



# The state of research on technological uncertainties, social uncertainties and emerging markets: A multidisciplinary literature review

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## ARTICLE INFO

### Article history:

Received 31 March 2010  
Received in revised form 1 February 2011  
Accepted 9 February 2011  
Available online 6 May 2011

### Keywords:

Technological uncertainties  
Social uncertainties  
Emerging markets  
Bibliometric analysis  
Literature review

## ABSTRACT

The objective of this research work is to study the progress of research on technological uncertainties, social uncertainties and emerging markets and outline and identify the key disciplines, journals, articles and authors. For this the author studied the existing literature from the various fields in which technological uncertainties, social uncertainties and emerging markets research work have been published using ISI Web of Knowledge database. The paper finds that there is increasing research work on technological uncertainties, social uncertainties and emerging markets and the bibliographical search resulted in ninety-one documents written by one-hundred-sixty-one authors in eighty-four journals in seventy-two disciplines. The five major disciplines and their underlying journals are business and economics, agriculture, psychology, public administration, and environmental sciences and ecology accounting for majority of publications. In journals the most prolific, measured by number of articles published are Harvard Business Review, Social Science and Medicine, World Development, and Higher Education; and most influential, measured by the global citation received, are Harvard Business Review, Social Science and Medicine and Sociological Review. The top 10% of the journals are responsible for 23% of all publications but 85% of all global citations received. This highlights that despite the high, diverse and increasing number of journals; only few are dominating and shaping the research arena of technological uncertainties, social uncertainties and emerging markets. Further, in the ten most cited articles, no author appears more than once.

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## 1. Introduction

Emerging markets are increasingly becoming the growth drivers of the global economy and there is increased scrutiny and interest in emerging markets since the 1990s [1]. The interest can be viewed from a demand and supply perspective. With a huge population and increasing income, emerging economies provide a big market for goods and services. Also, with talented manpower and low costs, emerging economies are supplying more and more goods and services to the world [2]. With increasing growth rates and liberalization of economies, many of the emerging markets are investing and opening up for newer technologies and technology upgrades for better future. The increasing growth rates and rising income coupled with rapid urbanization, liberalization and technological upgrades is resulting into societal changes and transformations in many emerging markets. This has resulted in increasing interest in exploring the social uncertainties and technological uncertainties in context of emerging markets.

Using bibliometric analysis, the objective of this paper is to enhance our understanding of the research arena of technological uncertainties, social uncertainties and emerging markets as well as our knowledge on key disciplines, journals, articles and

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researchers on the subject. Bibliometric analysis represents a relatively new form of meta-analytical research [3]. It is valuable in illustrating the links between and among scholarly works and the nature of development in a given research field or discipline by measuring and analyzing published materials [4]. It has been used in diverse range of disciplines in the science and humanities [5–7], and social sciences [8], such as communications [9], advertising [10], marketing [11], and international management [12,13].

This paper consists of five parts including this introductory part. The second part builds a brief theoretical background for the paper. Third part gives the objective and elaborates the research methodology. The fourth part presents and discusses the research results. The last part concludes the research note.

## 2. Theoretical background

### 2.1. Definitions

#### 2.1.1. Emerging markets

The term 'emerging market' was originally coined by IFC to describe a fairly narrow list of middle-to-higher income economies among the developing countries, with stock markets in which foreigners could buy securities. The term's meaning has since been expanded to include more or less all developing countries.

#### 2.1.2. Social uncertainty

Webster's unabridged dictionary defines uncertainty as "the state of being uncertain, doubt, hesitancy...vague or indistinct, not perfectly apprehended...ambiguous, unreliable, undependable, dependent upon chance...unforeseeable outcome or affect.... That which is uncertain is doubtful or problematical; it often involves danger through an inability to predict or place confidence in the unknown". Uncertainty is thus caused by incomplete information, as discussed by Galbraith [16] in a task-related, organizational context; conversely, certainty is related to complete information. Uncertainty is an important concept because of its relation to perceptions of risk [17]. Social uncertainty, then, is uncertainty related to or located in the social field, where hesitancy, vagueness, ambiguity or lack of confidence is reflexive characteristics of social objects or actors in a community. It should be noted that 'social uncertainty' is predominantly a cognitive concept, caused by incomplete information about the social field, which may well be but is not necessarily associated with any emotional manifestations [18].

#### 2.1.3. Technological uncertainty

There are various ways to look at technological uncertainty. Technology uncertainty, in relation to automotive parts, is the perceived unpredictability and need for closer coordination that result from rapid technological changes in related fields, an increase in part complexity, and the novelty of part function [10,19–22]. Technological uncertainty exists when it is not clear which technology will emerge to dominate in the industry [23–25]. The established technology, in fact, often competes with one or more alternative technologies. Under these conditions, firms must select which technology to embed in their products and processes to fulfill future market requirements [26]. Even in the presence of a growing demand for its new products, a firm could be forced out of the market because of not being able to rapidly adopt the dominant technology [27]. Technological uncertainty is related to the evolution of industry-level technology patterns [28] and is 'exogenous' to firms' actions [29]. We define technological uncertainty as the unpredictability about various technologies available in a particular industry. It depends upon the number of competing technologies and stage of industry.

### 2.2. Importance of technological and social changes in emerging markets

With increasing growth rates and liberalization of economies, many of the emerging markets are investing and opening up for newer technologies and technology upgrades for better future. On the one hand there are huge efforts by government in investing and promoting investment in research and development in countries like China and India. Facing tough competition and with global aspirations, increasing number of companies from emerging markets are investing in research and development for newer technologies. On the other hand, many big multinationals from developed markets are opening up research and development centers in emerging markets due to higher costs at home and availability of trained manpower and low costs in emerging markets. China and India are fast emerging as favorite places for R & D among developed country MNCs. Thus emerging markets are increasingly becoming places 'hot places' for technological developments which comes with related technological uncertainty. The increasing growth rates and rising income coupled with rapid urbanization, liberalization and technological upgrades is resulting into societal changes and transformations in many emerging markets. Thus technological and social uncertainty have become very important in emerging markets and this has resulted in increasing interest in exploring the social uncertainties and technological uncertainties in context of emerging markets.

## 3. Objective and research methodology

### 3.1. Objective

The objective of this research work is to study the progress of research on technological uncertainties, social uncertainties and emerging markets and outline and identify the key disciplines, journals, articles and authors.

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