

Peter Howard, Director of Software Engineering, CNI Division, BAE SYSTEMS

INTERVIEW TRANSCRIPT

Who is BAE SYSTEMS?

BAE SYSTEMS is a systems company, which employs nearly 100,000 people including joint ventures, and has annual sales of around \$18 billion. The company offers a global capability in air, sea, land and space with a world-class prime contracting ability supported by a range of key skills. BAE SYSTEMS designs, manufactures and supports military aircraft, surface ships, submarines, space systems, radar, avionics, communications, electronics, guided weapon systems and a range of other defense products. BAE SYSTEMS, CNI Division, designs and manufactures communications systems, navigations systems, and avionics systems for our military services.

And, what is your role in the company?

My name is Peter Howard, the Director of Software Engineering, at BAE SYSTEMS, CNI. I am responsible for on-cost, on-schedule delivery of the software in CNI's deliverable products while meeting the technical and customer requirements. Additionally, I am also responsible for continuously improving our software capability and productivity.

What made you decide to adopt the Fagan Defect-Free Process?

Historically, our integration schedules were being exceeded due to excessive number of defects leaking from the design phase into the test phase. We needed a rigorous process that would eliminate defects in the phase they were generated in. This would minimize leakage and improve our schedule performance. We adopted the Fagan Defect-Free Process as the formal process to achieve left-shift detection. It has a formal process definition with exit and entry criteria that we felt was very rigorous. Additionally, the process of root cause analysis of systemic defects was right in line with our philosophy of continuous process improvement goals of SEI CMM Level 5.

How did you implement it at BAE?

We trained our entire software group of 100 software engineers over the course of several training sessions and expanded the training to the systems engineering directorate. The impact was almost immediate. After the first course, the primary project represented in the course began to use the Fagan Process immediately with 5 to 8 defects per inspection being detected. The process was embraced by the engineers and quickly and easily spread throughout our organization.

What are the results to date?

We have conducted in excess of 400 inspections over the past 4 years and still realize an average ROI of 5 to 1. Our defect detection rate has gone down from 5.4 defects per inspection to 4.3 defects per inspection. This is a result of the learning benefit of the Fagan Process. Prior to the adoption of the Fagan Process, nearly 50% of the defects were escaping into test and integration. Today, we are much improved such that 75% of

the defects are being detected prior to test and integration. Our goal is to achieve 80+% this year with increased coverage.

Is this part of an overall strategy at BAE?

The Fagan Process has been part of an overall improvement plan that we have implemented over the past several years. Our cost performance has improved 26% over the past 4 years. Our on-time delivery performance has improved 33% over the past 5 years. And our productivity has improved 16% over the past 4 years.

Have your customers seen any effect from your efforts with the Fagan Process?

Our customers are very satisfied with this performance and enjoy doing business with a high maturity organization that implements effective processes like the Fagan Process to achieve real results. Several of our customers have complimented us on the rigor that we use in detecting defects, learning from our mistakes through root cause analysis, and the resulting decrease in defect insertion.

What about the engineers themselves?

Our engineers are very happy to use the Fagan Process. It actually reduces the amount of their time required to complete projects and they are better able to balance their work life and private life.

Any other thoughts?

In summary, we are very pleased with the Fagan Process and the results it has brought to us. It is part of our company culture at all levels in the organization.