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Measuring the Success/Failure Possibility of Advanced Manufacturing Technology Implementation in Indian SMEs: A Fuzzy MCDM Approach

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ABSTRACT

The purpose of this paper is to study the enablers for effective Advanced Manufacturing Technology Implementation (AMT) in Indian Small Medium Enterprises (SMEs) by building the awareness of the critical AMT Enablers (AMTEs) and measure the success/failure possibility of AMT implementation projects by forecasting framework based on fuzzy multi criteria decision making (FMCDM). Further, a forecasting framework based on the fuzzy multi-criteria decision making (FMCDM) approach was developed to help organizations in building awareness of the critical AMTEs for the success of AMT implementation. FMCDM method has been widely used to deal with decision making problems involving multiple criteria evaluation/selection of alternatives. It helps organizations to build awareness of the critical AMTEs for measuring the success possibility of AMT implementation. This study proposes a strategic model for the effective implication of AMT in Indian SMEs. The creation of a generic AMT implementation model provides a framework for a wider number of Indian SMEs to introduce AMT into their respective organizations, since it provides for a systematic approach for Indian SMEs to introduce AMT in an efficient and effective manner. The hierarchical method guides the manager to predict the possibility of implementing the probability of success and failure in AMT implementation projects.

I. INTRODUCTION

AMTs are a source of strategic competitive benefits, such as improved quality, greater flexibility, and cost reduction. Application of AMT is emerging as a strategic weapon in globally competitive market. AMT plays a major role in quality and flexibility improvements in small and medium enterprises. SMEs can sustain their growth and competitiveness in globalized market by adopting advanced manufacturing systems (Singh et al., 2006). Indian SMEs are considered as the backbone of economy contributing to 45% of the industrial output, 40% of India's exports, employing 60 million people, create 1.3 million jobs every year and produce more than 8000 quality products for the Indian and international markets. With approximately 30 million SMEs in India, 12 million people expected to join the workforce in next 3 years and the sector growing at a rate of 8% per year, the SMEs are deploying information technology to take the substantial advantage from it. The SMEs in India facing various challenges such as the absence of adequate and timely institutional credit facilities, limited capital and knowledge, lack of access to technology and skilled manpower, competition from large enterprises and globalization. These issues need to be addressed to tap the full potential of the sector, which brings about social and economic development of the country. Small & Medium Enterprises Development Act, 2006 the Small and Medium Enterprises (SME) are classified in two Classes manufacturing and services enterprises.

The main objectives of this paper are to measure the success/failure possibility of AMT implementation using fuzzy multi-criteria decision making (FMCDM). In this paper, 35 AMTEs have been chosen on the basis of literature review and the opinions of experts from academia and industry. Multi-criterion decision making (MCDM) comprises a finite set of alternatives, among which the decision-makers have to select, evaluate or rank according to the weights of a finite set of criterion or attributes (Chang and Wang, 2009). Zadeh (1965) proposed a practical tool ''fuzzy sets theory" to model subjective decision making processes. Multi-criteria decision making (MCDM) comprises a finite set of alternatives, amongst which the decision-makers have to select, evaluate or rank according to the weights of a finite set of criteria (attributes). It is unrealistic to assign a crisp value for a subjective judgment, especially when the information is vague or imprecise. This study therefore introduces the fuzzy concept to use an interval or a range presenting the uncertainty and vagueness in the real world.

II. IDENTIFY THE AMTES FOR AMT IMPLEMENTATION

From the literature review of implementation of AMT initially more than fifty attributes/enablers were proposed. After the discussion of these attributes/enablers with experts and researchers they were consider thirty five attributes/enablers, because some of having same meaning. So the initial hierarchy model were proposed or made after the discussion of experts which provides the feasible benefits of

implementation. The expert panel and literature review was used to categorized the AMTEs into five group namely strategic AMTEs, organizational AMTEs, technological AMTEs, performance-based AMTEs and human-based AMTEs. These groups are also having the sub criteria. The major and sub criteria are listed in (Table 1). These AMTEs are namely top management commitment, strategic planning, financial system, organization culture, training and education, integration of departments, reduction in lead time, improvement in product quality, customer relations, reduction in delivery time, reduction in product cost and performance measurement. Top management and sound financial condition are the major AMTEs for AMT implementation. AMT implementation will improve organization performance in terms of lead time, product cost, fast delivery and product quality. The selection of the AMT that matches with the organization objective must be made on the basis of sound decision. These decisions making is only possible when organization has clear strategic planning (Mamalis, 2005). Saberi et al (2010) identified the AMTEs namely strategic planning, organizational structure, organization culture, motivation and reward, training and education and integration of departments. AMT requires a strategic planning for its implementation. The strategic planning includes the business dimension and competitive position of the organization, the technological dimension and the organizational dimension.

