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2-25-2020

Aviation Maintenance Safety Management Challenges : Thematic Analysis

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Introduction

Aircraft maintenance is a fundamental and necessary element in any aviation operation. In order to be considered safe and airworthy, operators must be diligent in the way aircraft are maintained and how employees are performing. A safety management system (SMS) is an organized approach by management to include every employee of a company that standardizes the procedures a company will follow to improve safety. The structure of SMS was designed by the International Civil Aviation Organization in order to be standardized across different countries and types of operations. Currently, only part 121 U.S. commercial airlines are mandated by the Federal Aviation Administration to have a safety management system in place.

SMS Framework

Safety Policy	Demonstrates the management's commitment to improve safety. The approach and process needed to meet safety objectives are outlined.
Risk Assessment	Hazards are identified, risks are analyzed and controls are designed and put in place.
Safety Assurance	Controls are evaluated and improved if needed. New hazards are identified. Organization participates in information acquisition procedures: employee reporting, audits, flight data monitoring
Safety Promotion	SMS Training is provided to employees. The organization advocates and encourages a strong safety culture. Every employee plays a part in the safety of the organization.

2009 Public Aviation Comments

The Federal Aviation Administration (FAA) asked the flying public to provide commentary and recommendations regarding the possible regulation of SMS in all industries of aviation. The public participants were divided into the Maintenance Working Group, Operations & Training Working Group, and the Design & Manufacturing Working Group.
The results of the public commentary led the FAA to require Part 121 Commercial Air Carriers to have a safety management system in place.

The Maintenance Working Group had split views both for and against the regulation of safety management.

Smaller organizations: Although the value of SMS is understood, a voluntary system was preferred.

Larger organizations: SMS was viewed as invaluable and aligned with the existing systems of quality assurance and continued analysis of organizational systems.

Positive Viewpoints:
- Record keeping was predicted to improve.
- Internal reporting programs would expand.
- Safety Management would reduce costs of accident/incident damages, losses, and medical expenses.
- Any organization would benefit regardless of size
- Smaller organizations would benefit from the change in safety culture

Negative Viewpoints
- SMS guidance is directed toward flight operation and not toward maintenance
- A full SMS would be difficult to implement for small organizations.
- A full SMS could cost more than a small organization can afford.
- Additional processes will need to be designed to harmonize with an SMS program.
- The implantation of an organization-wide safety program will be time consuming.

The commentary provided by the Maintenance WG in 2009 led the Federal Aviation Administration to put SMS regulation on hold for maintenance repair stations. SMS regulation still applies to repair stations attached to commercial airlines. Private repair stations, flight schools, and other public flying designations may have a voluntary Safety Management System if they wish.

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Stolzer, A. J., Halford, C. D., & Goglia, J. J. (2010). *Safety management systems in aviation*. Farnham, Surrey: Ashgate