



Safety Management Systems Small Operator Pilot Implementation Project Final Report

Civil Aviation
Fall 2006
RDIMS 2030163



This report should in no way be interpreted as an assessment of the industry participants' compliance with developing Transport Canada Civil Aviation Safety Management Systems.

Acknowledgements

This project's success is the result of the dedication, hard work and unreserved participation of our sixteen industry partners, their employees and Transport Canada's team members. A list of companies and Transport Canada participants is available in Appendices B and C.

Table of Contents

Executive Summary	3
Purpose	4
Background	4
Project Details	4
Recommendations	6
Appendix A – Terms of Reference	9
Appendix B – Industry Partners	16
Appendix C – Transport Canada Team Members	17
Appendix D—Complexity Charts.....	18

Executive Summary

In response to industry observations regarding the implementation of safety management systems (SMS) in small operations and as part of Transport Canada's continuous improvement process, the SMS Small Operator Pilot Project (SMS SOP) was established in May of 2005. The goal of this project was to evaluate the guidance material, tools and implementation processes developed by Transport Canada (TC).

From a large group of volunteers, the pilot project comprised sixteen enterprises from across Canada. The enterprises ranged in size from one person, single certificate operations, to a fifty-employee, multi-certificate organization. The certificate holders were given a condensed timeline of one year to implement SMS. The compressed timeline presented a greater challenge to the participant companies than would be experienced by companies following the intended three year phased implementation schedule.

Results from the project indicate that SMS can be successfully implemented and become a positive addition to small operations. However, the industry-TC project team identified the need to continue to develop and/or update infrastructure in the following areas:

- implementation procedures;
- guidance material;
- data management; and
- training.

Full details on these items can be found in the Recommendations section of this report.

Purpose

In accordance with the SMS SOP Project terms of reference, this report represents the final project deliverable. It provides information on SMS SOP project activities, including recommendations. The report and its recommendations pertain to *Canadian Aviation Regulation* Subparts 406, 573, 702, 703 and 704.

Background

During the September 2004 Joint-Part V/VII SMS Canadian Aviation Regulation Advisory Council (CARAC) meeting, industry stakeholders expressed concern regarding the application of SMS to smaller air operators and aircraft maintenance organizations (AMOs). Transport Canada Civil Aviation (TCCA) then committed to establish a trial implementation of SMS with selected small operators to validate TCCA assumptions, recommend changes where applicable and provide a foundation for the next phase of implementation.

Project Details

On January 27, 2005, members of the Part V and Part VII CARAC technical committee were invited to name companies interested in voluntarily participating in the project. A total of 16 companies were selected from those that volunteered. These 16 companies (Appendix B) represent a broad distribution of certificate types, company complexity and regional diversity.

To achieve the CARAC mandate, a regionally-based, headquarters-managed project team was selected (Appendix C) and terms of reference (Appendix A) were developed to outline project objectives, accountability, etc.

The project objectives:

- (a) Identify a cross-section of small air operators, flight training units and AMOs, taking into account such factors as: number of employees, aircraft types and/or ratings, scope and types of operation and operating environment;
- (b) Review implementation strategies for the currently proposed regulations for small companies and make recommendations regarding any required changes;
- (c) Evaluate the tools and guidance material on SMS developed by TCCA and document any recommended changes;
- (d) Evaluate the current implementation plan for SMS and document any recommended changes;
- (e) Provide a written report within a practical timeframe to allow project recommendations to be considered.

All objectives were met during the course of the project.

In consulting with TCCA's Regulatory Affairs division, it was determined that final project recommendations would be required by the end of October 2006. In order to meet this deadline, the team, in cooperation with its industry partners, suggested that a 4-phase implementation process would be optimal, mirroring the one detailed in TC's *Safety Management System Implementation Procedures Guide* (TP 14343). However, for the

purpose of this project, the phases were to extend over one year and one month, rather than three years and three months.

Project start and finish dates were fixed, but completion dates for individual phases remained flexible. As a result, companies progressed through the process at different rates. This allowed the team to assess how small operators might actually implement SMS.

