

**DEVELOPING A FRAMEWORK FOR
INTEGRATION OF FLEXIBILITY IN BUSINESS
EXCELLENCE MODELS**

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Developing a Framework for Integration of Flexibility in Business Excellence Models

by

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CERTIFICATE

This is to certify that the thesis entitled “**Developing a Framework for Integration of Flexibility in Business Excellence Models**” which is being submitted by **Mr. Rakesh Kumar Gupta** to the Indian Institute of Technology Delhi for the award of degree of **Doctor of Philosophy (Ph.D.)**, is a record of bona fide research work carried out by him. He has worked under my guidance and supervision and has fulfilled the requirements for the submission of the thesis, which has attained the standard required for a Ph.D. degree of the Institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

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ABSTRACT

Today, flexibility is considered a prerequisite for success in every business enterprise. Flexibility implies sustainable advantage and capabilities that may evolve over time. It is a dynamic concept and multi-dimensional in nature. Flexibility mean Responsiveness, Freedom, Autonomy, Balance, Agility and Adaptiveness. Business excellence models (BE) were created to help and guide the businesses on the path of excellence. Due to the dynamic business environment, BE models too, are constantly in the evolution stage. The literature review highlighted that flexibility dimension is not seemigly well integrated in the existing BE models, thus providing motivation to carry out research work in this area.

The main objective of this research is to develop and validate an enhanced Business excellence model integrating the flexibility dimensions. The research sub-objectives are: To identify flexibility constructs and factors in each criteria of an existing BE model; To develop and validate hierarchical relationships among flexibility factors in Enablers criteria and Results criteria independently; To validate inter-relationships of Enabler flexibility constructs/factors with Results flexibility constructs/factors and synthesize the enhanced Business excellence model.

The existing EFQM excellence model, current version 2013 has been adopted as the base for this research study because it has been adopted in India by CII and an award called "CII-EXIM Bank Award for Busienss Excellence" has been instituted.

This study has been conducted in six phases. Phase one deals about defining research problem and objectives of the study. Phase two is about doing study of evolution of BE concept and BE models, evolution of flexibility concept and study of flexibility dimensions as explicitly represented in the select BE models. Phase three is about exploratory study. Here flexibility constructs and micro flexibility factors have been identified through grounded

theory approach. TISM models for Enablers and Results flexibility variables have been developed. Phase four deals with the empirical validation of the conceptual flexibility integrated BE framework. Opinion survey has been conducted. Factor analysis, reliability analysis, and uni-variate analysis, cluster and discriminant analysis have been done in this phase. Regression analysis has been done at both macro and micro level on the identified flexibility factors and their interrelationships have been established. Phase five is about cross-validation of the empirically validated model through a case study. The data collected through case study has been analyzed and the values of result parameters have been compared with the values predicted by the validated empirically validated model. Discussion has been done with the senior managers of the case organization to understand any significant differences between the two sets of values. Phase six deals with the synthesis of the results and learning from each phase. Major recommendations are listed and limitations of the study have also been presented. An attempt has been made to present a synthesized model which can be used by practitioners as the flexibility integrated BE model.

The significant contributions of this study are: (a) A comprehensive validated BE framework integrating the flexibility dimensions covering all the criteria of EFQM excellence model has been presented, (b) Identifying the flexibility dimensions in each criterion of the two BE models is a significant contribution to the existing body of knowledge, (c) The validated TISM model for Enablers & Results criteria presents the linkages between the identified flexibility factors thus providing the BE managers and BE assessors more insight into the relationships and interplay of the flexibility factors to apply them to their work.

व्यावसायिक उत्कृष्टता ढांचे में सुनम्यता के एकीकरण के लिए एक फ्रेमवर्क विकसित करना

सार

आज, सुनम्यता को प्रत्येक व्यावसायिक उद्यम में सफलता के लिए एक अतिआवश्यक कारक माना जाता है। सुनम्यता टिकाऊ लाभ और क्षमताओं का तात्पर्य है जो समय के साथ विकसित हो सकता है। यह प्रकृति में एक गतिशील और बहु-आयामी अवधारणा है। सुनम्यता का मतलब त्वरित प्रतिक्रियात्मकता, स्वतंत्रता, स्वायत्तता, संतुलन, चपलता और अनुकूलन है। व्यावसायिक उत्कृष्टता के मार्ग पर व्यवसायों की सहायता और मार्गदर्शन करने के लिए व्यवसाय उत्कृष्टता ढांचा बनाए गए है। गतिशील कारोबारी माहौल के कारण, बीई ढांचा भी लगातार विकास चरण में है। साहित्य संरचना समीक्षा करते हुए पता चला है की सुनम्यता आयाम अच्छी तरह से मौजूदा बीई ढांचा में एकीकृत नहीं है। इस प्रकार इस क्षेत्र में शोध कार्य को पूरा करने के लिए प्रेरणा मिलती है।