Table1 List of main criteria and sub criteria for AMTEs

Major criteria	Code	Sub criterion
Strategic AMTEs (SE)	SE1	Finance position
	SE2	Government policies
	SE3	Top management commitment
	SE4	Strategic planning
	SE5	Market position
	SE6	Research and development
	SE7	Justification of AMT implementation
Organizational AMTEs (OE)	OE1	Organizational structure/Design
	OE2	Operation strategy
	OE3	Design of work place
	OE4	Capacity utilization
	OE5	Integration of departments
Technological AMTEs (TE)	TE1	Availability of hardware and software
	TE2	Techanical reliability
	TE3	Techanical feasibility
	TE4	Techanical flexibility
	TE5	Technological compatibility
	TE6	Maintainability
Performance-based AMTEs (PBE)	PBE1	Shortening product life cycle
	PBE2	Reduction in lead time
	PBE3	Improvment in product quality
	PBE4	Improving speed of delivery
	PBE5	Reduction in product cost
	PBE6	Reduced processing time
	PBE7	Reduced changeovers/setup times
	PBE8	Improved planning and control
Human-based AMTEs (HBE)	HBE1	Organizational culture
	HBE2	Employee relations
	HBE3	Employee motivation
	HBE4	Employee co-operation
	HBE5	Level of skill
	HBE6	Employee training
	HBE7	Team structure, leadership and education
	HBE8	Integrity of AMT team
	HBE9	Reward and schemes

Strategic enablers include top management commitment, strategic planning, financial system, Justification of AMT implementation, Market position, Government policies and Research and development. Many researchers have identified top management commitment as an enabler for AMT implementation to move the organization to a much higher level of functioning and efficiency.

The implementation of AMT is affected by a variety of organizational factors. These factors like that organizational structure/ organizational design, operation strategy, capacity utilization, deign of work place and integration of departments is key members of AMTEs implementation. Operational strategy dimensions are important in implementing new technologies and gaining related benefits and focusing on one dimension does not relate to directly to AMT performance.

Technological AMTEs are limited to the capabilities of the AMT to improve manufacturing performances. These enablers are availability of hardware and software, Techanical reliability, Techanical feasibility, Techanical flexibility, technological compatibility and maintainability. These factors plays important role in the implementation of AMTEs by sharing information and communication system.

Performance-based enablers include better planning and control, shortening product life cycle, improvement in product quality, improvement in delivery speed, reduction in product cost, and reduction in lead time, reduced processing time, reduced changeovers/setup times.

Human based enablers include integrity of AMT team, employee relations, level of skill, organization culture, employee co-operation, team structure, leadership and education, reward and schemes, employee motivation and employee training. Organizational culture represents a core set of shared philosophies, assumptions, values, expectations, attitudes, and norms. Team structure, leadership and education represent the implementation of AMT starts

with the formation of an AMT implementation team. . Integrity of AMT team represent the implementation team should comprise representatives from various functional areas, including manufacturing, engineering, shop-floor, marketing, material, purchasing etc.

III. CONCEPT OF THE FUZZY MULTI-CRITERIA DECISION MAKING

Decision-making is one of important issues for enterprises because the issue is to find an optimal alternative from a number of feasible alternatives. Further, decision-making with several evaluation criteria is named multi-criteria decision-making (Baky and Sinna, 2013). By developing the framework based on fuzzy multi-criteria decision making (FMCDM) approach to help organizations build awareness of the critical influential factors on the success of AMT implementation, measure the success possibility of AMT implementation , as well as identify the necessary actions prior to embarking on conducting AMT implementation. This is not only provides a checking mechanism, but also help in analyzing organizational ability by considering critical factors in the success of AMT implementation. There is different application of FMCDM in the various areas involving more than one attribute or alternative in ambiguous conditions. These are many areas where FMCDM is applied see (Table 2).

Table 2 Area of application of FMCDM

Sr. No	Application of area	Reference
1.	Locating a nuclear power plant in Turkey	Erol et al.(2014)
2.	Flood risk vulnerability in South Korea by considering climate change impacts	Jun et al.(2013)
3.	Assessment of hydrogen fuel cell	Chang and Lin(2012)
4.	Selecting the container transshipment hub location.	Chou(2010)
5.	Evaluating bank performance	Chen et al.(2009)
6.	A method with fuzzy multi-granularity linguistic assessment information developed was made for group decision making.	Jiang et al.(2008)
7.	To evaluate financial performance of domestic airlines in Taiwan.	Wang(2008)
8.	To deal with the marine transshipment container port selection problems.	Chou(2007)
9.	Fuzzy measures and integrals to evaluate strategies in games were conducted.	Narukawa and Torra(2007)
10.	Applied fuzzy discrete event systems to HIV/AIDS treatment planning.	Lin et al.(2007)
11.	To determining what kind of air conditioning systems should be installed in a library	Xu and chen(2007)

IV. FUZZY SETS THEORY

Dubis and Prades (1978) noted that fuzzy numbers are the fuzzy subset of real numbers representing the expansion of the confidence. Given the fuzzy number Ã be a fuzzy set, of which the membership function is $\tilde{\mu}_A(x)$: R ⟶ [0, 1] and it comprises the following features: (1) $\tilde{\mu}_A(x)$ is a continuous mapping from R to the interval of [0, 1]. (2) $\tilde{\mu}_A(x)$ is a convex fuzzy subset and $\tilde{\mu}_A(x)$ is the normalization of a fuzzy subset which means that there exists a number x_o makes $\tilde{\mu}_A(x)$ =1. If those numbers fulfill the aforementioned requirements then they are called fuzzy numbers. The characteristics and membership function of the triangular fuzzy number $\tilde{\mu}_A(x)$ = (l, m, u) are expressed by Eq. (1) and Fig. (1) Where *l*, *m*, and *r* are real numbers and l ≤ m ≤ r,

$$\mu\tilde{A} = \begin{cases} 0, & x < l, \\ \frac{x-l}{m-l} & l \le x \le m \\ \frac{r-x}{r-m} & m \le x \le r \\ 0, & x > r \end{cases} \qquad (1)$$

l and m and r stand for the lower and upper bounds and the modal value of the fuzzy number Ã, respectively. The TFN can be denoted by Ã (l, m, r) and λ is positive real number.

