

Revolutionize your Scaffolding Management Process



Whitepaper
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The Bureau of Labor Statistics' Census of Fatal Occupational Injuries (CFOI) reported 54 fatalities occurred in the year 2009 from scaffolds, staging.

Abstract

Scaffolding management software is a solution which caters precise business requirements and boosts your business to get better results over your competitors. For global organizations two factors are of high concern:

1. Feasibility of the software implementation
2. ROI (Return on investment)

This whitepaper contains facts that would assist in efficient implementation of the scaffolding management software and also attempt to calculate & understand ROI

Client Facts

- Leading infrastructure and construction companies
- Multi-million man-hours in a year, including contractor hours
- Hundreds of scaffold builders
- Tons of scaffold materials used

Business Case

Clients (companies) used manual system to deal with enormous amount of scaffolding operations. The system manages scaffolding life cycles like requests, its approval, building, dismantling etc. Estimation was that only half of scaffolds had formalized requests and most requests were communicated verbally.

Clients identified a requirement for a software system that has the ability to improve their scaffolding management operations

Challenges

Some of the major challenges faced were:

Information management – flow, gathering & sharing.

The scale of man & material involved was large with a huge amount of information being generated. To collect it at a centralized location in a manner where it can be shared efficiently was a big challenge. The information had to be made available in real-time and quickly such that the lessons learnt could be shared in an instant. This would help stop incidents.

Consolidation of data for generating key performance indicators (KPI)

Decision making authorities needed to know clear and measurable performance scores that would help determine people's performances, their progress and the progress of the project.

It was also important to know about ROIs, identification of areas that require improvement, resource deployment and management, training management and a way in which resources could be utilized better. This was a huge challenge in the manually operated system.

Better planning & identification of production bottlenecks

Planning had to be done in such a way that available resources could be utilized efficiently. Identification of bottlenecks in terms of man & material was a difficult task.

Investments of time

A lot of the active time of authorities was being consumed behind accessing each other, taking clearances & approvals. The existing system required a lot of movement & frequent communication between multiple individuals.

Data transparency

Everyone involved in the system needed to know the status of any application. It required a high level of data transparency. The requestor had to know about the status of his application such that it would help him plan his activities. At the same time, the clearing authorities also needed all the information and status updates for them to make an accurate decision.

72% of workers injured in scaffold accidents attributed the accident either to the planking or support giving way, or to the employee slipping or being struck by a falling object.

Daniel Palmer Jones and David Henry Jones revolutionized scaffolding. Modern day scaffolding standards, processes and practices can be recognized to these men and their companies. Daniel Palmer Jones is considered as the grandfather of scaffolding and patent applicant and holder for many scaffold components still in use today.

Solution

The findings led to the development of a custom made solution of all mentioned challenges.

The solution was never easy as it required experts in designing software and at the same time deep understand of scaffolding as a subject.

After a successful evaluation of knowledge, experience, domain expertise and several rounds of discussions between both parties, a broad scope of work was decided. Eventually, a detailed requirement document was prepared in connection with the scaffolding management software.

It required working closely with the client for designing a tailor-made solution which was "simple to use" and at the same time had the ability to overcome all the identified challenges.

Insights & their implementation in the solution

The following insights were considered to make the software application easy for implementation (one of the major objectives).

Extension of software to smart (handheld) devices

The idea of extending the software application to handheld devices was explored. This would help crew members utilize the software from the field itself. They would be able to generate a request for a scaffold from the site while the production supervisor could fill in his production report from the site itself. The concerned authority would then approve the request at any time based on information available on his smart device and from anywhere (e.g. airport, during business trip, travelling from home to office). A lot of the user's time would be saved because of this feature as they would not be required to come at their offices to make entries and/or to access the software.

Operating in offline mode

It was discussed and thought that software would be developed in a manner where it can be operated in offline mode as well. Most of the users on the field would be in places where they would find difficulty in connecting with available networks. Hence software was developed in a way where it didn't require continuous network connectivity. The user would be able to see the data in offline mode, raise request, approve request, fill production report etc. without any network connectivity. Once the device connects to a network, the data would be synchronized to the server. This was one of the major features as it would resolve one of the most persistent and common problem on project sites – unavailability of network (connectivity).

Simplicity and ease-of-use

Forms needed to be simple such that it included only important information. Furthermore, complexities in reporting were also solved by calibrating the software to generate 'real time' analytics, graphs, charts & KPIs.

User friendly application

Dropdowns were included within the form at various places such that users can easily make data entries in the software

Other value additions

The software would be designed with the intention of providing various tools that included visual appearance of the site. Features like area-map tool, image capturing & commenting tool were included for the purpose. Because of these tools, authorities would be able to see the current status of all the scaffolds standing on the site. Additionally, they could see images from various angles for the scaffold requirement and in most of the cases, personal visit to site could be eliminated. While this is mandatory in all cases before approving a request, these features helped in eliminating a major part of the personal visits that would otherwise be taken.

Using all of the above insights, the software solution was developed and implemented successfully at the designated location.

Award winning results

The following results have been registered after usage of the software

- 100% scaffold requests are being generated through software and not a single request verbally
- Average request approval time is now decreased considerably
- Improvement in access
- Reduction in delay of scaffold availability due to communication gap/error & timely approvals+
- Some of the scaffolds were never required in the first place but due to unavailability of information they could not be identified previously. Now, because of the software, the client is able to identify and reject these scaffold requests. The end result is that they are building fewer scaffolds, which already amounts to a saving of production cost
- Significant time is saved in case of kick-off meeting between scaffold requestor and scaffold team to understand the requirement
- Manual data entry completely removed
- The software can accurately report team productivity data. Hence identification of requirement of training/motivation became possible. This has already resulted in improvement in the productivity of the Scaffolding team
- Due to unavailability of software, someone has to manage data (hard copy/excel) and has to combine data to generate various reports, KPIs and statistics. Lot of time was consumed for these activities. Now, software does all these work and generates real-time reporting, KPIs and statistics in no time.

Scaffolding is composed of different planks and frames held by couplers or bolts. Some of the well-recognized scaffolding are swingstage scaffold or suspended scaffold, birdcage scaffold or independent scaffold, the cantilever scaffold and the single pole scaffold. Couplers, boards, tubes are some of the basic materials used in these type of scaffolding. Today scaffolding is mainly made of metal pipes. In some parts of Asia, scaffolding is made of bamboo and is even used while building very tall skyscrapers.

Recommendations

Adopting an electronic scaffolding management system can substantially contribute to the goal of operating excellence while reducing operational costs relatively well

Benefits are based on more effective & efficient administration systems to enforce procedure prior to, during & after work as well as identifying key areas of improvement due to better analytical results

We believe that to arrive at a value proposition for the entire application is near impossible unless the true ROI (Return on investment) is experienced hands on by its users

We suggest that any organization may go for pilot phase with this application at one of the projects. This exercise will give a fair idea of the kind of ROIs that one can expect. Then the same solution can be extended to the all other plants and on enterprise level.

END NOTE

Please use software.

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