One of the first issues confronting the team was to define what constitutes a “small operator”. It became apparent that the term is a misnomer. What was needed was a means to measure an organization’s complexity. The original list of industry volunteers consisted of operations ranging in size from one-person to several hundred employees. In order to manage such a diverse group the team initially classified the companies according to the Parts of the *Canadian Aviation Regulations* and then identified several complexity factors for each. By applying a weighting calculation (Appendix D, Chart 1) to the complexity factors, a means to quantify the qualitative term “small operator” was developed. This resulted in Chart 2 (Appendix D), which shows the complexity scoring of participant companies from across the country. This chart demonstrates a wide distribution across a range of small operations.¹

The TC team held an initial meeting on May 10, 2005, in Toronto, followed by regularly-conducted teleconferences and face-to-face meetings in Calgary, Halifax, Montreal and Ottawa. Industry partners and TC team members also maintained regular communication through face-to-face meetings and telephone or email. In addition to day-to-day project contact, two industry–TC teleconferences were held on July 19 and 20, to ensure industry partners were given the opportunity to discuss the project directly with all TC representatives. Industry participants who were unable to attend the teleconferences were provided with a written copy of the questions that had been raised, allowing an alternative opportunity for them to communicate their comments. Additionally, to raise awareness of the project and ensure that companies, industry associations and government employees had opportunity to be heard; SMS SOP project team members participated in a number of industry and government conferences across the country throughout the duration of the project.

The project indicates that an SMS can be successfully implemented in a small operation and become a positive addition. The following are some of the comments received from industry partners at the conclusion of the project:

- “SMS has resulted in identified savings of \$35,000 in the past year”.
- “SMS will definitely make our company more safety-aware”.
- “Everyone is currently working in separate silos; this system is pulling all groups together and will thus increase overall safety”.
- “Two major sections will benefit from this system: First is the actual organization and second are the students that will be briefed on SMS and made aware of it as they enter the system”.
- “We recognized benefits to the improved working conditions for the employees”.
- “We used SMS to integrate other programs such as health, safety, and environment programs into our organization, thus bringing our company up to Canadian codes”.

¹ Two interim project reports providing additional project details were produced. They can be viewed on TCCA’s SMS internet site at:
<http://www.tc.gc.ca/CivilAviation/SMS/menu.htm>

The industry–TC team also identified that the SMS infrastructure, as it is today, is designed for large operations and that further adaptation of the infrastructure for small operations is required. Details of those areas and associated recommendations can be found in the Recommendations section of this report.

Recommendations

The SMS SOP project demonstrated that a safety management system could be successfully implemented in and become a positive addition to a small operation. However, the industry–TC project team also identified the need to continue to adapt SMS infrastructure in the areas outlined below.

Note: Recommendations do not necessarily appear in order of priority.

Issue A	Guidance on understanding appropriate processes for simple operations needs further development. Both industry and TC inspectors need additional information on how to deal with operations ranging from very simple to moderately complex.
Recommendation Complexity Continuum	Complete the development of the SMS complexity continuum tool. This tool will be of benefit to both industry and TC. It will provide a good foundation for companies in the developmental phase and further their understanding of what is appropriate for their particular company, based on its size and complexity. For TC, understanding the complexity continuum better, through training, will allow SMS assessors to apply assessment and validation tools in the appropriate context. The complexity continuum will provide guidance for <i>Canadian Aviation Regulation 107.04</i> , which states; “A safety management system shall correspond to the size, nature and complexity of the operations, activities, hazards and risks associated with the operations...”
Issue B	To implement SMS effectively, practical guidance material must be made available to industry and TC inspectors. TC’s existing small operator guidance material (TP 14135 and associated CD tool kit) was produced some time ago and should be updated to reflect the latest information available.
Recommendation TP 14135 Document and Tool Kit Update	Update the existing small operator guidance material and CD tool kit based on information from different sources, including the SMS SOP project. This will provide small operators with additional information in areas of interest including: safety performance measurement, ensuring a balance between all operating environments (i.e. between maintenance and flight operations) and distinguishing the best practices.

Issue C	Many small operators are busy on a seasonal basis and do not have resources available to work on system development during those periods. For example, float operations are generally busiest from Spring to Fall. The current phased implementation schedule does not allow flexibility to accommodate these busy periods.
Recommendation Phased Implementation Procedures	Incorporate small operator variables, such as busy summer seasons, into the existing phased-in approach used by 705 operations. Note: This project is near completion.

Issue D	The project identified the need to adapt 705 staff instructions in order to apply updated and nationally-standardized procedures in the small operator environment.
Recommendation Staff Instructions	Continue to develop new staff instructions for small operations based on the format currently used in the 705 SMS environment.

