Case Study:

How Downer EDi Engineering Improved Field Construction Productivity with Envision

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Introduction

Downer EDi Engineering recently piloted Envision in the field on a $10 million construction project at Boyne Smelters in Gladstone. The project was the structural installation of a carbon bake furnace with approximately 14,000 pieces of steel pieces supplied by the client.
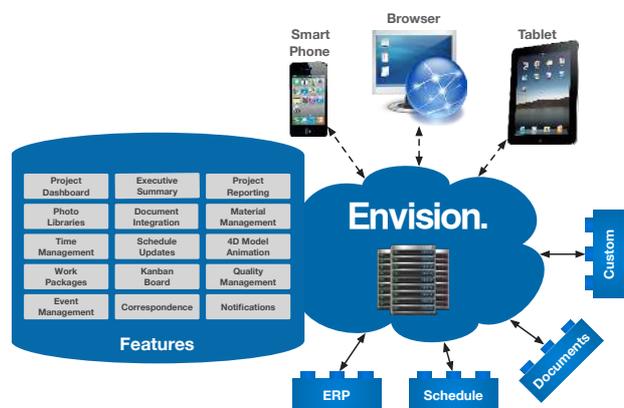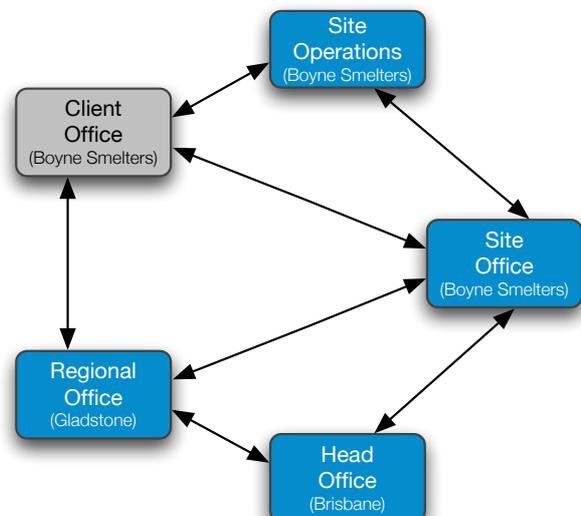
Boyne Smelters

Ennova worked closely with Mr Ron Elliot, Downer EDi Central Queensland Manager and his team to implement Envision on the project.

Envision provided Downer EDi with a new and exciting way to work that enhanced the recording and communication across site and office locations in near real time.

Envision

Envision [1] is a new construction management tool which will transform the way the industry operates across all levels.

Envision, is an SaaS (Software as a Service) tool that reduces project administration effort and costs while dramatically improving field productivity.

Using the latest in mobile computing technology, Envision enables activities and issues arising in the field to be shared in real time, in much the same way that communication occurs using popular social networking applications.

Envision has been designed for simplicity, making adoption as easy as possible for non-tech savvy people.

Project Challenges

The project was spread across multiple locations - on site, the regional office and head office. This created logistical and communication issues, making it difficult for staff to keep up with what was happening on site each day and what the major issues or events were.

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Project Practices Before Envision	
Communication	• Numerous site visits were required often involving travel between Brisbane and Gladstone, resulting in increased costs and delays. • Reliance on phone conversations and travel between site and office locations.
Documentation	• Documentation of issues required travelling back to the office to fill out paper work, send e-mails and talk to contract administrators so that commercial notifications could be written up.
Event & Issue Management	• Minimise the on-site project management team, which resulted in a higher work load and put at risk information about site activities and field events not being recorded.
Time & Progress Tracking	• Time sheets were recorded in MS.Excel and manipulated before being loaded into company payroll system. • Information was not available immediately for analysis of field productivity.
Reporting	• Information recorded in spreadsheets became 'information refrigerators' instead of being 'information radiators'. • Progress reports took significant time to prepare and were lag indicators. • Reporting of issues on site was often delayed.

Envision Implementation

Envision's ease of use allowed for its seamless integration into the project. Ennova worked closely with Downer EDi project staff to provide full technical support and training at every step.

