

Flow Based Planning and Execution Cuts Cycle Time, Improves Customer Satisfaction

Faced with runaway schedules and an unhappy customer, the Boeing's T45 flight training simulator development program applied flow-based planning and execution to cut cycle time, shave costs, and improve first-time quality.

Client Background and Business Situation

Boeing's T45 flight simulator device facilitates ground-based training of undergraduate military flight officers. The program involved designing and manufacturing an operational simulator that assists in training the student in air and surface threat interaction and tactical fundamentals. This group's external customer is the United States Navy with Boeing's training wing as major internal stakeholder.

Multitasking: Major Cause of Delays and Poor Quality

Complex software requirements and supplier delays on the project led to an overload of work in process (WIP). As WIP grew, engineers and experts had more open streams of work. Switching frequently from one to the other, caused delays and poor quality. The result was program delays and budget overruns eroding customer confidence.

Reducing Multitasking To Achieve Synchronization in New Product Development

The client set two major targets for improvement:

- Reduce Design Development Phase cycle time from 10 months to 8 months within scope and budget
- Complete projects with higher first-time quality in the Hardware/Software Integration phase

To achieve these goals, the client created a core team, introducing it to the concepts of flow-based planning and execution. These concepts included Critical Chain methodology and the Concerto tool.

This client implemented the following measures:

- Prioritized and batched functionality into four major threads/streams
- Related streams were batched together

Results

- Projects finished 1.5 months ahead of schedule
- 20% cost savings in design development phase
- Customer confidence restored



- WIP was reduced by allowing only two batches in progress instead of four; the next thread was released only when an in progress thread was completed
- Instead of having one overall Preliminary Design Review (PDR) and Critical Design Review (CDR), each thread had its own PDR and a CDR

Results

Over the course of a 14-month period the Boeing T45 group realized dramatic improvements across several domains:

Schedule

- Design and development phase was completed 45 days ahead of schedule
- Hardware-software integration phase completed 32 days ahead of schedule

Quality

- Preliminary design review completed without a single request for action
- Unprecedented first-time quality for a complex training device

Cost

- Approximately 20% savings in the design and development phase
- Estimated 25% cost reduction in the hardware/software integration phase
- Restored customer confidence resulting in new business



**If doing projects 20-50% faster is vital for your organization,
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