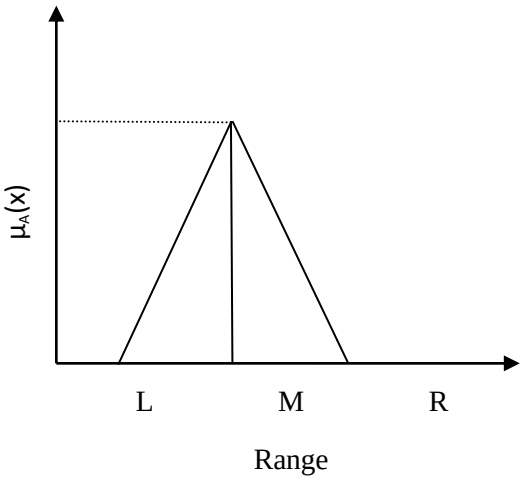

Figure1 the membership function of the triangular fuzzy number Ã

A. Linguistic variables

The theory of linguistic variable is given to express impression of spatial information and human cognition

over the evaluation criteria and feasible alternatives which are assessed, evaluated or ranked in the decision making process. Seven linguistic variables shown in (Table 3) are provided for assigning the importance weights of influential factors. Simultaneously, seven linguistic variables are also used to measure the possible rating of success with respect to each influential factor shown in (Table 4).Furthermore, linguistic ratings of the AMTEs given by the evaluators. Furthermore, linguistic variables are also employed as a way to measure the achievement of the performance value for each criterion. Since the linguistic variables can be defined by the corresponding membership function and the fuzzy interval, we can naturally manipulate the fuzzy numbers to deal with the Fuzzy multi criteria decision making (FMCDM) problems.

Table 3 Linguistic variables for importance weights of factors

Definition	Corresponding TFNs
Extremely high(EH)	(0.9,1.0,1.0)
Very high(VH)	(0.7,0.9,1.0)
High(H)	(0.5,0.7,0.9)
Fair(F)	(0.3,0.5,0.7)
Low(L)	(0.1,0.3,0.5)
Very low(VL)	(0.0,0.1,0.3)
Extremely low(EL)	(0.0,0.0,0.1)

Table 4 Linguistic variables for possible rating of success

Definition	Corresponding TFNs
Extremely high(EH)	(0.9,1.0,1.0)
Very high(VH)	(0.7,0.9,1.0)
High(H)	(0.5,0.7,0.9)
Fair(F)	(0.3,0.5,0.7)
Low(L)	(0.1,0.3,0.5)
Very low(VL)	(0.0,0.1,0.3)
Extremely low(EL)	(0.0,0.0,0.1)

V. FMCDM METHODOLOGY

This analysis method has been widely used to deal with DM problems involving multiple criteria evaluation/selection of alternatives. When the influential factors are determined and the appropriate linguistic scales are set, the importance weight of each influential factor thus can be obtained. This section constructs an analytical model for measuring the possibility of success of any project/problem/issue using FMCDM approach see (figure 2). This section comprises four subsections: investigating the AMT influential factors, determining the importance weights of influential factors, obtaining the possible rating of success, and determining the prediction possibility of AMT implementation.

