Atkins Rail Standardises on CATIA Version 5

Overview

- **The Challenge**

  To identify and implement a design and manufacturing system to meet their own needs and those of their clients.

- **The Solution**

  CATIA Version 5 for design and manufacturing with Photo Studio 2 for VR, animation and rendering.

- **The Benefits**

  An industry standard design and manufacturing facility.
  Direct integration with their clients.
  Rationalisation and unification of design and analysis systems.

Atkins is one of the world's leading providers of professional, technologically-based consultancy and support services, with offices in the UK, Europe, the Middle East, Asia Pacific and the Americas. Years ago the company was known for its Civil Engineering skills, today the portfolio of skills embraces engineering consultancy, design, management consultancy, IT, facilities management, environmental services, project finance, project services, outsourcing, and property services. Atkins works with public and private sector clients in a range of markets, including rail, roads, telecoms, nuclear, aviation, water, power, process, health, education, and defence.

"Within Atkins Rail we do a lot of the Civils work on rail infrastructure," said Mike Johnson, Engineering Design Manager at Atkins Rail. "We also do the signalling for the tracks and we have a rolling stock division as well. Atkins Rail can provide a full 'turnkey' service and advise on a complete new train system for developing countries, with the capacity to build or co-ordinate most of it including track laying, depots, signalling and rolling stock."

Atkins does not manufacture rolling stock -- it acts as an engineering consultant. The company does the design work and hands it off to a rolling stock constructor to build it. Most of the company's current work is associated with trains that are in service. The train operators employ Atkins Rail to resolve problems or breakdowns with existing stock or to do refurbishments to retro-fit new branding or sales strategies to existing trains. "We do the design and we can optionally project manage the complete project, ordering all the components and supervising the work," said Johnson.

> ***"CATIA is a necessary tool because of the trends and developments in the railway industry."***
>
> Mike Johnson, Engineering Design Manager at Atkins Rail

"We bought CATIA because we recognise that all the new rail vehicles are being designed and built using CATIA. We are getting data from various sources in the form of native CATIA model files, whereas previously we used to get drawings. It's very important for us to have the right systems in place as we move forward with the leading edge companies in the rail industry. The central system for design and manufacture today and in the future is

CATIA," said Johnson. "It is very important to us to be able to handle the new data standard and to be able to work with it in five years' time when we come to modify trains that are being built today with CATIA."

One of the options open to Atkins Rail was to go with a lesser CAD system and use some kind of data translation method to read in CATIA data. "Data translation is not a 100 percent solution and we wanted to be able to go back to our clients be they Alstom or Bombardier with designs or schemes in native CATIA format," said Johnson. "Our objective is to be able to move closer to these companies and be part of their extended enterprise or collaborative design team -- the only sensible way to do this is to use the same system they do."

Atkins Rail also wants to be involved in the 'new-build' side by providing branding, imaging and any other industrial design services associated with new-build. "CATIA is good for that kind of work too these days," said Johnson. "We have the Photo Studio 2 module which allows us to produce photo-realistic styling renderings -- it helps us to generate good 'visuals' to include in proposals and tenders. We can also take the models and use them in VR type presentations, in video form or in a VR Studio. We work very closely with TWR and they have a state-of-the-art VR Studio that we can use."

By standardising on CATIA Atkins Rail brings together its mechanical engineering design and analysis functions on the one hand and its industrial design functions on the other. "We want to be able to pass the same model around," said Johnson. "Traditionally these disciplines would have been completely separate. Industrial design would have given you a few sketches, other disciplines would be using their own systems and significant efficiencies would be lost. The analysis function was not as highly optimised because we were passing drawings around and 'quick' calculations were being done. With a 'master model' concept more rigorous analysis can be done on the exact geometry without any duplication. CATIA Assembly analysis is also a critical component."

This is exactly the approach taken by the leading automotive companies in trying to streamline their operations in an effort to reduce their time-to-market, in some cases 30+ different systems were rationalised down to one. "We know that companies like Bombardier have said that they would like their suppliers to use the same systems," said Johnson. "They believe they can be 30 percent more efficient in their production of new vehicles (at least). So we, as a supplier, need to accommodate that approach,

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and be able to communicate in the same a data format.”

It was a big decision for Atkins Rail to select CATIA Version 5, with the knowledge that almost everyone it would be working with, would still be using Version 4. “We decided that we do enough of our own products to justify Version 5,” said Johnson. “And as our relationships build with the manufacturers and they make the change, we will be ready for it. We know that we can take in CATIA Version 4 data and the idea of starting with Version 4 and training our designers and then moving to Version 5 soon after, didn’t make a lot of sense.”

Atkins Rail purchased 2 seats of CATIA Version 5 in December 2001, training was taken during the first two weeks in February 2002. “Applied CAE supplied the systems and did the training for us and we have a very good working relationship with them,” said Johnson. “They were excellent at the training and we’ve had occasion to use their support services since and they sorted us out very quickly.”

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