इस शोध का मुख्य उद्देश्य सुनम्यता आयामों को एकीकृत करने वाले एक उन्नत व्यावसायिक उत्कृष्टता ढांचे को विकसित और मान्य करना है। शोध के उप-उद्देश्य हैं: वर्तमान बीई ढांचे के प्रत्येक मानदंड में सुनम्यता संरचनाएं और कारकों की पहचान करना; समर्थक मानदंडों और परिणाम मानदंडों में स्वतंत्र रूप से सुनम्यता कारकों के बीच पदानुक्रमित संबंधों को विकसित और मान्य करना समर्थक सुनम्यता एवं परिणाम सुनम्यता के कारको में अंतर - संवादों को मान्य करना एवं नवीन व्यावसायिक उत्कृष्टता शोध को संश्लेषित करना है

मौजूदा ईएफक्यूएम उत्कृष्टता ढांचा, वर्तमान संस्करण २०१३ इस शोध अध्ययन के लिए आधार के रूप में अपनाया गया है क्योंकि इसे भारत में सीआईआई द्वारा अपनाया गया है और "व्यावसायिक उत्कृष्टता के लिए सीआईआई-एक्विजम बैंक अवॉर्ड" नामक एक पुरस्कार स्थापित किया गया है।

इस अध्ययन को छह चरणों में किया गया है। चरण एक, शोध समस्या और अध्ययन के उद्देश्यों के बारे में बताता है। चरण दो बीई अवधारणा और बीई ढांचे के विकास, सुनम्यता अवधारणा के विकास और सुनम्य आयामों के अध्ययन के बारे में है, जो कि चयनित बीई ढांचा में स्पष्ट रूप से प्रतिनिधित्व करते

हैं। चरण तीन अन्वेषण अध्ययन के बारे में है। यहां सुनम्यता के संरचना और सूक्ष्म कारकों को आधारभूत सिद्धांत दृष्टिकोण के माध्यम से पहचाना गया है। समर्थक और परिणाम सुनम्यता कारकों के लिए टीआईएसएम ढांचा विकसित किया गया है। चरण चार वैचारिक सुनम्यता एकीकृत बीई ढांचे के अनुभवजन्य सत्यापन के बारे में बताता है। वैचारिक सर्वेक्षण आयोजित किया गया है। इस चरण में कारक विश्लेषण, विश्वसनीयता विश्लेषण, और यूनी-विविध विश्लेषण, क्लस्टर और भेदभाव विश्लेषण किए गए हैं। मान्यता प्राप्त सुनम्यता कारकों पर व्यापक और सूक्ष्म स्तर पर रिग्रेसन विश्लेषण किया गया है और उनके अंतर-संबंध स्थापित किए गए हैं। चरण पांच केस अध्ययन के माध्यम से अनुभवजन्य मान्य ढांचे के पार-सत्यापन के बारे में है। केस स्टडी के माध्यम से एकत्र किए गए आंकड़ों का विश्लेषण किया गया है और परिणाम के मूल्यों की तुलना अनुभवजन्य मान्य ढांचे द्वारा अनुमानित मूल्यों से की गई है। केस संगठन के वरिष्ठ प्रबंधकों के साथ मूल्यों के दो सेटों के बीच किसी भी महत्वपूर्ण अंतर को समझने के लिए चर्चा की गई है। चरण छह प्रत्येक चरण से परिणाम और सीखने के संश्लेषण के बारे में बताता है। प्रमुख सिफारिशें सूचीबद्ध हैं और अध्ययन की सीमाएं भी प्रस्तुत की गई हैं। संश्लेषित ढांचा पेश करने के लिए एक प्रयास किया गया है जिसका प्रयोग उपयोगकर्ता के द्वारा सुनम्य एकीकृत बीई ढांचे के रूप में किया जा सकता है।

इस कार्य के अध्ययन में महत्वपूर्ण योगदान हैं : (ए) ईएफक्यूएम उत्कृष्टता ढांचे के सभी मानदंडों को कवर करने वाले सुनम्य आयामों को एकीकृत करने वाला एक व्यापक मान्य बीई ढांचा प्रस्तुत किया गया है, (बी) दो बीई ढांचों के प्रत्येक मानदंड में सुनम्यता आयामों की पहचान करना ज्ञान के मौजूदा निकाय में महत्वपूर्ण योगदान है, (सी) समर्थको और परिणाम मानदंडों के लिए मान्य टीआईएसएम ढांचा पहचान किए गए सुनम्य कारकों के बीच संबंध प्रस्तुत करता है, इस प्रकार बीई प्रबंधकों और बीई निर्धारकों को सुनम्य कारकों के संबंधों और अंतःक्रिया में अपने काम पर लागू करने के लिए अंतर्दृष्टि प्रदान करता है।

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NOMENCLATURE

ACMA	Automotive Component Manufacturers Association of India
AGM	Assistant General Manager
ASDC	Skill Development Council
BE	Business Excellence
BEM	Business Excellence Model
BSC	Balance Score Card
CEO	Chief Executive Officer
CII	Confederation Of Indian Industry
DGM	Deputy General Manager
EFQM	European Foundation For Quality Management
GEM	Global Excellence Model Council
GM	General Manager
HR	Human Resource
ISO	International Organization for Standardization
MBNQA	Malcolm Baldrige National Quality Award
NCR	National Capital Region
OEM	Original Equipment Manufacturer
PMS	Performance Management System
R& D	Research and Development
TCM	Total Cost Management
TESL	Thermal Engineering Solutions Ltd.
VA- VE	Value Analysis – Value Engineering
VP	Vice President
VUCA	Volatile, Uncertain, Complex, Ambiguous