INTERFACE MANAGEMENT – A PICTURE PAINTS A THOUSAND ROLES

Over the course of the preceding three decades, capital projects in both the commercial and industrial space have become increasingly larger and more complex.

The megaproject, defined as any project that costs in excess of $1 billion, is now ubiquitous. Unfortunately, cost run overs and late delivery are equally constant. With four out of every five oil and gas megaprojects failing to fulfil their objectives, interface management, the activities of defining, controlling, and communicating the information needed to enable projects to succeed, is becoming evermore important.

In the following interview we speak with an experienced systems integration engineer about his time working across rail sector, and how the lessons learned in this vertical can be successfully transferred to other business verticals.

SPEAKER KEY

TH Tim Haïdar, Editor In Chief, Oil & Gas IQ

DC Daniel Constable, Systems Integration Consultant, WSP | Parsons Brinckerhoff

TH Daniel, thank you so much for joining us today. Give us a little background into your current role and responsibilities.

DC Pleasure to be with you, Tim. As a senior systems integration consultant for WSP | Parsons Brinckerhoff, I support clients in the UK rail industry in systems engineering and integration activities. So, essentially, we help our clients to setup their projects to which they can specify, understand and manage activities across the entire works. We work right across the project's lifecycle from developing architectures, putting tools and processes in place to manage design, requirements and interfaces right through to validation and verification and engineering assurance.

TH Now, you guys have got a large experience in the rail sector. What are the main interface management/system engineering challenges in the rail industry that the oil and gas industry could then put into practice?

DC The two industries face many of the same challenges common with any large scale infrastructure projects. I think one of the key challenges is documenting, verifying and meeting the client or the sponsor's expectations. One of the ways we achieve this, is through requirements management; so to meet the client's objectives and understand their constraints we ensure the work is traceable and verifiable right from those top level objectives down to the actual work package specification.

As scope changes to interfaces happen, we can analyse the impact it will have on the top level objectives. With lots of different requirements coming in, some from the business and some from the operators who actually use the system, interfaces help us have a much more holistic view. It is something that is slowly becoming more widely understood, and applied in the rail industry and it could certainly be applied in the oil and gas industries, if not already.

TH How have times of economic hardship affected what you do as an interface manager? We see different programs being axed across the board, is this affecting what you do for a living?

DC You're always going to be constrained by budget, and it's one of those things that day to day you have to manage. In the rail industry, there's always a lot of scrutiny from the public and the government to deliver projects on time and on budget, whilst adding value to the end-customers. With the recent economic downturn, it's about trying to go that extra mile. Working in an interface management role, you have to be more dynamic, more proactive, and ensure that changes that are made within the project are effectively managed and communicated to all the different stakeholders. We can do an impact analysis of any changes that are made using tools such as architectures, interface matrices and some of the requirement traceability I was talking about, which allows us to address that impact appropriately.

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TH Do you think that interface management has a role in helping companies win in this downturn?

DC Yes, certainly I do and specifically interface management is something that I think everyone should be aware of. Interfaces and the management of them needs engagement from the whole project rather than it just a handful of interface managers, and I think that's really about embedding that into a culture.

The wider system engineering processes and tools, which include interface management, require investment upfront. But once they are put into place and you have engagement from the wider program team, the reduction in costs that can happen from rework or scope changes, can reap huge returns from that initial investment.

TH One thing that we're coming across in the oil and gas industry now is the huge skills shortage. Now, we know the statistics: Ernst & Young and IPA have come out with saying things like 73 per cent of projects have significant cost and time overruns - IPA says that four out of five oil and gas megaprojects fail. How can interface management address those stats given that more and more of those grey hairs are going to be leaving the industry in the very near future?

DC I don't think interface management can directly help with the skills shortage per se, but, ultimately, interface management facilitates communication. So, I think where those resourcing issues are affecting projects, you can use those interface communication channels to communicate those resource constraints. We can then use that and do something about it so that a solution between the stakeholders can be agreed and put in place.

TH How is it so difficult for people who might have been working for ten, 15, 20 years together to communicate in a cogent and coherent way between each other on a project to make sure that everything goes as swimmingly as possible? We do a lot of surveys here and one of the main barriers that comes up, no matter the discipline, nor the size of the organisation, is communication. Why?

DC That's a good question. I think a lot of the time it's not necessarily that people can't communicate, it's just not knowing who you need to be communicating with. It's quite often that you won't know the wider impact a certain decision might have. You might choose to make a small design change and you're communicating it to the immediate people who would be working on the design or working on a construction, but what about those down the line? So, that's where the communication breaks down. It's not through lack of understanding; it is informing all the right stakeholders who can then inform their stakeholders and a wider impact analysis can be performed.

Another aspect is that there are often a lot of nuances between different things that people understand. So, if I'm talking to you about a particular element of a system or solution, we might both have slightly different understandings of what that means and whose responsibility it is. It's quite often the things that you're not communicating and that you both assume you have an understanding of, which is where communication often struggles.

Sometimes it is so much easier to have pictures to represent a system. By actually having named roles and responsibilities on that picture you can all of sudden grasp who's doing what and what people's scopes are. Then, when things aren't being addressed by anyone, you can pick that up and do something about it. Just employing some simple tools and visual aids can help to get everyone in the room on the same page.

TH So do you think that it's effectively people that don't realise what the actual scope and reach of their remit is in a lot of the cases, that's where you're talking about with regards to overlap?

DC It's about communicating that scope accurately so everyone is 100% aligned. You might assume that you've asked for something, but it hasn't necessarily been explicitly stated.
That can be part of the requirements management process - that exercise to actually understand what the objectives are - and you need to put that down into the actual requirements being met. And then you can do verification and validation against them and make sure the works meet the original scope.

TH What do you think are the keys to managing a variety of contracts and to setting coherent roles and responsibilities to make sure that everybody's responsibility is properly communicated?

DC A good start would be where a lot of practical systems engineering practices that we've been talking about are embedded in the actual contracts. Everyone talks about collaborative approaches and we should be all for collaborative working, but the key is in specifying what that means. For example, you could put some systems or processes in place within a contract, to ensure all of the key stakeholders actually review the system as a whole, rather than just their specific area of concern. That involves sharing information of the wider program, not just what you've asked a particular work package to deliver but actually providing that contractor with some of the wider information, even if it's not directly to do with their work. This helps everyone understand where they sit within the big picture and what their work is impacting against.

In that way, when issues arise or someone identifies a risk, you can actually address that with the wider team and see how, collaboratively, you can go about resolving that. I think it's just about sharing the risk and sharing the reward and getting everyone to actually buy into a particular program.

TH At a fundamental level, could it be the case that some people don't even realise the importance of the information that goes through their hands or even what information looks like?

DC Essentially, if you're just passing documents about and not actually really having a dialogue about it, a lot of the information gets lost. So, if you can just get that kind of collaboration in place, all sit around the table on a regular basis, and talk about shared issues, that can be a really powerful thing to do. Again, visualisation really is key - that's where you can get over a lot of basic barriers such as language difficulties and cultural differences. If you can produce a picture that everyone can point to and understand, that is invaluable.