



Space Shuttle Endeavour erupts into space on mission STS-111 to the International Space Station. Liftoff occurred at 5:22:49 p.m on 5th June 2002.

asta | powerproject

ADVANCED UK PROJECT MANAGEMENT SOFTWARE HELPS LAUNCH SPACE SHUTTLE

Lockheed Martin uses Asta Poweproject to help plan and build the external fuel tank, the largest part of the Space Shuttle system.



The STS-111 and Expedition 5 crews leave the Operations and Checkout Building for the launch aboard Space Shuttle Endeavour.

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Project management is playing an increasingly critical role in today's rapidly changing business environment. Delivering products or services on time and within budget - without sacrificing quality - is now a matter of survival as much as gaining a competitive advantage. With the pressure increasing, companies across many industries recognize that time is one of their most valuable resources and investing in project management solutions will help make the most of their potential.

▶ THE EXTERNAL FUEL TANK

Effective project management has always been essential for major construction projects and complex manufacturing operations. Few projects are as complex as building the Space Shuttle, NASA's flagship manned space vehicle. Although the Space Shuttle is famous as the world's first reusable space vehicle, only part of the complete structure is recyclable. The external fuel tank, the largest part of the Space Shuttle system, is jettisoned after use and allowed to break up in the atmosphere over a remote ocean area. A new external fuel tank is needed for each Shuttle launch.

Lockheed Martin Space Systems Company, Michoud Operations at NASA's Michoud Assembly Facility in New Orleans, Louisiana, builds the External Tank (ET). A huge structure, 47 meters long and 8.4 meters in diameter, it holds over 2 million liters of cryogenic propellants that supply 3,900 liters of fuel per second to the Shuttle's three main engines. It also forms the main structural backbone to the Shuttle, absorbing most of the thrust on takeoff. Manufactured in one of the world's largest buildings - covering almost 17 and one half hectares under one roof - the completed tank is so enormous that it has to be shipped by barge to its launch destination in Florida.

▶ ALMOST A KILOMETER OF WELDING

“Thousands of parts go into producing an External Tank,” says Teresa King-Dillon of Lockheed Martin Space Systems Company, Michoud Operations, who as Master Planner is responsible for the External Tank Master Production Schedule. “There is almost a kilometer of complex welding that is necessary to manufacture the external tank, not to mention electrical

and mechanical installations. Once welded, the Thermal Protection System must be applied. The logistics involved in scheduling its manufacture are highly complicated, especially since we are always under time constraints. We strive to schedule our resources in the most efficient manner and still meet our delivery constraints.”

▶ THE CHALLENGE

Until recently, Lockheed Martin - which has been making the fuel tanks for over a quarter of a century - created the master production schedule using limited automated methods.

“At each update we have to assess exactly what progress has been made, determine what needs to be done next, and how resources should be allocated to achieve it,” says Ms. King-Dillon. “We had people gathering this information and making schedules for the next phase, a process which was labor intensive. Unfortunately, once these were complete, things had already moved and the data was not current.”

In the past few years, the development of sophisticated project management software has revolutionized the labor-intensive world of scheduling. Ms. King-Dillon started to look for an alternative to make the planning process more efficient.

“Although I had previously generated master plans electronically, there were too many variables and I found it both faster and easier to make the schedules using standard methods. When we looked at project management packages, we evaluated many and concluded that most could not accommodate the complicated nature of our project.”

▶ THE SOLUTION

The solution came from project management specialists Asta Development, a UK based company.

“When challenging events occur, I can tell within minutes exactly how it’s going to impact the schedule.”

Asta’s PC-based project management tool Asta Powerproject, is designed to combine powerful features with simplicity and speed - particularly when dealing with complex projects involving many tasks.

Teresa King-Dillon is delighted with the system. “This is the only package I found which allows me to schedule multiple tasks on a single bar, as well as providing additional benefits. Asta Powerproject demonstrates visually the implications in time and resources when a new task is added. With other software, we spent a lot of time just re-sequencing the schedule to get it to work - Asta Powerproject lets us experiment as much as we like with ‘what if’ scenarios to provide a better solution.”

Thanks to Asta Powerproject’s intuitive interface, the planning team at Lockheed Martin easily learned to use the software and soon found that the scheduling process - which had taken a few weeks - could be completed in a few days.

“Asta Powerproject lets us experiment as much as we like with ‘what if’ scenarios to provide a better solution.”

Ms. King-Dillon also discovered that by using this software, workflow management is also more effective. “The automatic time analysis function warns us if we are going to have a work station resource overload. When challenging events occur, I can tell within minutes exactly how it’s going to impact the schedule. Before, we did not have the capability to do that as quickly.”



Space Shuttle Endeavour clears the lightning mast as it hurtles into space on mission STS-111 to the International Space Station.

▶ REAL-TIME PROGRESS AND REPORTING

Asta Powerproject has taken a lot of the work out of reporting progress to management. “We’re able to give management accurate, automatic updates on a weekly/daily basis, as required. They can now easily get a snapshot of where each project is, in real time.”

Lockheed Martin has found technical support to be outstanding despite the fact that Asta’s technical team is based in a different continent. “Asta’s technical support people are awesome. What I want to do may seem idiosyncratic, but the support team always finds unique and creative ideas to help.”

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▶ ASTA POWERPROJECT SCALES TO MEET DEMAND

The only difficulty that Ms. King-Dillon encountered was Powerproject’s high upper limit of 127 task segments per stage, an area that needed to be customized by Asta to meet Lockheed Martin’s particular requirements. “The Master Schedule encompasses more than 5000 activities across 85 major workstations.”

User feedback drives Asta’s software development programme and Lockheed Martin moved on to Asta’s latest version of the software which has no limits on the size or complexity of projects.

“Asta Powerproject has totally changed the way we do business in Master Scheduling,” says Ms. King-Dillon. “It greatly enhances our master scheduling process.”

QUICK FACTS

Customer:

Lockheed Martin Space Systems Company, Michoud Operations,
New Orleans, Louisiana, USA

Industry:

Advanced Technology Manufacturing

Project:

Building the External Tank for the NASA Space Shuttle

External Tank:

47 meters long, 8.4 meters in diameter, holds over 2 million liters
of cryogenic propellants, almost a kilometer of welding

Project management software:

Asta Powerproject

Services from Asta Development:

Customization, integration, training and support



ABOUT ASTA DEVELOPMENT PLC

Asta Development, an Eleco Plc company, is a leading UK based developer of project portfolio and resource management software solutions. We help organisations realise their strategic objectives through the effective management of resources, costs and deliverables across multiples projects. Asta Development launched Asta Powerproject in 1988. Since then it has led the market in innovative project and resource management solutions. Asta Development has users in over 50 countries worldwide in a range of industries including, Oil and Gas, Pharmaceuticals, Engineering and Manufacturing. Users include Mace, Fosters and Partners, EC Harris, Hochtief, Bovis Lend Lease Juwi, Skanska, Bovis Lend Lease, Costain, Balfour Beatty, Carillion, Fugro Middle East, Cyril Sweett and many more

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