Envision was then configured to suit the needs of the project team and transform the way the project had previously operated. iPhone's were also provided to staff in the field along with full training to ensure Downer EDi were able to properly use all features of Envision with no disruption to the work schedule.

The simplicity of Envision as a fully hosted SaaS solution meant zero setup was required. Schedules, cost centres, people and their roles and equipment were imported enabling all members of the project to access and use the product straight away.

Project Impacts

Envision has significantly improved the efficiency and operation of Downer EDi. Time was saved through mobile reporting, and information was easily shared and recorded without having to leave the site, all of which resulted in significant time savings and cost reductions.

Downer EDi were keen to improve business efficacy by integrating Envision into the project.

"Envision presented a new and innovative way to work. We had a large fixed-price project and we needed to confidently be able to track issues and delays on site so that we would be assured of getting paid for the extra work done."

"With the team spread across three offices we wanted to make sure everyone was on the same page and working optimally to reduce time wasted and costs." said Mr Elliot - Regional Manager.

Envision allowed the Downer EDi project team to:

Project Practices After Envision	
Communication	• Project stakeholders were able to keep up to date with progress and events in near real-time. • Private project network of communication enabled free and open sharing of events and issues.
Documentation	• Information captured at the source improving accuracy and timeliness. • Automated generation of contractual documentation.
Event & Issue Management	• Issues were documented at the source using photos, text and videos to capture detail.
Time & Progress Tracking	• Record status of activities using iPhone and propagate to master-schedule. • Track time recorded against scheduled activities and events.
Reporting	• Daily reports automating generated saving significant time. • At the end of the project there was an accurate timeline record of exactly what happened during project execution.

The Project Manager - Mr Birlenson said:

"Envision has revolutionised the way we work. We are no longer tied to the office. We can report issues from the field and interact with members of the project team across the different offices,"

"Using Envision I am able to quickly follow the latest progress and issues occurring on site whether I'm in my office or on the road, through my iPhone. I can choose which issues require my attention and followup. I spend less time on the phone and have more intimate knowledge of the project so that I am well informed of what is happening and able to pass on information to the client in a timely manner."
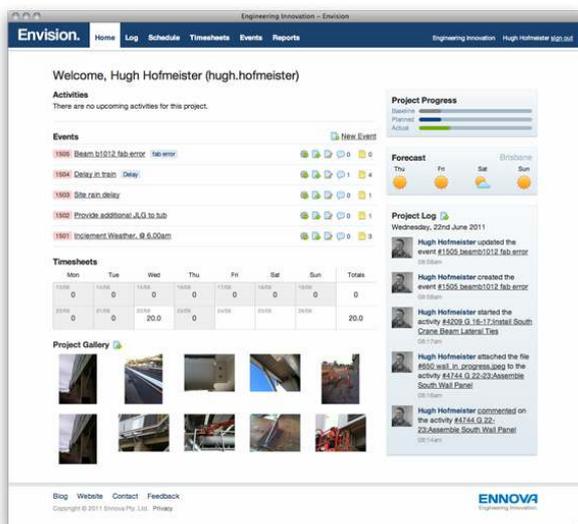
The mobility and speed of accessing information made a significant difference to the way Dan Cremer, - Mechanical Supervisor worked.

"Envision is mobile so I can spend more time in the field with my crew and less time in the office doing paper work. I am engaged with the project team and know that everyone is aware of the issues blocking me and I can see them being worked to resolution," he said.

The contract used a fixed-price model requiring significant documentation with time bar requirements entitling the contractor to be paid and have extensions of time approved as a result of delays or variations in scope. Envision automated the process of generating commercial notifications and provided visibility of due dates for submission to the client.

"Envision significantly reduced the time for me to complete the formal documentation required under the contract and avoid non-payment. I could even complete notices using my iPhone when I was away from my desk," said Praneel Polra - Contract Administrator

Envision Timesheets were not rolled out on the project because the project was already underway, however they were trialed for usability. The trial revealed data entry for the supervisor was 30% faster. In addition, back end double entry of data would save a further one to two hours per day.