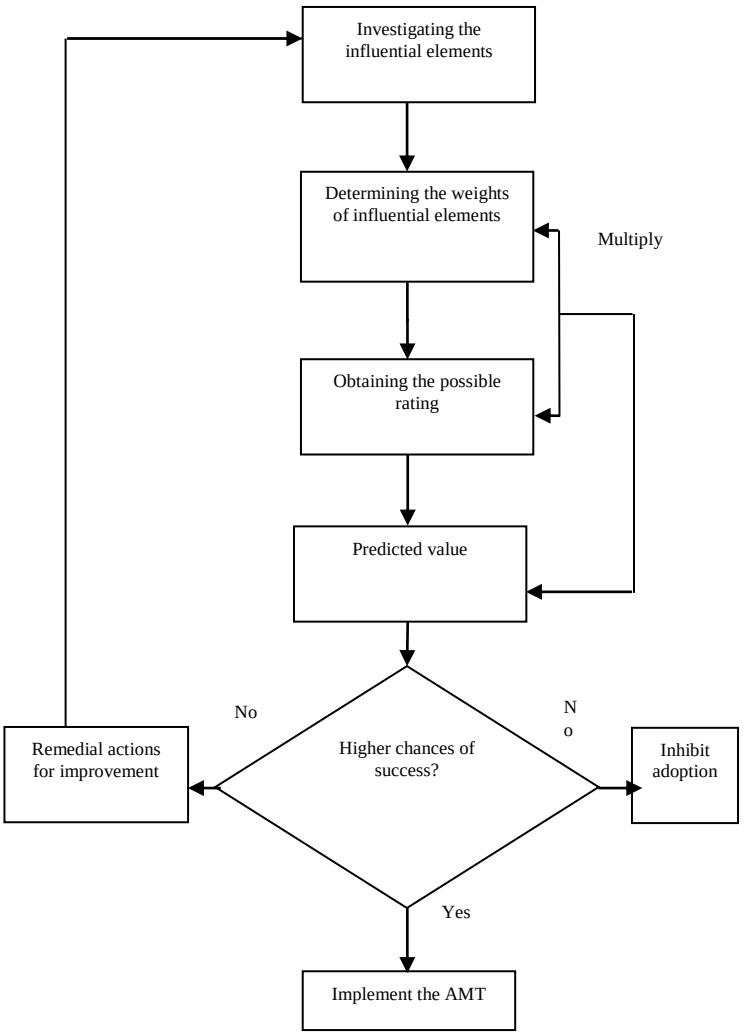

Figure 2 the procedures for predicting success/failure of AMT implementation

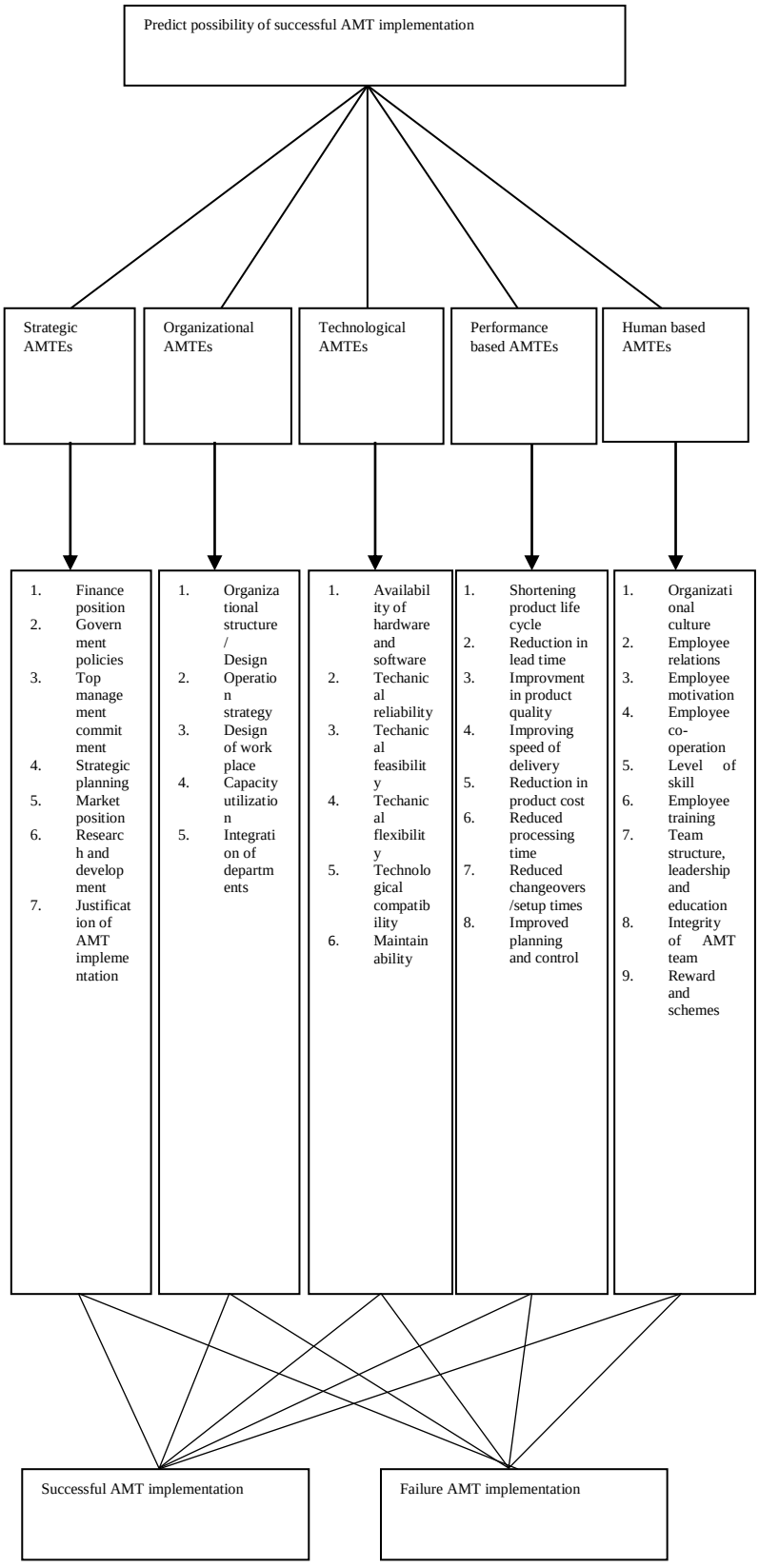

Figure 3 the hierarchy diagram for predicting AMT implementation

A. Identification of the AMT influential factors

Figure 3 shows a hierarchical structure for solving the problem of forecasting the success possibility of AMT implementation. The AMT influencing factors are determined via widespread literature review and consultations with various experts. From the literature the opinions of these experts are employed to obtain the five main aspects including strategic AMTEs, organizational AMTEs, technological AMTEs, performance-based AMTEs and human-based AMTEs. From the aspects, thirty five influential factors for the AMT implementation success prediction.

B. The procedures for determining the importance weights of AMT influential factors

The influential factors on the success of AMT implementation initiative have different meanings, not all of which are equally important. Since it is more realistic, humanistic and straightforward for evaluators to present the idea that ‘‘the importance weight of factor P strongly influences the success of AMT implementation” than to express ‘‘the importance weight of factor P exerts a 63% influence on AMT implementation success”. Therefore, this study provides the evaluators with simple linguistic variables parameterized using triangular fuzzy numbers (TFNs) to express their preferences regarding the importance weights of various influential factors. When the influential factors are determined and the appropriate linguistic scales are set, the importance weight of each influential factor thus can be obtained.

