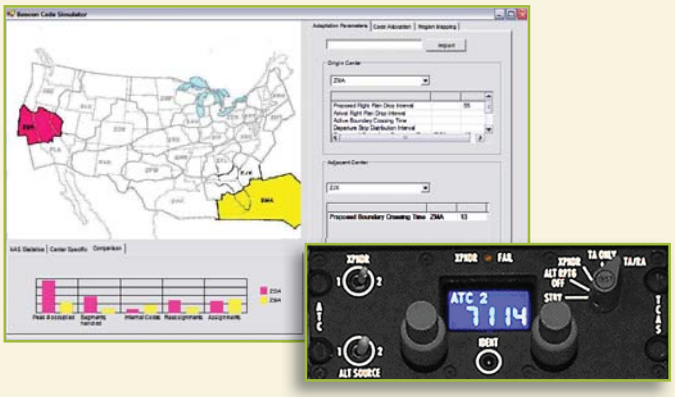
CSSI, INC.
Moving Research to Reality

Operations Research

CSSI applies multifaceted experience in analysis and problem solving to help clients make smarter decisions and accomplish their goals. We help them fully define their challenges, understand the ramifications of their options, and successfully manage their programs.



Since the 1970s, when the FAA began automating air traffic control, the availability of discrete transponder codes to uniquely identify aircraft has been important. With slightly over 2,000 distinct 4-digit codes available for civilian use, there were plenty of codes to allow every flight in the continental US to have its own code. By the late 1970s, air traffic had increased so much that codes had to be reused in different parts of the country. Occasionally, a flight's code was changed due to the code already being in use within the air traffic control center.

By the year 2000, air traffic levels increased to over 6,000 flights being in the air at any given time, making code reassignments routine and, occasionally, some flights were not able to receive a discrete code at all.

In 2007, the FAA updated the en-route Host computer software to allow aircraft beacon codes to be assigned based on the flight's origin and destination as opposed to the origin only. CSSI used simulated annealing to optimize the codes that are allocated to each origin-destination combination. The codes generated through this analysis will be in use in every air traffic control center in 2008, and our simulation indicates that code reassignments will decrease by 50% or more.

CSSI satisfies our customer's needs by providing comprehensive services in the following areas:

Decision Support Systems

- Application of standards, methods, and tools to assist in development, implementation, maintenance, and analysis of complex systems
- Domain-specific applications incorporating operational criteria and mission success performance
- Collaborative development environment using advanced Service Oriented Architecture (SOA) techniques

Safety Management

- Risk determination through hazard analysis, risk assessment, and mitigation development
- Risk criteria determination, domain-specific data analysis, and standards development
- Practitioner-focused training, safety culture and best practices development
- Technical documentation, policy development, and implementation planning

Operations Analysis

- Change analysis and change readiness determination
- Criteria and standards development
- Domain demographic analysis

Cost-Benefit Analysis

- Regulatory impact analysis and compliance assessment
- Cost analysis and estimating
- Benefits determination through engineering analysis, simulation, and modeling

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