

55th EOQ Congress
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"Navigating Global Quality in a New Era"



June 21, 2011 (Tuesday) 55th EOQ Congress

CONCURRENT SESSIONS
KEMPINSKI HOTEL CORVINUS

Tuesday 13:30 – 17:30
Erzsébet tér 7-8, Budapest V.

SALON CORVINUS

Tuesday 13:30 – 15:00

13.1. MANAGEMENT SYSTEM CERTIFICATION AND THE AUDITS

Session Chair: *Olav F. Finsnes, Norwegian Society for Quality and Risk Management, Norway*

14.10 Audits in the Aerospace Industries - Past, Present, Future

Gideon Roth, Cabiran Ltd., Israel

Roth, Gideon (Israel)

He is Quality, Regulatory and Security Director in Cabiran (1991) Ltd, a leading foundry in aluminum investment casting located in Kibbutz Cabri in northern Israel. He has more than 30 years of experience in various industrial fields and positions but works mainly in the Aerospace quality field. Gideon is member of the Israeli Society for Quality (ISQ) since 1986. Currently he holds a position of an elected manager in the ISQ management. He is holding the position of chair of the International Affairs Committee of the ISQ and is member in the Academic relations and the members committees.

Gideon is a senior member of the American Society for Quality (ASQ) since 1986. Now he is a member of the leadership of the Aviation, Space and Defense division of the ASQ.



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Abstract

Audits in the Aerospace industries– Past, Present and future

Since the beginning of aircraft manufacturing the need to perform audit to the manufacturers and their processes has been identified. The two world wars and the move to mass production on one hand and the global chain of supply on the other set a base for the audit system. As the industry progressed so did the auditing and its requirements. The standards in use in the Aerospace were changed from prime manufacturer *specific* standards to *generic* standards.

In the beginning the aeronautical industry, as it was called then, used inspection to assure that the airplanes are conforming to their requirements. Each of these manufacturers used their own standards and procedures.

In Britain the government decided on a policy that will govern the industry but still each of the manufacturers was responsible for their own operations. However the policy extended the control in such a way that the manufacturing process was covered from receiving to shipment.

To control the implementation of the policy and to implement the required controls the Aeronautical Inspection Directorate [AID] was established. To be in command of the process the AID nominated an inspector for each manufacturer.

The Second World War brought the need for a massive airplanes manufacturing but as the prime contractors were overloaded the need to delegate work for subcontractors was identified. This work delegation enabled the prime manufacturers to concentrate on design and assembly while the subcontractors made the parts and subassemblies. However this new process required a use of an improved control system and the need for audits was raised.

The first auditors were the same inspectors that the AID nominated. Their task now was a control of the facility in which they were stationed. A new system was made that enabled a good control on quality and performance.



Since the fifties of the 20th century standards related to design, inspection and auditing were published resulting in national standards such as military ones in the USA or government in others.

The results of this long chain of standard development were the ISO 9000 series which standardized the quality management system and included the required controls for the purchasing, manufacturing, supply and service. To verify compliance to the standard audits were implemented and a standard for auditing was composed. However many industries felt that they require more controls and the result was the basic ISO standard with added requirements. The aerospace made its own variation which is the AS9100 series.

The group that composed this series is the International Aerospace Quality Group – IAQG. The group is made of the prime aerospace contractors who wanted to have a generic agreed upon standard that shall be controlled by certified auditors and that shall reduce the amount of audits performed. The standard is now in its revision C which was released recently and which is updated to the current methodology of a supply chain.

The AS series set the process of quality management systems but in the aerospace industry there are processes that affect the products. Due to the high safety requirements in the aerospace these processes were always been audited by the prime manufacturers and again various standards and requirements were in place resulting in a complex systems. In the path of the AS series it was agreed to have a standard system for the processes. Also it was agreed to have a central auditing body that shall audit the various suppliers on the basis of the new standard. Thus PRI in the USA was nominated and a system called NADCAP was established.

The requirements set by the manufacturers are continuously in change. These requirements affect the several levels of the aerospace industry {Prime, Tier 1, Tier 2 etc.} and thus the aerospace quality professionals are required to be with their hand on the pulse constantly.