Issue E	Given the large number of operators in this category, a nationally-standardized data management system designed to track implementation progress should be made available.
Recommendation Implementation Tracker	Ensure SMS implementation can be tracked using the nationally-standardized SMS data management system (already under development).

Issue F	To address issues germane to small operations, existing TC SMS training programs should be updated based on information from sources such as the SMS SOP project.
Recommendation Small Operations TC Inspector Training	Review and incorporate information and examples pertinent to small operators into existing TC inspector SMS training programs. Delivery of this updated training, to a critical mass of inspectors, should occur prior to forecast small operator SMS in-force dates.

Issue G	To address issues germane to small operations, existing TC SMS information sessions should be updated based on information from sources such as the SMS SOP project.
Recommendation Industry Information Session	Building on the successful 705 SMS information sessions, develop sessions adapted to small operations, in a format easily deliverable within their environment.

Issue H	Continuing to coordinate SMS nationally is essential. This will ensure that documentation, processes, procedures and training are harmonized across the country.
Recommendation National SMS Coordination	Ensure structure and resources are in place to coordinate documentation, processes, procedures and training.

Issue I	The project has demonstrated the need for TC to continue developing means to assist industry and inspectors in controlling the workload associated with SMS implementation to this large group of certificate holders.
Recommendation TC–Industry SMS Workload	<p>Potential mitigations include the following recommendations already identified in this report:</p> <ul style="list-style-type: none"> • complexity continuum • TP 14135 and CD Tool Kit • phased implementation process • staff instructions • implementation tracker • small operator training • small operator industry information sessions • national SMS coordination <p>Additionally, identify the number and distribution of small operations certificate holders nationally, in order to determine implementation resource requirements.</p>

For more information on this report or the SMS Small Operator Pilot Project, please contact:

J.A. Brad Fowles
 Project Manager, Safety Management Systems, Small Operator Pilot Project
 Transport Canada, Civil Aviation
 613-998-5321 | facsimile 613-998-7416 | TTY 613-990-4500
 E-mail: fowlesb@tc.gc.ca
 330 Sparks Street
 Ottawa ON K1A 0N5

Appendix A – Terms of Reference

**Safety Management Systems
Small Operator Pilot Project**

**Project Terms of Reference (TOR)
June 2005**

Terms of Reference – SMS Small Operator Pilot Implementation Project

Revision History

Version	Date	Description	Author
Initial Draft	May 11, 2005	Initial Draft of Terms of Reference sent to Team for comments	B. Fowles
2 nd Draft	June 1, 2005	All received Team revisions included	B. Fowles
3 rd Draft	June 7, 2005	Revised to included information from Joint CARAC Part V and Part VII CASO Technical Committee DR – September 13 – 16 and November 9, 2004 and subsequent January 27, 2005 letter to industry.	B. Fowles
Final Version (V2.5)	June 9, 2005	TOR's signed by Mr. Don Sherritt.	B. Fowles
Final Version (V2.5)	June 9, 2005	TOR's sent to translation.	B. Fowles
Final Version (V2.5)	June 9, 2005	TOR's delivered electronically to SMS SOP Team.	B. Fowles
Final Version (V2.8)	June 14, 2005	As a result of the June 9 Team meeting a wording change was made to 7.3.1 (g) (a) to more closely reflect the objective stated in 5.0 (b).	B. Fowles

Related Documents

Document	Date	Description	Author
RDIMS # 1049667 v3 – SMS Pilot Project For Small Companies (Call Letter)	January 27, 2005	Letter sent to CARAC members as a result of the September 2004 joint Part V/VIII SMS meeting	Michel Gaudreau
RDIMS 1168302 (French) 1132778 (English DR of Joint Part V/VII CASO Technical Committee meeting – September 2004	September 13 – 16 and November 9, 2004	See page IV for the item “SMS Pilot Project for Small Companies”	Francine Hammell

Approval

Approved by Donald B. Sherritt, Director, Aircraft Maintenance and Manufacturing.

