COAA WORKFACE PLANNING CONFERENCE 2011

TECHNOLOGY EXPERT PANEL [MINUTES]

SPEAKERS
Shaheel Hooda | Director / Advisor, Element Industrial Solutions Inc.
Dr. Ted Blackmon | Vice President, Construction Solutions Executive, Bentley Systems Inc.
Michael Buss | Vice President, Materials & Construction Global Business Development, PPM, Intergraph Corporation

MODERATOR
Lloyd Rankin | WFP Committee, Construction Owners Association of Alberta

PANEL DISCUSSION

QUESTION 1: What are some of the main ways that technology caN support a WFP initiative?

Michael Buss	There are several ways technology can help: Technology comes from integration. Second, technology is important for user experience. Thirdly, performance of the system. I can tell you the technology is available today for creating the work package in a user friendly environment, so you can know where materials are, for example. We specifically spend a lot of effort on user experience. Number 1: it needs to be easy. Number 2: Performance. Bigger projects mean we need bigger models.
Ted Blackmon	This is a scenario I'm passionate about. To the audience: on one hand, everybody here is idly committed to WorkFace Planning, but on the passionate side I feel that without automation tools, it's very difficult to do WorkFace Planning. The amount of time it takes to develop and the rigidity in the packages without the use of an automation tool is considerable. Construction is by nature a wicked problem. What we suffer from is it's difficult to determine the level of detail until you're out in the field. Primavera for example only takes you down to a certain level, so what do you do? You need a better tool and I believe the WorkFace Planning automation software is that better tool.
Shaheel Hooda	I'm going to take a slightly different approach: there are some great tools and they're great at what they do, but to do WFP properly, you need to take it to a level of detail that is needed. The volume of data and complexity of projects along with turnover, you can't do WFP without automation tools. It's really that simple.

Lloyd Rankin	So, the technology that we have today isn't the problem. It's the fact that the industry thinks we don't have the technology to help them, correct?
Shaheel Hooda	Not necessarily. Complexity has increased to such a level, perhaps the technology that is available isn't necessarily meeting the needs of planners. What we need are technologies that bring everything together in real time.
Michael Buss	Twenty years ago, technology was restricted by hardware. 3D used to be disregarded but today is standard. The same is happening with WorkFace Planning. The tools and technology are available that reduce the burden of implementation now.
Ted Blackmon	I agree and will add it's far easier to take someone from the field and teach them to use a computer than it is to teach someone with computer knowledge to put together a work package. I think there's a point we're missing, where technology is an issue and that's in the data integration side. The data that goes into WFP is way beyond just a 3D model. At the end of the day, there's a significant problem around data interoperability, but it's hard to justify having a workface planning automation lead out on the project today. But it's beginning to happen where teams that used to be focused on design automation are starting to focus on construction automation. There's a need for responsibility for data integration and automation for templatization and reuse across projects. That's a challenge.
Shaheel Hooda	I agree with you completely and something that strikes me is the tendency to build and use in-house tools. But if you build your own tools, you'll spend a lot more money than third-party licenses but as you get staff turnover nobody knows how to support that and people forget how to use the tools.
Ted Blackmon	The ROI on software is in the lifecycle maintenance of that software.

QUESTION 2: What do you see as some future applications of technology that could improve productivity in the construction industry

Ted Blackmon	I've got two areas to highlight. One is around automated constraint identification and then tying those constraints to workface packages. We'll see more and more around automated constraint management. We'll also see increasing use of auto-information for automated machine guidance. More toward modularization, laser scanning to guide modules into alignment...
Shaheel Hooda	I think I'm going to bring it a little closer to what we can relate to: given what we're seeing in the mass market with individuals being

	trained to use smart devices, I think we'll see the proliferation of those devices working their way into the construction field. I think the solutions we're all pitching will be working on those platforms ansd the reason is you want information from back-end systems going into the field as quickly as possible. Further, the systems we're building are not just going to be used for managing the current project but we're going to be doing data-mining to analyze and learn from previous projects.
Michael Buss	From my side I see issues on the logistic side of construction. I see RFID coming in. This will be enhanced. The other one is in modular construction. In oilsands you see this more and more. The whole logistic of these items and the measurement technology around this will improve. We need more technology for construction reporting. Reporting will come from the 3D model. Progressing, visualizing problems…

QUESTION 3: Could you show an example of your technology that could help a project manager execute a project?

