions as components of the project supply chain and adopted a Just In Time (JIT) approach which would enable Exyte and MPM to cut down on wasted/repeated efforts of recruiting additional or specialised project resources in a recognised and notoriously busy industry and marketplace.



Figure 2. Exyte Data Centre Server Bank

The Lean Logistics Strategy Developed & Deployed

Step 1 – Detailed list of activities to be executed in short, medium and long-term from the EPCM phases of the new project. In parallel, the impact of scope creep and executing a timely closeout on the current project was carried out.

Step 2 – Traditional methods of mobilising project resources were challenged through Kaizen cycles to see how the process could be improved. Following on from those exercises, MPM proposed to Exyte that Pull and JIT techniques should be implemented, and these became the pillars of our Demobilising/Mobilising strategy.

Pull System – The concept of a pull system is a fundamental pillar in a Lean approach. At a strategic level,

pull identifies the real need to deliver the product and resources to the client along with an “absolute need date”. The traditional construction process pushes the client into an often protracted development process where risk and uncertainties are prevalent. The principle of pull involves the decision-making ability to define quickly what the client needs from each phase of the project in relation to their business, and subsequently customising and delivering those needs more predictably when the client requires them.

JIT – This is classified as amongst the most developed Lean Construction tools designed to eliminate non-value-added (NVA) activities and to reduce process variability. The JIT philosophy is based on the concept that stocks/resources that do not bring added value to the customer before the time they are required (internal or external) should be considered as sources of wastes. So, the resource must be available only when it is necessary and not sooner so as to provide comfort to the client that we would be mobilising a full team at the start of the project.

Step 3 – A CPM schedule was created alongside a Last Planner Pull session for the Engineering and Procurement phases, and the program of works was driven in the short-term to the Mobilisation on site milestone.

Step 4 – Forecasting in terms of both the needs of the ongoing project as well as the new project. Detailed forecasting, derived from detailed knowledge about resources and when best to utilise them, had to mature from being merely speculative figures. A simple yet effective approach for this was to measure our capacity (for instance, the hours our Engineers can put in) against the demand we could see based on PDCA/Kaizen cycles and Last Planner lessons learned from the current project versus the number of hours upcoming projects required. That way, we confidently calculated whether we had more people than we had a need to mobilise or vice versa.

Step 5 – Comparisons were drawn between cycle times and capacity utilisation of the specific members of the Engineering team from Exyte and MPM. We planned our resources to high levels of utilisation, and theoretically had a more efficient team and system with less wasted money on potentially unused capacity. The variables we were looking to directly reduce in this exercise were:

- Knowledge Transfer Risk
- Uncertainty for client and project teams
- Lack of impact to subcontractor performance
- Loss of integrated and harmonised workforce
- Decreased multi-tasking

LEAN INITIATIVE IMPROVEMENTS & IMPACT

In parallel to implementing these Lean initiatives, management were engaged in ongoing contractual talks, estimation completion, and prioritising equipment purchases. Then, the Project Management Team (PMT) arrived at the point of “potentially too late to implement” the JIT approach as the initial kick-off phase of the project was prolonging and gaining little momentum in a physical sense. In an assessment of the new project’s estimation and engineering phase, it became apparent that stakeholders that could influence Exyte’s ability to deliver to the proven Lean logistics techniques of Pull and JIT sat outside Exyte’s and MPM’s remit of responsibility. Thus, our focus, and one of the most significant impacts, related to collaborative engagement and onboarding of key stakeholders.

The two main outcomes Exyte and MPM were seeking to

obtain were:

- 1) A focus on schedule certainty and an agreed strategy on how to implement an improved utilisation of project resources whilst remaining focused on client needs and project timescale.
- 2) Creating a smooth workflow and eliminating the waste of leaving potential key members of the new project in a role serving the current clients need for comfort and stability, but once again obtaining this whilst maintaining momentum on the existing projects close-out activities.

Having the ability to engage internal resources, controlling Exyte’s Lean processes, better planning, and visualisation all gave us better predictability and better understanding among the workforce about the challenges we faced and how the process would need to be managed across all levels of the

project organisational chart. The economic impacts from Lean Construction on sustainability are mainly related to better planning and involvement – with involvement leading to better planning. The more we engaged with the relevant engineers, the ownership and appetite to participate increased. Involvement and constant interaction led to minimised use of resources and a greater focus on quality and productivity. This in turn led to less errors and changes, which directly led to lower costs, shorter lead time, and higher profitability. Not to mention that the JIT technique meant we had the right skillset lined up to transfer across at the time of needs rather than the client's time of want.



Figure 3. Exyte Lean Practitioners in Harmony

Whilst the process of skillset/resource transfer was beginning to gather momentum, and a somewhat successful outcome mobilisation costs and workflow disruption was occurring for Exyte on the new project, we did encounter an unforeseen issue which was the human factor of the team that remained at the existing project on the verge of close-out. This was overcome by a series of onsite discussions and town hall type meetings to explain the Lean strategy and reinforce to all project staff the importance of sustainable resource management rather than the need to adhere to traditional knee-jerk resource allocations. The process and techniques of the Lean strategy were explained and a simulated roll out of the JIT technique was demonstrated to the project team. Exyte and MPM then took the process further by seeking to understand how better to learn from the impacts of current project staff and ensure a reduction of the found impacts was implemented and monitored. The most frequently mentioned impacts were related to reduced stress and sick leave, increased productivity, more efficient use of resources, and improved quality.

By encouraging a harmony and understanding of a sustainable Lean resource pool, Exyte was able to benefit from increased ownership, responsibility, involvement, visualisation, and improved planning. Lean Construction has an evident impact on sustainability, but sustainability can improve Lean Construction delivery tremendously also.