Table of Contents

1.0	Revision History	10
2.0	Related Documents	10
3.0	Approval	10
4.0	Background	12
5.0	Objectives.....	12
6.0	Leadership, Governance and Accountability.....	12
7.0	Roles and Responsibilities	13
7.1	Project Sponsor.....	13
7.2	Project Manager.....	13
7.3	Project Team Leaders	13
7.3.1	Project Team Leader Responsibilities to Project Manager;.....	13
7.3.2	Project Team Leader responsibilities to Participant Companies;	14
7.3.3	Participant Companies Roles and responsibilities;.....	14
8.0	Project Resource Requirements	14
9.0	Project Reporting Structure	15
10.0	Deliverable	15
11.0	Project End Date	15

Background

During the Joint-Part V/VII Safety Management System (SMS) Canadian Aviation Regulation Advisory Council (CARAC) meeting held in September 2004, industry expressed concern regarding the application of SMS to smaller air operators and AMOs. Transport Canada offered to establish a trial implementation of SMS to be undertaken with selected small operators to validate Transport Canada Civil Aviation's (TCCA) current assumptions, recommend change where applicable, and provide a foundation for the next phase of implementation.

It was agreed that TCCA would undertake the requested trial SMS implementation with the assistance of selected industry representatives,

Objectives

This Terms of Reference formally establishes a project to carry out a trial implementation of TCCA SMS policies. The objectives of the proposed SMS trial implementation project are:

- (f) Identify a cross-section of small air operators, flight training units and AMOs, taking into account such factors as, number of employees, aircraft types and/or ratings, scope and types of operation and operating environment, etc.;
- (g) Review implementation strategies for the currently proposed regulations for small companies and make recommendations regarding any required changes;
- (h) Evaluate the tools and guidance material on SMS developed by TCCA and document any recommended changes;
- (i) Evaluate the current implementation plan for SMS and document any recommended changes;
- (j) Provide a written report within a practical timeframe to allow project recommendations to be considered.

Leadership, Governance and Accountability

This project is sponsored by Mr. Don Sherritt (Director, Maintenance and Manufacturing) who has been delegated by the Director General, Civil Aviation, responsibility for the development and implementation of SMS within Civil Aviation.

Final approval by this office is required prior to formal publication and promulgation of recommendations.

Overall the Project Manager whose primary role will be to ensure effective inter-ordination and commonality of approach between Regions will provide project management and Team leadership.

The Regional Team Leaders will coordinate and facilitate day-to-day project work carried out by each Region.

Accountability for this project is shared. On an overall basis, the Project Sponsor is the accountable executive. However, this goal cannot be achieved without the support and full participation of the Project Manager and Regional Teams. As such, the Project Manager, Team Leaders, Team members and participant companies are responsible for providing the required support and subject matter expertise from their areas such that the required tasks can be completed in accordance with the project plan.

Roles and Responsibilities

Project Sponsor

Don Sherritt
SMS Accountable Executive

The Project Sponsor will:

- (a) Be responsible for general leadership and governance;
- (b) Provide the Project Manager with the necessary resources and support to achieve project objectives;
- (c) Provide direction and guidance to the Project Manager;
- (d) Provide approval and facilitation on matters directly related to the trial project that affect workload, staffing or any other matter that has a direct affect on TCCA as a result of the SMS implementation trial; and,
- (e) Provide a written report to the Joint-Part V/VII SMS CARAC members upon completion of the project.

Project Manager

Brad Fowles
Program Manager, Safety Oversight
Aerodromes and Air Navigation

The Project Manager will:

- (a) Report project status to the Project Sponsor on a regular and mutually agreed basis;
- (b) Provide leadership and management oversight, ensuring that Headquarters and Regional perspectives are adequately integrated and reflected in the scope/focus of the various sub-work plans;
- (c) Write a final report, to the Project Sponsor, which incorporates information and evaluations provided by the Project Team.

Project Team Leaders

- (a) Alfred D'Amico
- (b) Hanif Mawji
- (c) Jean Marie Richard
- (d) Kim Tretheway
- (e) Dick Murray

Project Team Resource
(f) Gavin Shanks

Project Team Leader Responsibilities to Project Manager:

- (a) Establish regular communication with the Project Manager and other Regional Teams;
- (b) Provide written updates according to the project plan and at other times as may be required;
- (c) Develop, in consultation with the Project Manager and other Regional Team Leaders joint Regional work plans and additional Terms of Reference as considered necessary;
- (d) Develop, implement and manage Regional work plans;
- (e) Coordinate with Regional Managers and the Project Manager on project logistics;

- (f) Support the integration of trial results of individual Regional SMS Pilot Projects into the master national report;
- (g) Develop final written reports, coordinated with all other Regional Team leaders, upon completion of the SMS Trial Implementation Project, that include as a minimum;
 - (a) Recommendations regarding any required changes to the implementation strategies currently proposed for small companies;
 - (b) Recommendations concerning the appropriateness of the tools and guidance material on SMS developed by TCCA;
 - (c) Recommendations concerning the appropriateness of the current implementation plan for SMS.

