Kennedy Space Center
1990 Phase II

Automated Manifest Planner (AMP)

Stottler Henke Associates, Inc. (SHAI)

San Mateo, CA

AMP screen display

INNOVATION

SHAI has developed a software system called the Automated Manifest Planner (AMP) that automatically makes scheduling decisions based on knowledge input by expert schedulers.

ACCOMPLISHMENTS

SHAI is commercializing an artificial intelligence (AI)-based software system developed to help NASA with complex Space Shuttle scheduling decisions. The Automatic Scheduling System, known as the Automated Manifest Planner (AMP) at Kennedy Space Center, was designed using AI techniques, allowing expert Shuttle schedulers to input their knowledge to create a working automatic scheduling system.

NASA/KSC is using the AMP product to develop optimal manifest schedules, which support ongoing Shuttle program efforts to reduce labor costs. Current commercial sales total $400,000, exceeding NASA's SBIR investment, and private investment is at $50,000.
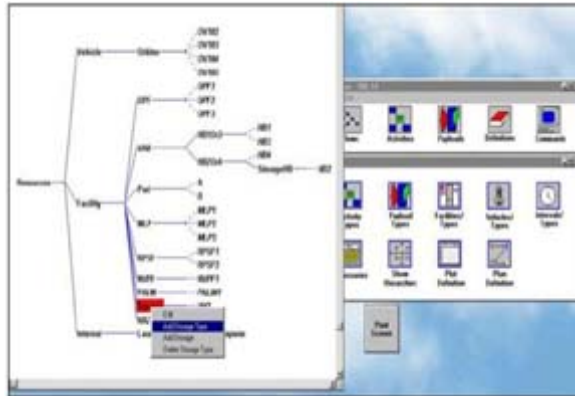
In 1994, the Mission Planning Office was dissolved and the long-term planning component was transferred to United Space Alliance (USA), the primary Shuttle contractor at KSC. The AMP system allowed personnel unfamiliar with long-term scheduling to maintain it without years of previously required training. AMP has now been used on a daily basis for 7 years to maintain manifests, perform advanced "what if" studies, and produce manifest reports for all NASA field centers.

COMMERCIALIZATION

SHAI is marketing this software tool and other related products to industries involved with many resources, activities, and constraints, particularly when it is desirable to plan and project changes for many cycles or years ahead.

This type of scheduling is common in vehicle assembly plants, batch processing plants, semiconductor manufacturing, printing and textiles, batch processing, surface and underground mining operations, and maintenance shops, where scheduling the use of different pieces of equipment that work together impacts production rates and costs.

For most of SHAI's commercial sales, the company obtains a service contract to customize AMP to a specific domain and then issues the customer a user license.

GOVERNMENT/SCIENCE APPLICATIONS

AMP was developed in response to NASA's need to automate the scheduling decision-making associated with maintaining the long-term Shuttle processing schedule.

AMP automatically schedules long-term space shuttle processing operations and sets launch dates at Kennedy Space Center.

AMP now schedules the short and long-term external tank/solid rocket booster (ET/SRB) processing.

The ET/SRB scheduling process is much faster and much more accurate than the previous manual process.