C. Determining the success possibility of AMTEs implementation

Once the importance weights of influential factors and possible rating of success are determined, multiply the importance weights of influential factors by the possible rating of success. The possibility of project implementation can obtain a predicted value ($P_{success}$) for AMTEs success. That is

$$P\ success = \sum_{j=1}^{n} Rj\ Qj$$

Where R_j denotes the normalized importance weight of j_{th} influential factors, and Q_j represents the possible rating of success of AMTEs regarding the j_{th} influential factors. As the possibility of success is known, the possibility of failure is simultaneously computed as

$$P\ failure = 1 - P\ success$$

The prediction possibility value 0.5 indicates that there is approximately a 50-50 chance of either success or failure in project/failure/issue implementation.

D. Determining the possible rating of success of AMTEs

The various steps involved in deriving the possible ratings of successful implementation of AMT implementation.

Table 5 Corresponding TFNs of AMTEs Weight

	E1	E2	E3	E4	E5	E6	E7	E8	E9
SE1	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)
SE2	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(0,.1,.3)
SE3	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)
SE4	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)
SE5	(0,.1,.3)	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)	(.5,.7,.9)	(0,0,.1)	(.7,.9,1)	(.1,.3,.5)	(.1,.3,.5)
SE6	(.1,.3,.5)	(0,.1,.3)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	(0,.1,.3)	(.7,.9,1)
SE7	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)
OE1	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)
OE2	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.7,.9,1)
OE3	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.1,.3,.5)	(.3,.5,.7)
OE4	(.1,.3,.5)	(.5,.7,.9)	(0,.1,.3)	(0,.1,.3)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)	(.5,.7,.9)
OE5	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)
TE1	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)
TE2	(.1,.3,.5)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)
TE3	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)
TE4	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.1,.3,.5)	(.3,.5,.7)
TE5	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(0,.1,.3)	(.5,.7,.9)	(.3,.5,.7)	(.3,.5,.7)	(.7,.9,1)
TE6	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(0,.1,.3)	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)
PBE1	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)
PBE2	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)
PBE3	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.1,.3,.5)	(0,.1,.3)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)
PBE4	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(0,.1,.3)	(.5,.7,.9)	(.1,.3,.5)	(0,.1,.3)	(0,0,.1)	(.3,.5,.7)
PBE5	(.5,.7,.9)	(0,0,.1)	(0,.1,.3)	(.5,.7,.9)	(0,.1,.3)	(0,0,.1)	(0,.1,.3)	(.5,.7,.9)	(.5,.7,.9)
PBE6	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)	(.3,.5,.7)
PBE7	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)
PBE8	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)
HBE1	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.9,1,1)
HBE2	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(0,0,.1)
HBE3	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(.3,.5,.7)
HBE4	(0,0,.1)	(.1,.3,.5)	(0,0,.1)	(.1,.3,.5)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(0,0,.1)	(.5,.7,.9)
HBE5	(.1,.3,.5)	(0,0,.1)	(.5,.7,.9)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)
HBE6	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)
HBE7	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.7,.9,1)
HBE8	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)
HBE9	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)

Table 5 Corresponding TFNs of AMTEs weight-continue

	E10	E11	E12	E13	E14	E15	w j	W j
SE1	(.5,.7,.9)	(.1,.3,.5)	(.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.306,.500,.693)	0.500
SE2	(.7,.9,1)	(0,.1,.3)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(.266,.446,.640)	0.451
SE3	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.620,.800,.926)	0.782
SE4	(.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.553,.740,.886)	0.726
SE5	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.226,.400,.586)	0.404
SE6	(0,0,.1)	(.1,.3,.5)	(0,.1,.3)	(.1,.3,.5)	(0,0,.1)	(0,.1,.3)	(.113,.233,.400)	0.248
SE7	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.9,1,1)	(.660,.826,.933)	0.806
OE1	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)	(.633,.813,.940)	0.795
OE2	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.473,.673,.846)	0.664
OE3	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.280,.473,.673)	0.475
OE4	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(.1,.3,.5)	(.200,.380,.580)	0.386
OE5	(.5,.7,.9)	(.9,1,1)	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.553,.733,.873)	0.72
TE1	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.526,.720,.880)	0.708

TE2	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.420,.620,.800)	0.613
TE3	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.593,.773,.906)	0.757
TE4	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(0,0,.1)	(.5,.7,.9)	(.246,.420,.606)	0.424
TE5	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.373,.566,.753)	0.564
TE6	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.3,.5,.7)	(.226,.406,.606)	0.413
PBE1	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(0,.1,.3)	(.3,.5,.7)	(.5,.7,.9)	(.353,.540,.726)	0.54
PBE2	(.1,.3,.5)	(.7,.9,1)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.566,.740,.886)	0.731
PBE3	(0,.1,.3)	(0,0,.1)	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(0,.1,.3)	(.220,.360,.533)	0.371
PBE4	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.1,.3,.5)	(.213,.360,.533)	0.368
PBE5	(0,0,.1)	(.5,.7,.9)	(.1,.3,.5)	(0,.1,.3)	(0,0,.1)	(.1,.3,.5)	(.180,.300,.473)	0.317
PBE6	(.7,.9,1)	(.7,.9,1)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.526,.720,.873)	0.706
PBE7	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.580,.766,.906)	0.751
PBE8	(0,.1,.3)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)	(0,0,.1)	(0,.1,.3)	(.166,.300,.473)	0.313
HBE1	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.606,.786,.920)	0.771
HBE2	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(0,0,.1)	(.1,.3,.5)	(.213,.373,.553)	0.38
HBE3	(0,0,.1)	(.5,.7,.9)	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(.193,.340,.513)	0.348
HBE4	(.3,.5,.7)	(0,0,.1)	(.5,.7,.9)	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	(.153,.273,.433)	0.286
HBE5	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.1,.3,.5)	(.220,.366,.540)	0.375
HBE6	(.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.513,.700,.853)	0.688
HBE7	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.380,.580,.766)	0.575
HBE8	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.460,.660,.833)	0.651
HBE9	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.580,.760,.900)	0.746