Project Team Leader Responsibilities to Participant Companies:

- (d) To provide participant companies with appropriate TCCA SMS information;
- (e) Provide participant companies with guidance concerning available project timelines;
- (f) To monitor and subsequently evaluate participant companies implementation efforts;
- (g) Provide feedback to participant companies throughout the implementation pilot project.

Note: The role of the Regional project team is similar to that of the current PMI/POI relationship with participant companies. For example, good communication with the company throughout the project will ensure that opportunities for improvement in areas such as the development, implementation and continuous improvement of the Safety Management System are dealt with in an effective and efficient manner.

Participant Companies Roles and Responsibilities;

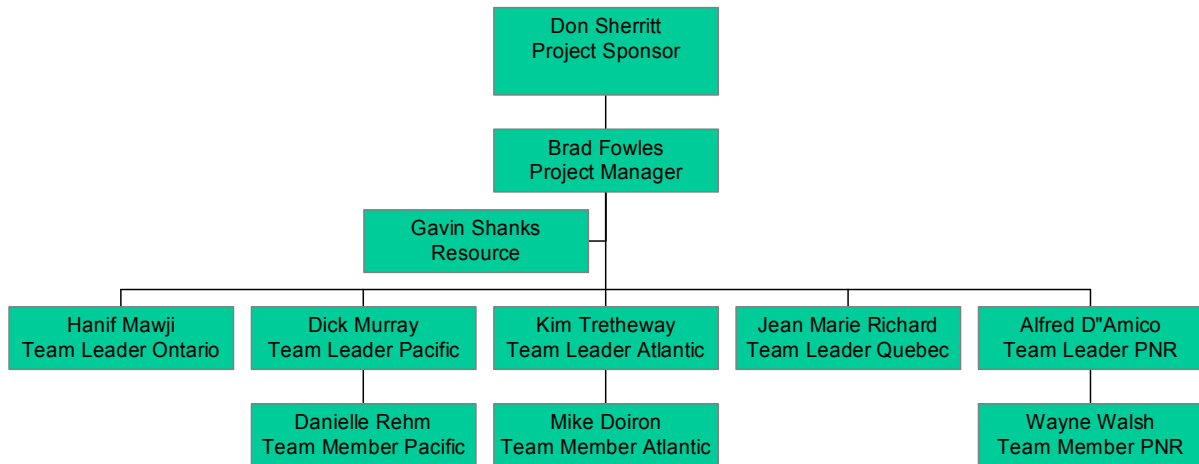
- (a) fully commit to attempt to implement the SMS in accordance with current TCCA guidelines;
- (b) allow TCCA Team members to monitor the implementation process;
- (c) provide TCCA Team members with feedback during the implementation process.

Project Resource Requirements

- (a) The Project Sponsor is responsible for all headquarters related resource requirements;
- (b) Each Region is responsible for their own resource requirements.

Project Reporting Structure

SMS Small Operator Pilot Project



Deliverable

Provide a final report on the trial implementation project with recommendations to the Project Sponsor by September 15, 2006.

Project End Date

Project will terminate with the presentation of the final report, by the Project Sponsor, to the CARAC Technical Committee.

Appendix B – Industry Partners

The following companies, listed by Transport Canada region, were selected from those who volunteered for the project.

Atlantic

- Moncton Flight College

Quebec

- Max Aviation
- C.Q.F.A. (Centre québécois de formation aéronautique)
- Essential Turbines

Ontario

- Niagara Helicopters
- Air Bravo
- Kawartha Lakes Flight Centre

Prairie and Northern Region

- Gillam Air
- DSE Aircraft Limited
- Universal Aero Engines Limited
- Mitchinson Flying Service
- Western Propeller
- Guardian Helicopters

Pacific

- Inland Air Charter Limited
- Talon Helicopters Limited
- Suncoast Aviation Limited

Appendix C – Transport Canada Team Members

Team Members

Headquarters

- Don Sherritt
- Gavin Shanks
- J. A. Brad Fowles

Atlantic

- Kim Trethewey
- Mike Doiron
- Kelly Babin

Quebec

- Jean-Marie Richard
- Yves Tarissan

Ontario

- Hanif Mawji
- Rick Houle
- Mark Dixon

PNR

- Fred D'Amico
- Wayne Walsh
- Dan Stelman
- Elwood Schmidt
- Linda Melnyk

Pacific

- Dick Murray
- Danielle Rehm

Please note that the project team had access to additional Regional and Headquarters expertise as needed.

