Advanced Specialty Engineering Improves Customer Satisfaction & Reduces Your Cost
Charles Coogan, Founder, ALE

Today’s product development environment places high demand on cost to you to address all the factors that impact aftermarket burdens. Examples are the requirement to report on your products’ burdens in the areas of safety, reliability, Human Systems Integration, logistics, and Life Cycle Cost. In the process of satisfying your customer’s requirements in these areas, you frequently encounter repeat cycles of your document and reports to implement minor changes or updates. This further increases your cost. This short paper introduces the approach developed by ALE to reduce your cost and at the same time increase your customer’s satisfaction with your deliverables that address these program objectives.

At ALE, and in a large segment of the industry, we refer to the full set of analyses that deal with the aftermarket burdens to the end user, or Warfighter, as Specialty Engineering. It covers the analyses that support design engineering to produce a product that is safe, reliable, easily operated and maintained, and has the support resources that are required to keep it operating over the product’s life cycle. It includes the sometimes overlooked analysis of expected Life Cycle Cost.

Because each of the components of Specialty Engineering are sponsored by individual segments of the product development community, the emphasis on requirements for analyses tends to promote individual analyses for each component. For example, a Safety analysis that meets requirements of...

We have examined the required level of detail that provides the optimal input to produce the greatest design impact at the least cost

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Why should your contractor be a full-service specialty engineering provider?

**DK:** Full-service providers possess the capability to provide system level insights that span across all areas of specialty engineering and provide the best value for your project.

What makes a Small Business well-suited for providing Specialty Engineering activities?

The small business environment is more intimate and typically more flexible. These characteristics foster a positive attitude and promote an environment of open communication that improves the overall quality of support while reducing cost. Good internal communication allows the provider to leverage the breadth of capability and knowledge of the entire staff to identify and share important insights quickly and efficiently in order to complete tasks.

How does ALE’s approach to integration of Specialty Engineering lead to results exceeding customer needs?

ALE cross-trains its employees to provide the flexibility and capability to support a broad range of Specialty Engineering activities. The employees’ combined experiences and expertise, and ALE’s approach to the early planning and integration of analysis efforts, allow us to efficiently identify insights across all Specialty Engineering activities. This results in elimination of redundant tasking and provides valuable insights related to system safety, performance, supportability, etc. for a program early in the development phase when the opportunity to improve the design is still present.

Introducing Our New CEO: Joe Coogan

Joe Coogan returned to ALE after retiring from the Air Force in 2014; and beginning in January 2015 succeeded his father, Charles Coogan, as ALE’s CEO.

After 25 years of service, Joe retired from the military in rank of Colonel. During his Air Force career, Joe was a pilot in the F-15 C with over 2000 flying hours. He held various positions including working in the labs at Wright Patterson AFB, Commander of the 18th Operations Support Squadron at Kadena, AB in Okinawa, Japan, Deputy Group Commander of the 48th Operations Group at RAF Lakenheath, England, and PACAF Deputy Inspector General at Hickam AFB, Hawaii. In addition, he earned two master degrees in Aeronautical Science and Military Operational Arts and Science.

Joe attended The Ohio State University where he graduated with a degree in Aeronautical and Astronautical Engineering. After graduation, he worked at ALE for three years until he joined the Air Force. Joe is married to his high school sweetheart, Renee, and they have 4 children: Kelsey and Katelin, who attend The Ohio State University, and twins, Joey and Megan, who are juniors at Worthington Kilbourne High School. Renee has also joined ALE in late 2014 as the Administrative Manager.

Contact Joe at jcoogan@ale.com

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Ask the Expert

With Darryl Kellner, Director of Specialty Engineering, ALE

When you see requirements for Specialty Engineering activities, it can be difficult deciding who should perform the work. Is it best accomplished in-house? By a small or large firm? How will your customer view using a subcontractor? I sat down with ALE’s Darryl Kellner to find out. He has 15 years of experience in effectively applying SE analyses to improve performance, reduce cost, and improve system readiness. — Elizabeth Schwartz, Sr. Systems Analyst, ALE
MIL-STD-882 will examine the maintenance tasks for safety implications. At the same time, a Reliability and Maintainability analysis under ANSI/GEIA-STD-0009 will require definition and quantification of the same maintenance tasks. This overlap leads to unnecessary cost and the potential for reporting inconsistent results to your customer.

Over the more than 30 years that ALE has been serving our customers in Specialty Engineering at all levels from vendors to the Prime Contractors, and beyond to the end user, we have studied the process from many perspectives. This has enabled us to make significant improvements in the individual analysis areas. As a result, we frequently receive high praise from our clients for our work.

During the past 2 years, motivated by the need to reduce cost to our clients, ALE has embarked on a major effort to enhance the approach for performing Specialty Engineering. We have carefully examined each of the analysis areas to determine the inputs, outputs, and documentation formats of each of the parts of Specialty Engineering. We have also examined the required level of detail and timing that provides the optimal input to design to produce the greatest design impact at the least cost. Results of these studies have now been used to develop inputs to major program proposals and as the basis for developing vendor purchase specification for use by prime contractors.

Many of our clients attempt to reduce the cost of Specialty Engineering by delaying starting the process until the design stabilizes. At ALE, we have developed effective ways to perform preliminary versions of the analyses to impact design while we defer the more detailed analysis and related report until near the due date for the deliverable reports. This maximizes the benefit of design impact while reducing the cost.

At the Government customer level and, to a lesser degree at the Prime Contractor level, there is a strong desire to see

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Employee Spotlight: Daniel Foley

Daniel Foley is a Systems Analyst with ALE. He started with ALE in September of 2013 and was awarded ALE’s Employee of the Quarter for the 4th quarter of 2014. Daniel is from Westerville, OH and graduated from The Ohio State University in 2012 with an Electrical and Computer Engineering Degree.

At ALE, Daniel has been involved in over two dozen different programs supporting systems engineering, product testing, reliability, safety, life cycle cost, and maintainability activities. Daniel also helps maintain the IT systems at ALE.
each of the specialty engineering analyses as separate entities. This is reasonable due to the specialization of the reviewers and the specifics of the Data Item Descriptions. At the lower levels of design, such as the vendor or major assembly level where design actually occurs, it is practical to alter the process to favor integration of analyses.

Unlike the upper level, such as Prime Contractor or the Government, where specialty engineering is split between separate groups, at the vendor level there is an opportunity to integrate the elements and perform them all within a 2-3 person group working directly within the design group. This is how ALE prefers to perform Specialty Engineering. We assign 1-3 experienced and qualified members of the team to perform all aspects of specialty engineering as an integrated unit.

When we are assigned responsibility for all elements of specialty engineering for a product, we can usually reduce the cost by as much as 20% while significantly increasing customer’s satisfaction. The figure on Page 3 presents ALE’s approach to integrating Specialty Engineering to reduce cost and increase customer satisfaction.

Let’s put ALE’s approach to integrating Specialty Engineering and influencing design to work on your current or next program to reduce your cost and increase customer satisfaction. If you are in the process of bidding the design, development, or modification for a new contract, let ALE help produce a winning proposal based on integrated Specialty Engineering. You will be glad you did.

For more information on this exciting approach or to put it to work on your program, please contact Stephen Brunner at ALE by phone at 614-436-1609 or through e-mail at sbrunner@ale.com.