Table 6 Translated TFNs of possible ratings for successful

	E1	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**	**E8**	**E9**
SE1	(.3,.5,.7)	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)
SE2	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.1,.3,.5)	(0,.1,.3)
SE3	(.9,1,1)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)
SE4	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.7,.9,1)
SE5	(0,.1,.3)	(.5,.7,.9)	(.3,.5,.7)	(0,.1,.3)	(.5,.7,.9)	(0,0,.1)	(.7,.9,1)	(.1,.3,.5)	(.7,.9,1)
SE6	(.1,.3,.5)	(0,.1,.3)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(0,.1,.3)	(.7,.9,1)
SE7	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.9,1,1)	(.7,.9,1)	(.9,1,1)
OE1	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)
OE2	(.5,.7,.9)	(.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.7,.9,1)
OE3	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.1,.3,.5)	(.1,.3,.5)	(.3,.5,.7)
OE4	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(0,.1,.3)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(0,.1,.3)	(.5,.7,.9)
OE5	(.9,1,1)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.3,.5,.7)
TE1	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.5,.7,.9)	(0.9,1,1)	(.5,.7,.9)	(.3,.5,.7)
TE2	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)
TE3	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.9,1,1)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)
TE4	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.1,.3,.5)	(.3,.5,.7)
TE5	(.7,.9,1)	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)
TE6	(0,0,.1)	(.5,.7,.9)	(.3,.5,.7)	(0,.1,.3)	(.3,.5,.7)	(.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)
PBE1	(.7,.9,1)	(.5,.7,.9)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)
PBE2	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)
PBE3	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(0,.1,.3)	(.5,.7,.9)
PBE4	(.7,.9,1)	(.5,.7,.9)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(0,.1,.3)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)
PBE5	(.5,.7,.9)	(0,0,.1)	(0,.1,.3)	(.5,.7,.9)	(0,.1,.3)	(0,0,.1)	(0,.1,.3)	(.5,.7,.9)	(.5,.7,.9)
PBE6	(.3,.5,.7)	(.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)	(.3,.5,.7)
PBE7	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)
PBE8	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)
HBE1	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.7,.9,1)	(.3,.5,.7)	(0,0,.1)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)
HBE2	(.1,.3,.5)	(.7,.9,1)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	(0,0,.1)
HBE3	(.3,.5,.7)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.3,.5,.7)	(0,0,.1)	(.5,.7,.9)	(.3,.5,.7)
HBE4	(0,0,.1)	(.1,.3,.5)	(0,0,.1)	(.7,.9,1)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(0,0,.1)	(.5,.7,.9)
HBE5	(.1,.3,.5)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	(0,0,.1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)
HBE6	(.5,.7,.9)	(.7,.9,1)	(.3,.5,.7)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)
HBE7	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.7,.9,1)
HBE8	(.3,.5,.7)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.5,.7,.9)	(.7,.9,1)	(.1,.3,.5)
HBE9	(.3,.5,.7)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	(.9,1,1)

Table 6 Translated TFNs of possible ratings for successful-continue

	E10	**E11**	**E12**	**E13**	**E14**	**E15**	**Q_j**	**$P_{success}$**
SE1	(0.5,.7,.9)	(.1,0.3,.5)	(.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	0.5355	0.01382
SE2	(0.7,.9,1)	(0,0.1,.3)	(0.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.5,.7,.9)	0.4888	0.01138
SE3	(0.5,.7,.9)	(.3,.5,.7)	(0.7,.9,1)	(.5,.7,.9)	(.7,.9,1)	(.9,1,1)	0.8177	0.03302
SE4	(0.7,.9,1)	(.3,.5,.7)	(0.9,1,1)	(.7,.9,1)	(.5,.7,.9)	(.5,.7,.9)	0.7688	0.02884
SE5	(.3,.5,.7)	(.1,0.3,.5)	(0.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(.3,.5,.7)	0.4688	0.00979
SE6	(0,0,.1)	(.1,0.3,.5)	(0,0.1,.3)	(.1,.3,.5)	(0,0,.1)	(.5,.7,.9)	0.3133	0.00402
SE7	(0.5,.7,.9)	(0.9,1,1)	(0.7,.9,1)	(.3,.5,.7)	(.9,1,1)	(.9,1,1)	0.8555	0.03563
OE1	(0.7,.9,1)	(0.9,1,1)	(0.5,.7,.9)	(.5,.7,.9)	(.7,.9,1)	(.7,.9,1)	0.8133	0.03340
OE2	(0.5,.7,.9)	(.3,.5,.7)	(0.7,.9,1)	(.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	0.6755	0.02317
OE3	(0.5,.7,.9)	(.1,0.3,.5)	(0.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.3,.5,.7)	0.5244	0.01287
OE4	(0.1,0.3,.5)	(.3,.5,.7)	(.1,0.3,.5)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	0.4511	0.00900
OE5	(0.5,.7,.9)	(0.9,1,1)	(0.5,.7,.9)	(.7,.9,1)	(.5,.7,.9)	(.3,.5,.7)	0.7511	0.02792
TE1	(0.5,.7,.9)	(.3,.5,.7)	(0.7,.9,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	0.7044	0.02578
TE2	(0.7,.9,1)	(0.5,.7,.9)	(0.5,.7,.9)	(0,0,.1)	(.5,.7,.9)	(.5,.7,.9)	0.5711	0.01808
TE3	(0.7,.9,1)	(0.9,1,1)	(0.5,.7,.9)	(.3,.5,.7)	(0.9,1,1)	(.7,.9,1)	0.7644	0.02990
TE4	(0.5,.7,.9)	(.1,0.3,.5)	(.3,.5,.7)	(.7,.9,1)	(0,0,.1)	(.5,.7,.9)	0.5311	0.01163
TE5	(0.5,.7,.9)	(0.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.1,.3,.5)	(.5,.7,.9)	0.7000	0.02039
TE6	(0,0.1,.3)	(.1,0.3,.5)	(0.5,.7,.9)	(.1,.3,.5)	(.1,.3,.5)	(.5,.7,.9)	0.4444	0.00948
PBE1	(.3,.5,.7)	(0.7,.9,1)	(0.5,.7,.9)	(0,.1,.3)	(.3,.5,.7)	(.5,.7,.9)	0.5644	0.01573
PBE2	(0.5,.7,.9)	(0.7,.9,1)	(.3,.5,.7)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	0.7288	0.02575
PBE3	(0.5,.7,.9)	(0,0,.1)	(0.5,.7,.9)	(0,0,.1)	(.3,.5,.7)	(0,.1,.3)	0.4311	0.00834
PBE4	(0.1,0.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.1,.3,.5)	0.3688	0.00702