Additional Transport Canada Team Members

The SMS SOP Project was formed to address AMOs, flight training units and air operator issues. Since its inception, other TCCA branches have joined and begun assessing their own small operators' needs.

The following representatives from the Aerodromes and Air Navigation and Aircraft Certification branches joined the project after its inception.

Aircraft Certification – Marcus Tittiger
Aerodromes: Heliports – Chris Baillie
 Airports – Roland Simard
Air Navigation – Adrio Taucer

Appendix D—Complexity Charts

Weighting Factors - Certificate Holder Complexity Chart														
For use with operations using non-jet aircraft with an MTOW of less than 5700 kg.														
Score	# Employees	Wt.	# Aircraft	Wt.	Types Aircraft	Wt.	# Bases	Wt.	VFR	Wt.	IFR	Wt.	# of Certificates	Wt.
1	1-3	1	1-2	1	1	1	1	1	1	1	1	1	10	1
2	4-6	2	3-4	1	2	2	2	4						1
3	7-9	3	5-6	2	3	3	3	8					2	2
4	10-12	4	7-8	2	4	4	4	12						
5	13-15	5	9-10	3	5	5	>4	16					3	4
6	16-18	6	11-13	3	6	6								
7	19-21	7	14-16	4	>6	7							4	8
8	22-24	8	17-19	4										
9	25-27	9	20-25	5										
10	>27	10	>25	6										
Sub total														
Multiply score X weight for each criterion and add subtotals														
example criteria													Total	
10 employees	4	4	16											
4 aircraft	2	1	2											
1 aircraft type	1	1	1											
2 bases	2	4	8											
VFR	1	1	1											
1 certificate	1	1	1											
			29											
The purpose of this chart is to allow certificate holders to be ranked based on set criteria to determine complexity of an operation.														

Chart 1

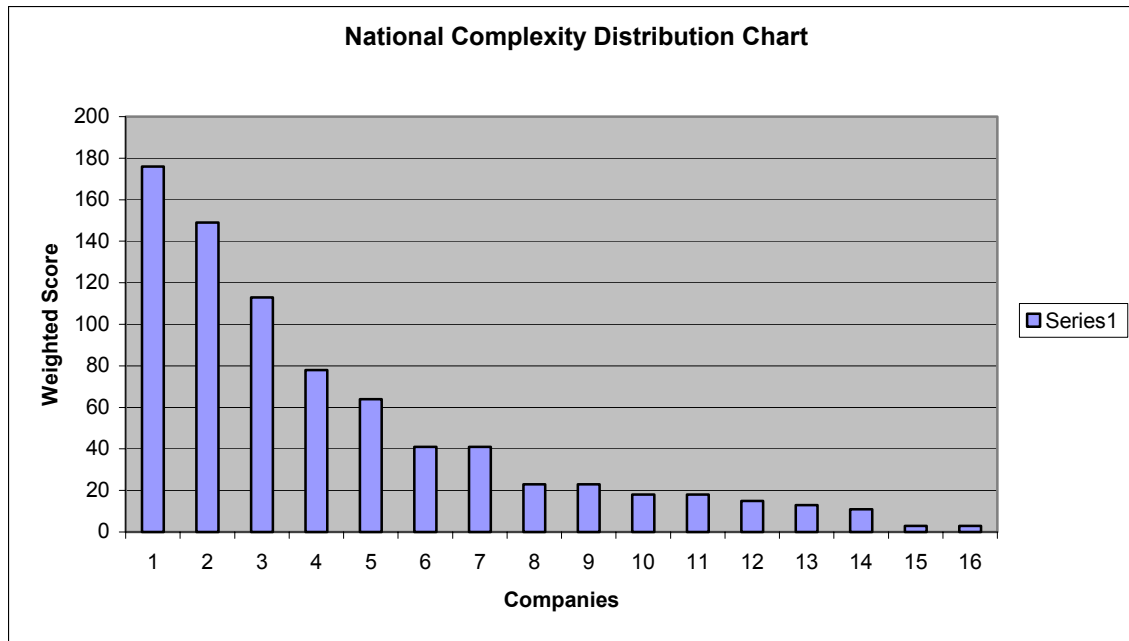


Chart 2