Chapter II
The Application of International Software Engineering Standards in Very Small Enterprises

Claude Y. Laporte
École de Technologie Supérieure, Canada

Alain Renault
Centre de Recherche Public Henri Tudor, Luxembourg

Simon Alexandre
Centre d'Excellence en Technologies de l'Information et de la Communication, Belgium

ABSTRACT

The software industry recognizes the value of very small enterprises in contributing valuable products and services to the economy. As the quality of software increasingly becomes a subject of concern and process approaches are maturing and gaining the confidence of companies, the use of ISO/IEC JTC 1 SC7[1] standards is spreading in organizations of all sizes. However, these standards were not written for development organizations with fewer than 25 employees and are consequently difficult to apply in such small settings. A new ISO/IEC JTC1 SC7 Working Group, WG24, has been established to address some of these difficulties by developing profiles and providing guidance for compliance with ISO software engineering standards. A survey was conducted to question these very small organizations about their utilization of ISO/IEC JTC1 SC7 standards and to collect data to identify problems and potential solutions to help them apply these standards. Over 400 responses were received from 32 countries. Results from the survey are discussed.

INTRODUCTION

This chapter presents a new ISO project which proposes to facilitate access to, and utilization of, ISO/IEC JTC1 SC7 software engineering standards in very small enterprises (VSEs). VSEs are organizations with fewer than 25 employees. In Europe, for instance, 85% of the information technology (IT) sector's companies have between 1 and 10 employees. In Canada, the Montréal area was surveyed, as illustrated in Table 1, and it was found that close to 80% of software development companies have fewer than 25 employees (Laporte, April, & Renault, 2006), and over 50% have fewer than 10 employees. In Brazil, small IT companies represent about 70% of the total number of companies (Anacleto, von Wangenheim, Salviano, & Savi, 2004). Finally, in Northern Ireland (McFall, Wilkie, McCaffery, Lester, & Sterritt, 2003), a survey reports that 66% of companies employ fewer than 20 software development staff.

There is a need to help these organizations understand and use the concepts, processes, and practices proposed by the International Standard Organization's (ISO's) international software engineering standards. A new ISO/IEC JTC1 SC7 Working Group, WG24, has been established to address some of these difficulties by developing profiles and providing guidance for compliance with ISO software engineering standards. A profile is defined as a set of one or more base standards and/or international standard profiles (ISP), and, where applicable, the identification of chosen classes, conforming subsets, options, and parameters of those base standards, or ISPs, necessary to fulfill a particular function (ISO/IEC TR 10000-1, 1998).

This chapter is divided into six sections. In the first section, the ISO/IEC JTC1 SC7 organization's mandate and collection of standards are described. In the second section, a history of the recent events that led to an ISO/IEC JTC1 SC7 project proposal for very small organizations is presented. In the third section, a few centers and institutes focusing on small and very small software enterprises are described. The results of an IEEE survey performed to obtain feedback from software engineering standards users are discussed in the fourth section. The analysis of survey data, conducted by WG24, is presented in the fifth section. In the last section, we present the future work of WG24.

OVERVIEW OF THE ISO/IEC JTC1 SC7 MANDATE AND COLLECTION OF STANDARDS

In this section, we present the mandate of ISO/IEC JTC1 SC7, an overview of the collection of standards produced and maintained by this committee, and a description of the ISO standard development process. During 1987, the International Organization for Standardization and the International Electrotechnical Commission (IEC)

Table 1. Size of software development companies in the Montreal area (Laporte et al., 2006)

Size (employees)	Software Companies		Jobs	
	Number	%	Number	%
1 to 25	540	78%	5,105	29%
26 to 100	127	18%	6,221	36%
over 100	26	4%	6,056	35%
TOTAL	693	100%	17,382	100%

27 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/application-international-software-engineering-standards/29621

Related Content

ERP System Selection Criteria: SMEs' Perceptions
Andreja Pucihar, Gregor Lenartand Frantisek Sudzina (2010). *Global Perspectives on Small and Medium Enterprises and Strategic Information Systems: International Approaches (pp. 57-80).*
www.irma-international.org/chapter/erp-system-selection-criteria/42272

Introduction
Hotniar Siringoringo, Ravindra H. Kuruppuge, Misdiyono Misdiyonoand Sri Murtiasih (2023). *Perspectives and Strategies of Family Business Resiliency in Unprecedented Times (pp. 1-14).*
www.irma-international.org/chapter/introduction/322210

Website Design
Stephen Burgess, Carmine Carmine Sellittoand Stan Karanasios (2009). *Effective Web Presence Solutions for Small Businesses: Strategies for Successful Implementation (pp. 168-196).*
www.irma-international.org/chapter/website-design/9245

Organizing Human Resources in Family Firms During Generational Succession
Anna Maria Melina, Concetta Lucia Cristofaro, Marzia Venturaand Rocco Reina (2021). *Designing and Implementing HR Management Systems in Family Businesses (pp. 264-281).*
www.irma-international.org/chapter/organizing-human-resources-in-family-firms-during-generational-succession/268982

Startup Success Trends in Small Business Beyond Five-Years: A Qualitative Research Study
Alvin Perry, Emad Rahimand Bill Davis (2020). *Start-Ups and SMEs: Concepts, Methodologies, Tools, and Applications (pp. 1533-1546).*
www.irma-international.org/chapter/startup-success-trends-in-small-business-beyond-five-years/245524