Envision Timesheets were identified as a significant project benefit that would be used on future projects by Downer EDi.
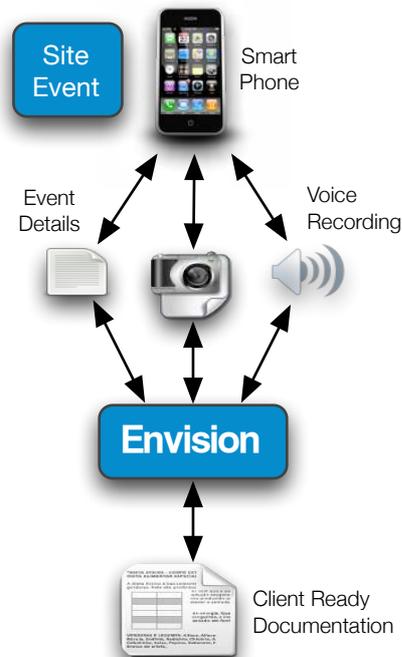
How can Envision help your Project?

Envision is designed to be simple so that all staff can easily incorporate it into their daily work. There is minimal effort and disruption in the setup; schedules, cost centres, people and roles and equipment simply need to be imported and Envision is ready to implement.

Envision is able to be configured and/or customised to suit individual project needs or integrated with existing systems.

Ennova's staff work closely with each business applying Agile and Lean principles [3] to construction practices like WorkFace Planning, as was done on the Downer EDi project.

Unlike other project management systems which are simply a system of record, Envision captures the information and encourages real-time interaction and sharing in a simpler and more natural manner.

Envision Benefits	
Communication	• Instant sharing of project information including: activities, events, photos and comments. • Information captured at source using mobile devices.
Documentation	• Reduces site administration effort. • Ensures all the information is captured and that the contract is correctly executed in order to get paid full entitlements.
Event & Issue Management	• Early identification of events enabling resolution and management to ensure work-face is kept productive.
Time & Progress Tracking	• Simplify the recording of time against activities and events providing information to analyse field productivity.
Reporting	• Simplified progress, daily and client reporting allowing supervisors to spend more time in the field focusing on productivity and safety.

What Makes Envision Unique?

Ennova recognised the need to make a system that was user-friendly and in touch with the way people work today with mobile technology. Other systems do little more than record information, but Envision has been designed to be more engaging and social and thus more user-friendly and readily adopted by staff.

What is unique about Envision:

• Envision system architecture supports the latest in mobile and web computing developments making it easy use on mobile platforms.

• Envision is an integrated system that makes it easy to access information in one place.

• The system design allows simple extension to integrate with other systems.

• Most systems are designed to be a system of record, Envision has been designed to be more engaging and social. This makes it more valuable for users, which increases adoption and the value of information in the system.

• Typically engineering and construction management systems are difficult to use. Envision is simple.

Feature Road Map

Ennova is actively developing Envision [2] based on the feedback from real customers. Some of the planned features for Envision include:

• Material tracking through the supply chain, using phone cameras to scan barcodes to update material status

• Platform using the latest web technology to extend companies project control systems

• Customisable business intelligence reporting.

Summary

Envision is a purpose built construction management software tool that leverages a range of innovative web-based technologies. When implemented, Envision is capable of helping constructors optimise project outcomes by improving field productivity through Agile and Lean principles for construction planning, material and event management. The use of mobile computing enables near real-time capture of field information that improves decision making and supports critical path management.

References

[1] Envision Application Website: http://envisionapp.com

[2] Smith, A., 2010, *Envision Product White Paper*, Ennova White Paper.

[3] Smith, A., 2010, *The Application of Kanban to the Management of Construction Work Packages*, Ennova Discussion Paper.

About Ennova

Ennova has over 30 years experience working in the construction industry on project engineering, project controls and commercial management. Ennova understands industry needs, working closely with employees at all levels within companies. This industry knowledge and hands-on approach allows them to adapt to changing trends and customise Envision to suit specific project requirements.