PBE5	(0,0,.1)	(0.5,.7,.9)	(.1,0.3,.5)	(0,.1,.3)	(0,0,.1)	(.1,.3,.5)	0.3177	0.00521
PBE6	(0.7,.9,1)	(0.7,.9,1)	(.3,.5,.7)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	0.7066	0.02578
PBE7	(0.5,.7,.9)	(0.5,.7,.9)	(0.5,.7,.9)	(.5,.7,.9)	(.3,.5,.7)	(.7,.9,1)	0.74	0.02869
PBE8	(0,0.1,.3)	(0,0,.1)	(.3,.5,.7)	(.3,.5,.7)	(0,0,.1)	(0,.1,.3)	0.3111	0.00600
HBE1	(0.5,.7,.9)	(0.7,.9,1)	(.3,.5,.7)	(0.9,1,1)	(.5,.7,.9)	(.3,.5,.7)	0.7577	0.03016
HBE2	(.3,.5,.7)	(0.5,.7,.9)	(.3,.5,.7)	(.1,.3,.5)	(0,0,.1)	(.1,.3,.5)	0.4622	0.00906
HBE3	(0,0,.1)	(0.5,.7,.9)	(.1,0.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	0.4577	0.00824
HBE4	(.3,.5,.7)	(0,0,.1)	(0.5,.7,.9)	(.1,.3,.5)	(0,0,.1)	(.3,.5,.7)	0.3244	0.00480
HBE5	(0.1,0.3,.5)	(0,0,.1)	(.3,.5,.7)	(.5,.7,.9)	(0,0,.1)	(.1,.3,.5)	0.4311	0.00835
HBE6	(0.7,.9,1)	(.3,.5,.7)	(0.9,1,1)	(.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	0.6866	0.02442
HBE7	(0.5,.7,.9)	(.3,.5,.7)	(0.7,.9,1)	(.1,.3,.5)	(.5,.7,.9)	(.3,.5,.7)	0.5755	0.01710
HBE8	(.3,.5,.7)	(0.5,.7,.9)	(0.7,.9,1)	(.3,.5,.7)	(.5,.7,.9)	(.5,.7,.9)	0.6266	0.02106
HBE9	(0.7,.9,1)	(.3,.5,.7)	(0.5,.7,.9)	(.7,.9,1)	(.9,1,1)	(.5,.7,.9)	0.7333	0.02826

Table 7 Shows importance weights of influential factors, possible rating of success and prediction possibility of successful AMT implementation

