

# INDUSTRIAL & QUALITY ENGINEERING

*Applying Optimization Methods to Find the Best Solutions*

## Product & Process Optimization

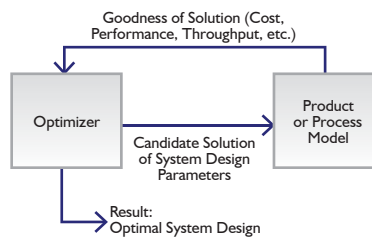
Government and Industry seek solutions to maximize product performance and minimize production costs. Too often, a feasible solution for a complex product or process design problem is reported to be the optimal or best solution when no true analysis has been done to determine if a design is truly the best.

These solutions often fall short in providing the full performance and profit potential to the customer.

APT engineers are experienced in applying optimization methods to find the best solutions for your product and process design problems. We apply optimization techniques to computer models of your products or processes to determine the best solutions needed to maximize performance or minimize costs. We can model and optimize your systems or build optimizers for legacy models you currently use.

APT Research supported the Government's effort to validate assembly and test procedures for the NMD interceptor missile at Boeing facilities in Anaheim, CA, and Redstone Arsenal, AL.

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## Capabilities

APT Research provides solutions for hard to solve problems related to product and process design, quality, production planning, and reliability.

APT engineers apply state-of-the-art analytical tools to provide our customers with innovative solutions to meet their production and quality requirements. These tools include:

- Activity Based Costing and Management
- Process Simulation
- Optimization Techniques
- Designed Experiments / Taguchi Methods
- Statistical Process Control
- Expert Systems and Neural Networks



## Quality Engineering

Complex production processes often experience periodic quality problems. Solutions require the identification of the root cause of the problem and adjustments to the system needed to achieve quality requirements. With potentially thousands of variables affecting a production system, this can be a challenging task.

APT engineers are experienced in solving challenging quality problems in the aerospace, electronics, and metal fabrication industries. We apply quality tools, including design of experiments, to determine the needed solutions with the minimum costs.

## Reliability Engineering

APT Research is experienced in providing reliability estimates of component systems for several aerospace programs.

APT engineers recently produced a spreadsheet tool that solves the AMSAA Discrete Reliability Growth Model. This model is applicable for single shot devices to include missiles, rocket motors, warheads, and other ordnance devices.



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