

---

APS1013 Applying Innovation in Engineering – Final Team Projects, Fall 2012**Aircraft Manufacture Start-up: Implement ISO 9000 Certification Readiness Capability****Project definition**

In the life of a start-up, while technical challenges come and go and get solved one at a time, an omnipresent challenge that often remains un-noticed, but is critical to the growth of a company, is the implementation of the necessary changes required to transition to an ISO certified operation. Technology companies start with prototyping (whether within the walls of a university or in a hangar somewhere). During that feasibility stage where proof-of-concepts and early prototypes are created, standardization of processes is not generally the primary focus of a company. As one grows from start-up to a global manufacturing player and the major technology challenges are resolved, ISO certification of manufacturing facilities becomes a requirement that one needs to reach to achieve an internationally recognized status of quality. While various industries have specific challenges during this phase, our client's main challenges are as follows:

1. Challenges with efficient information - *Dissemination*

Being a global company with partners working together on 3 continents and various time zones, information dissemination between all parties is in constant need of improvement and communication. Inefficiencies result in amplified development delays due to time zone differences.

2. Challenges with ISO - *Certification*

- challenges related to phasing in an ISO certification while minimizing work disruption
- challenges related to having global suppliers with various quality standards

Scope of work

Creating an implementation plan for our client, an emergent aircraft manufacturer, to move from a start-up prototype stage to a global manufacturing ISO certified entity. Within that plan, the specific challenges highlighted above will be specifically addressed.

**Executive Summary**

In this report, an overall examination of an ISO standard certification was performed for an industry client. Additionally, internal and external communication problems were analyzed and potential solutions were presented.

Two potential standards were examined: the ISO 9000 series and the more specific aerospace AS 9100 series. The ISO 9000 series standard was selected to be more suitable to the client at the present; this is due to the fact that ASO 9100 is merely an addition to ISO 9000 and specific to suppliers for the aerospace industry. However, ISO 9000 would act as a potential stepping-stone to AS 9100 in the future. Individual sections of the ISO 9001 Quality Management System (QMS) were examined in greater detail for the remainder of the report. These sections include Quality Management System; Management Responsibility; Resource Management; Product Realization; and Measurement, Analysis, & Improvement.

ISO certification would provide several benefits to our client, including the following: enhanced corporate image; improved operations processes; better tracking; and clearly defined roles and responsibilities. Drawbacks of ISO certification include certification and implementation costs, as well as temporary loss of entrepreneurial ability. Becoming ISO certified carries different values in different regions of the world, which must be considered in final decisions of applying for certification. ISO is increasingly becoming

accepted in Asia, a potential market, and to a lesser extent in Africa, where ISO growth is relatively stagnant.

In order to cater to the client's unique organizational structure and operations, requirements for each ISO section were identified for specific business processes within the company. This process was split into three separate Sections: Corporate Strategy, Core Processes, and Supporting Processes. Corporate Strategy analyzes the requirements for the company as a whole, while the Core Processes examine the requirements for the following processes: Purchasing; R&D, Design, & Testing; and Manufacturing. The examined Supporting Processes consist of Information Technology, Finance & Legal, Human Resources, and Marketing & Public Relations.

Using the newly determined requirements of each business process, an implementation plan, including a company-specific timeline, was formulated to bring the client's Quality Management System to a standard level, in accordance with the ISO standard. The recommendation was made to re-evaluate the company's need for ISO certification closer to the planned commercialization in 2014.

The last section of this report described the importance of communication efficiency within a company. This includes an overview of the difficulties the client is facing; a comprehensive list of potential solutions to these issues was then proposed and explained in detail.