Major/ sub criteria	Weight of factor with an aspect	Weight of factor across aspects (Rj)	Possible Rating (Qj)	Prediction possibility (Psuccess)
SE	0.23169014			
SE1	0.11141861 2 [4]	0.025814594 [20]	0.535555556 [20]	0.013825149 [20]
SE2	0.10052434 7 [5]	0.0232905 [22]	0.488888889 [23]	0.011386467 [23]
SE3	0.17430822 8 [2]	0.040385498 [3]	0.817777778 [2]	0.033026363 [3]
SE4	0.16192838 2 [3]	0.03751721 [9]	0.768888889 [4]	0.028846566 [6]
SE5	0.09012527 7 [6]	0.020881138 [25]	0.468888889 [24]	0.009790934 [24]
SE6	0.05546170 9 [7]	0.012849931 [35]	0.313333333 [35]	0.004026312 [35]
SE7	0.17975536 [1]	0.041647545 [1]	0.855555556 [1]	0.035631788 [1]
OE	0.20985915 5			
OE1	0.19572120 7 [1]	0.041073887 [2]	0.813333333 [3]	0.033406762 [2]
OE2	0.16346547 7 [3]	0.034304727 [14]	0.675555556 [15]	0.023174749 [14]
OE3	0.11699535 8 [4]	0.024552547 [21]	0.524444444 [22]	0.012876447 [21]
OE4	0.09512706 7 [5]	0.019963286 [26]	0.451111111 [27]	0.00900566 [27]
OE5	0.17713315 9 [2]	0.037173015 [10]	0.751111111 [7]	0.027921065 [9]
TE	0.20563380			
TE1	0.17798317 7 [2]	0.036599358 [11]	0.704444444 [12]	0.025782214 [12]
TE2	0.15399171 4 [3]	0.031665902 [16]	0.571111111 [18]	0.018084748 [17]
TE3	0.19025787 9 [1]	0.039123451 [5]	0.764444444 [5]	0.029907705 [5]
TE4	0.10656673 [5]	0.021913722 [23]	0.531111111 [21]	0.011638621 [22]
TE5	0.14171701 2 [4]	0.029141808 [18]	0.7 [13]	0.020399266 [16]
TE6	0.10377702 5 [6]	0.021340064 [24]	0.444444444 [28]	0.009484473 [25]
PBE	0.15633802 8			
PBE1	0.17833000 5 [4]	0.027879761 [19]	0.564444444 [19]	0.015736576 [19]
PBE2	0.24144268 2 [2]	0.037746673 [8]	0.728888889 [10]	0.02751313 [10]
PBE3	0.12255601 2 [5]	0.019160165 [29]	0.435555556 [29]	0.008345316 [29]
PBE4	0.12182214 3 [6]	0.019045434 [30]	0.368888889 [32]	0.007025649 [31]
PBE5	0.10494317 2 [7]	0.016406609 [32]	0.317777778 [34]	0.005213656 [33]
PBE6	0.23337013 [3]	0.036484626 [12]	0.706666667 [11]	0.025782469 [11]
PBE7	0.24804749 7 [1]	0.038779257 [6]	0.74 [8]	0.02869665 [7]
PBE8	0.10347543 5 [8]	0.016177145 [33]	0.371111111 [31]	0.006003518 [32]
HBE	0.19647887 3			
HBE1	0.20262657 1 [1]	0.03981184 [4]	0.757777778 [6]	0.030168528 [4]
HBE2	0.09985344 [6]	0.019619091 [27]	0.462222222 [25]	0.00906838 [26]
HBE3	0.09167830 4 [8]	0.01801285 [31]	0.457777778 [26]	0.008245882 [30]
HBE4	0.07532803 3 [9]	0.014800367 [34]	0.324444444 [33]	0.004801897 [34]
HBE5	0.09868556 3 [7]	0.019389628 [28]	0.431111111 [30]	0.008359084 [28]
HBE6	0.18102085 6 [3]	0.035566774 [13]	0.686666667 [14]	0.024422518 [13]
HBE7	0.15124000 5 [5]	0.029715466 [17]	0.575555556 [17]	0.017102901 [18]
HBE8	0.17109390 5 [4]	0.033616338 [15]	0.626666667 [16]	0.021066238 [15]
HBE9	0.19620325 [2]	0.038549793 [7]	0.733333333 [9]	0.028269849 [8]
Possibility of success 0.63403753				
Possibility of failure 0.36596247				

VI. FINAL RESULT AND DISCUSSION

The possible ratings for successful AMT in relation to five major aspects and thirty five AMTEs are summarized in (Table 7). These analytical results show that Strategic, organizational and technological enablers are of prime importance among these five categories of AMTEs viz. Strategic enablers, organizational enablers, technological enablers, performance-based enablers and human-based enablers as shown in (Table 7). According to ranking of weights for AMTEs strategic Enablers are found be highest of importance among all with the weight of 0.2316 followed by the organizational enablers with weight of 0.2098, Followed by the technological enablers with weight 0.2056. After these three, human-based enablers and performance-based enablers are ranked lower down the order in the ranking of importance with the weights 0.1964 and 0.1563 respectively. Further according to the (Table 7) prediction possibility of success, it can be observed that the strategic enabler (SE7) which is justification of AMT implementation holds the first rank among them with weight of 0.03563 with that an enabler from organizational category, organizational structure/

organizational design (OE1) ranked at number two with weight 0.03340, top management commitment is third with .03302 weight under the strategic enablers and organizational culture is rank fourth under the category of human- based enablers. The predicted outcome indicates that the possibility of successful AMT implementation (0.63403753) is roughly more than one and half that of unsuccessful AMT implementation (0.36596247). Consequently, this study makes the compromise suggestion that the company shall initiate AMT simultaneously implement remedial improvement policies to enhance the poor performance perspectives of this corporation to increase the possibility of AMT successful implementation.

VII. CONCLUSION

The possible ratings for successful AMT in relation to five major criteria and 35 AMTEs are summarized in (Table 7) These analytical results shows that Strategic and organizational AMTEs are of prime importance among these five categories of AMTEs. Further according to the (Table 7) of priority of weights, it can be observed that the strategic enabler (SE7) which is justification of AMT implementation holds the first rank among them with weight of 0.04164 with that an enabler from organizational enablers category, organizational structure/ organizational design (OE1) ranked at number two. It is required to share and gather information and data from working environment of organizations and top management commitment (SE3) ranked at the number three. The predicted outcome indicates that the possibility of successful AMT implementation (0.63403753) is roughly more than one and half that of unsuccessful AMT implementation (0.36596247). Consequently, organizations or enterprises can apply the proposed prediction model to improve their decision making and implement appropriate actions to avoid pitfalls (waste of time and resource) before initiating AMT implementation. Furthermore, we can also include the other decision making methods to ensure more integrated and comparative study. When considering the influential factors that are not quite independent, factor analysis can be employed to extract common factors that are mutually independent and the prediction model used in this study is applied to measure the possibility of successful AMT implementation in Indian SMEs.

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