

Case study: Produktiva



Produktiva combines Lean Construction and CPM schedule using Powerproject

Summary: Produktiva is a recognized leader in the growing built environment sector in Lima – delivering apartment and office buildings, hotels and other institutional structures. It is the construction arm of GRUPO EDIFICA, a major real estate company.

Produktiva's brand is based on Lean Construction and productivity and clearly, productivity inspired the company name. Produktiva takes the application of lean processes in all of their projects very seriously and its CEO, Cesar Guzman, is one of the founders of Lean Construction Institute's Lima Chapter.

Lean Construction is a way of thinking and of building in the construction sector which is focused on maximizing the product value for the client and minimizing all forms of waste. Produktiva is engaged with Lean Construction philosophy to the extent that all its projects are executed under this ethos.



Powerproject: The missing link

The company searched the market for software which would complement and support the lean practices it has built up in the last few years. Powerproject was identified as a possible solution and they undertook trials and finally purchased licenses in time to use it on an important project, Magna Haus, an apartment building in an exclusive zone of Lima. Before this, the company were using MS Project for the initial master schedule and MS Excel for the rest of the process.

Michell Gutierrez, Head of Project Controls at Produktiva said: "As part of our lean way of working, we use Pull Planning methodology in our projects; one of the first things we produce, right at the start, is our work plan in Excel based on the master schedule milestones. We realized Powerproject could make this plan into a Critical Path Method (CPM) schedule, so we saw the opportunity to integrate our philosophy with the CPM. At the same time, we used Powerproject to develop a location-based methodology to improve the visual management of the project managers. Now we start with Excel spreadsheets but continue the control in Powerproject."

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“Many companies in the building sector in Peru who apply Lean Construction disregard the use of CPM in their projects altogether. They do not update the CPM schedule, and focus only on the lean standard reports. Combining CPM and lean allows us to see changes in critical path and to be prepared for future conflicts or Extension Of Time claims.”

Multiple tasks in row

Produktiva decided on Powerproject partly because of its ease of use. It took just two 3-hour training sessions to train planners on the software. The training was given by Elecosoft’s local partner Metacontrol Ingenieros and then Elecosoft’s distribution partner, APP Consultoria, supported remotely to solve specific issues planners came across in the field.

One of Powerproject’s features which attracted Produktiva the most was the way users can draw multiple tasks in one row. This functionality made it possible to easily replicate the scheduled pull plan by trade, sector and floor. In addition, Powerproject enables location information to be replicated within the planning software – rather than only being available in Excel spreadsheets.

“We have been presented with a powerful construction scheduling tool and are pleased to work with this sophisticated but easy-to-use tool which brings many benefits, including cellphone tracking, graphical sequencing of the job, working the tasks by location, and being able to produce automatically lines of balance and quick reporting.”

Michell said: “Lean construction philosophy needs to be uppermost in our workers minds in order to add value to our clients. Until now, this way of thinking was confined to the Excel spreadsheets. Powerproject is the perfect companion to our methodology – now we have a dynamic schedule trade by trade and not the static one produced when using Excel worksheets.”

Easy line of balance

A line of balance diagram comprises a series of inclined lines which represent the rate of working between repetitive operations in a construction sequence. It shows the repetitive project works as a single line on a graph. This is what Produktiva was doing using Excel worksheets and some complicated graphs, but it took too much effort and time to produce these reports. Powerproject produces the graphs instantly. Michell looks back thoughtfully, “I have tested other software which reported with line of balance graphs but the ease with which Powerproject handled the Line of Balance feature pleasantly surprised me. Now we can even present Line of Balance charts during the tendering stage. We can demonstrate to our potential clients that we are good at what we do.”

“Adding the location to every scheduled task has supported the use of Line of Balance charts to measure the performance of each trade involved in the construction process. It is now possible to see which job is generating the delay in the project and how much speed is needed in order to recover the time.”

Michell pointed out, “I have been trying to implement Location Management Based Systems (LMBS) in our company for some time. Powerproject has helped to do this job in an easier way. Now, we produce our Excel reports directly from Powerproject with one click.”



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Powerproject: The power behind successful projects

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In Produktiva's 2018-2019 portfolio, one key project is a Cultural Centre at a local university. For this project, Produktiva decided to deploy remote project updates from the field using Powerproject's Site Progress Mobile. This is a downloadable app which enables mobile users to record the progress of tasks and repetitive events from a remote location against their work as scheduled in a Powerproject project plan.

In words of Julio Obando, Cultural Centre's Project Manager, "Site Progress Mobile allows us to measure progress directly from the field through smartphones; the planner just sends the tasks to update from the software to the field supervisor, they open the application in their phones, update and all the data returns to Powerproject to reschedule and review. We can get the weekly report in a matter of minutes."

The Site Progress Mobile app gives also enables Produktiva's field personnel to take photos and comment if there is an issue on any task. It works with both IOS and Android platforms. The planner always has the chance to reject progress which he doesn't feel confident of.

Next challenges: 4D

Produktiva runs its projects using Building Information Modelling (BIM) methodology, which means that coordination among all participants through a 3D model, seeing what will be built before the construction starts, and clash detection among different disciplines, are day-to-day exercises. To build on this, they are currently evaluating the Powerproject BIM module and this may be the next step to take in the use of the software enabling them to adopt the 4D dimension of BIM as a standard procedure.



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Foundations for the future

A recurrent issue Produktiva has had to face is the fact that supervisors only wanted to use MS Project as a scheduling tool for their projects. However, the capability of Powerproject to easily convert projects to MS Project format made it possible to overcome this issue. Although, as Produktiva's programmes tend to have around 15,000 tasks due to their detailed schedule, it has been found that some minimal changes are needed to the exported MS Project file to allow it to support that number of activities. In addition, the supervisor can download a free Powerproject Viewer and see the whole sequence just as we prefer it: with coloured code libraries and a line of Balance.

Julio Obando meditates on the issue: "We were pretty aware that this could represent a problem when we acquired Powerproject for our project, but fortunately the conversions are quick and easy. We feel comfortable using Powerproject and are now looking to extend its use to our supervisors and customers. We have been presented with a powerful construction scheduling tool and are pleased to work with this sophisticated but easy-to-use tool which brings many benefits, including cellphone tracking, graphical sequencing of the job, working the tasks by location, and being able to produce automatically lines of balance and quick reporting."



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