Chapter 24
Assessing Knowledge Assets in Renewable Energy SMEs in Scotland:
A Methodological Framework

Antonio Lerro
University of Basilicata, Italy

Robert Huggins
University of Wales Institute Cardiff, UK

Giovanni Schiuma
University of Basilicata, Italy

Daniel Prokop
University of Wales Institute Cardiff, UK

Maria Weir
Intellectual Assets Centre, UK

ABSTRACT

This chapter develops a research protocol to identify a domain of organizational knowledge resources and assets within firms and provides the final main insights of a research project managed by the Intellectual Assets Center in Scotland in order to support the adoption of knowledge asset management initiatives for driving innovation and performance improvement of Small and Medium Enterprises (SMEs) operating in the renewable energy sector. The chapter first presents a methodology for valuing organizational knowledge assets within SMEs operating in the renewable energy industry. Then, an exploratory survey with a sample of 58 organizations from the Scottish renewable energy sector is introduced. Finally, the chapter analyses and discusses the main insights about SMEs' perception and orientation to identifying, measuring, and managing knowledge, and to qualitatively identify a feasible set of knowledge resources and assets potentially driving performance improvement.

INTRODUCTION

Great attention has increasingly been placed on the role and relevance of the Knowledge Asset Management (KAM) to support and drive the improvement of organizational performance in the energy industry (Edwards, 2007; Foxon et al., 2005). However, most of the interest has been developed by big oil companies searching for improvements in their efficiency (Etkind et al., 2003; Nelson, 1997; Smith and Farquhar, 2000). On the other hand, SMEs operating in the energy industry, and particularly in the renewables sector, are increasingly recognizing the relevance of KAM, even if they still do not have formal KAM initiatives in place within the organization. Indeed, SMEs' knowledge and intangible assets are fundamentally managed implicitly, i.e. without the use of formal approaches and tools (Franco and Haase, 2009; Weir et al., 2009). Moreover, although knowledge–based resources and assets are recognized as being fundamental to organizational success (Carlucci et al., 2004; Kelliher and Rainl, 2009; Schiuma and Lerro, 2008; Schiuma et al., 2008), the tools for valuing organizational knowledge in renewable energy industry are still crude and often inadequate. In this paper we suggest a process for valuing organizational knowledge that can be effectively applied in the energy industry and specifically in renewable sector. On the basis of a literature review (Wilcox King and Zeithaml, 2003), using a sample of 58 organizations from the Scottish Small and Medium Enterprises (SMEs) in the renewable energy sector, we draw main insights about their perceptions and orientations to identifying, measuring and managing knowledge.

A METHODOLOGY FOR VALUING ORGANIZATIONAL KNOWLEDGE ASSETS

To achieve a more fine-grained insight into knowledge resources and assets, we present a four-step methodology for valuing organizational knowledge in renewable energy industry constructed from practicing owners and managers' perspectives. We test it with 8 Scottish organizations. Then, an exploratory survey was administered on 58 Scottish SMEs organizations operating in renewables.

Step 1: Defining Scope: Industry and Organization Selection

Industry and organization selection was driven by the aims of a research project managed by the Intellectual Assets Center in Scotland, in order to support the adoption of knowledge asset management initiatives for driving the improvement of value creation mechanisms of SMEs operating in the renewable energy sector. In particular, we selected established SME companies having well-defined boundaries and operating in: *solar energy*, i.e. the energy of the sun's rays that can be converted into other forms of energy, such as heat or electricity; *wind power (onshore and offshore)*, i.e. the harnessing of wind by turbines that convert the energy into electricity; *hydrogen*, as potential use in the operation of hydrogen-powered automobiles; *biomass*, which includes plants grown for the production of fuels; and *hydro-power (wave and tidal),* harnessing of the sea or river water by turbines that convert the water energy into electricity.

We solicited more than one hundred renewable energy industry companies and drew together a complementary cohort. We sent letters to these companies describing the project, requesting a participation in the research project and an interview with the owners or top-managers as well as inviting them to participate in a series of Workshops and Masterclasses about the project. Out of the population, 58 agreed to participate in studies. The involved companies had different core-business but by comparing key-variables for the sample of organizations we recognized no significant differences. These organizations

8 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/assessing-knowledge-assets-renewable-energy/75978

Related Content

How can Corporate Social Responsibility (CSR) and Innovation Enhance Enterprise Performance?: Possible Pathways for the Romanian SMEs in the Context of the Global Economic Crisis
Ana-Cristina Ionescu (2013). *Small and Medium Enterprises: Concepts, Methodologies, Tools, and Applications (pp. 1690-1724).*
www.irma-international.org/chapter/can-corporate-social-responsibility-csr/76040

Network Perspective on Structures Related to Communities
Alvin Wolfe (2013). *Small and Medium Enterprises: Concepts, Methodologies, Tools, and Applications (pp. 1384-1407).*
www.irma-international.org/chapter/network-perspective-structures-related-communities/76023

Increasing Project Success in China from the Perspectives of Project Risk, Methodology, Tool Use, and Organizational Support
Charlie C. Chen, Makoto Nakayama, Yongyi Shouand Danuvasin Charoen (2020). *Start-Ups and SMEs: Concepts, Methodologies, Tools, and Applications (pp. 1267-1287).*
www.irma-international.org/chapter/increasing-project-success-in-china-from-the-perspectives-of-project-risk-methodology-tool-use-and-organizational-support/245508

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

Corporate Sustainability in Small and Medium Enterprises (SMEs) of Brazil
Davi Jônatas Cunha Araújo, Sheila Alice Gajadhar Araújoand Renata Paes de Barros Câmara (2023). *Handbook of Research on Acceleration Programs for SMEs (pp. 387-400).*
www.irma-international.org/chapter/corporate-sustainability-in-small-and-medium-enterprises-smes-of-brazil/315922