Shaheel Hooda	*Demonstration of Reveal Suite*
Ted Blackmon	*Construction Field Mobility example*
Michael Buss	*3D modelling / user experience example*

Questions from the audience

No questions from audience, but discussion around the current state and future direction of automation technologies occurs…

Names	Questions / Comments
Geoff Ryan (Insight-WFP)	Can you talk to us about the generational growth of your customers. How complex or complete is the use of your tool today?
Michael Buss	Currently we have several customers – two here in Canada- using this software in projects but also worldwide where WorkFace Planning isn't quite there but they are getting it. So we're seeing some companies having basically nothing in this regard but our tools are being used and they're gaining experience. A bit more in the U.S. and China.
Shaheel Hooda	As mentioned earlier we're releasing our first product in the next little while. That said, the processes built into the technology have been used for decades. A year from now we'll be telling you that we're helping some large owners solve big problems.
Ted Blackmon	As a startup, we didn't have a marketing/sales team but we had a grassroots effort to establish a base of users and had ups and downs. Requiring alignment across project controls, engineering, QA/QC, turnover… companies that have gone through the effort of aligning efforts in their projects in combination with establishing a construction automation group who can make use of the tool on the

	project have the most success in managing complex problems. Another major point is in regards to implemented scaling: it's a serious uphill battle. You need to pick the right areas that will provide the proper return on investment… you're able to leverage what you've put in place on previous projects and get a successful return on investment over projects and then introduce additional capability.
Rachelle McNeil (Shell)	What I struggle with is the applicability of an automation tool to a mid-sized project. The Ferrari is for a race track but what do I need to get to work in the morning, for example… you said "scale it down" but still how do you support this on a $200-300 million project or is this really for the mega-projects?
Ted Blackmon	I think it's related to the partnership between multiple contractors and where they're at with the repeated implementation of the technology. If it's the first implementation of the tool, it's a risk with larger or smaller projects, whereas when the processes are automated it's a lower cost to utilize it. Our first user was an owner-operator who worked closely with a member of the Lean Construction Institute and there are similarities with the Last Planner… there were good procedures defined and once they got the automation system in place, they began to utilize the tool on small-cap projects as an ongoing set of larger projects… so they got it down enough to use it on smaller projects. So I think it's applicable to the smaller job once the company gets over the hump of getting the data interfaces in place. Given that the WFP system is largely data-driven, if repeatability is not in place then something that worked before may not work again…
Michael Buss	It's about what you want to achieve… calculate limitation costs, software costs and savings once you've scaled and adjusted based on the size of your project.
Shaheel Hooda	I can only answer from our company's perspective which is: our technology is designed to be used on large and small-scale projects. We're trying to insert our technology into this stream (that is, in the field). It depends on the number of disciplines you want to roll it out to. We don't require that it has to be enterprise-wide to begin with, but we encourage you to try it out on smaller-scale projects to begin with and then scale up over time.
Frank Engli (Shell Canada)	On projects where you've applied automation tools, has it extended to turnover And do these automation tools consider the 3d modelling we didn't always rely on?
Michael Buss	Yes for system completions and turnaround planning we're using the same technology. Data is flowing from engineering, through construction to – for example – monitoring.
Shaheel Hooda	Yes the data can be migrated over, no question about that. And yes it can be used in older models where 3D models don't exist.
Ted Blackmon	I can say one area I think is a high-priority win we should be looking

| | to leverage is the transfer to inspection packages and thickness measurement packages. |