

Full Length Research Paper

Decision framing and critical success factors of new product development

Amir Emami* and Kambeiz Talebi

Faculty of Entrepreneurship, University of Tehran, Tehran, Iran.

Accepted 29 April, 2011

In the current business world, developing a new product successfully is a factor for growth and survival of companies, and deficiency in product development process especially in small medium size enterprises which possess limited resource will have disappointing consequences. In order to present a solution for each of the product development problems, scholars have introduced some critical success factors. These critical factors will be entirely more effective when the entrepreneur, well organized structure, and cross functional teams are provided with a relative awareness of framing effects. This awareness enables them to make more rational decisions in risky and certain circumstances, and their judgments are less affected by the values that are imposed by problem manipulation. Therefore, the awareness of framing and its effects on the subjective values is investigated not only as a critical success factor but also as a gorge between these factors and new product success. By employing framing, companies can provide the winning condition for themselves in business environments. The present study's research data is qualitative and is retrieved from reviewing the literature of critical success factors in product development, investigating frames and their effects, heuristic and cognitive biases in each of the critical success factors. Ultimately, based upon the discussion, the proposed model would be presented.

Key words: New product development, framing, entrepreneurs, cross functional teams, cognitive biases.

INTRODUCTION

Developing and commercializing a new product, is a critical factor in success, profitability, survival and growth of many services and manufacturing businesses (Cooper, 1995; Lester, 1998). Capability in developing new products that have the ability to compete in current and future markets is the competitive advantage of successful companies. Framing theory which was first developed by Kahnman and Tversky in 1979 has so far influenced other fields especially marketing; consumer behavior; health care and political science (Levin, et al., 1998). This theory illustrates people's mental models in judgment and decision making circumstances which is based on subjective values. In decision making a frame relates to a mental model (Soman, 2004; Thaler, 1999), which people use to solve problems. It contains the information of the decision problem and its subject (Soman, 2004).

Considering this mental model, a special kind of risky or uncertain circumstance in decision making would be created in which either subjective values and their utility for the person or a special contingent distribution will come into existence¹. But the presence of that contingent distribution or using scientific methods (formal method) does not help people; rather, they need to use cognitive biases and their heuristics (Blume and Covin, 2009; Busenitz and Barney, 1997).

Studies have investigated the effects of heuristics and biases on entrepreneurs and group's judgment and decision making. For instance, Barbosa (2007) tested the effect of availability and anchoring biases on risk perception and decision to start a new venture when they are framed in positive or negative terms. Also, Milch et al. (2009) examined the framing effects between individual vs. groups (such as naïve and pre-decided). To our

*Corresponding author. E-mail: amiremami@ut.ac.ir.

1 -sometimes no contingent distribution is available depending on the kind of framing manipulation.

knowledge, there has not been emphasis on the effects of framing problems on critical success factors (CSFs) of new product development (NPD) especially among cross functional teams (CFTs). Therefore, the purpose of this study is to investigate framing effects on CSFs in the success and failure of NPD process. The influence of framing and its inherent biases on the subjective value is investigated not only as a critical success factor, but also as a bottle neck between these factors and new product success. And eventually, the conceptual model of the relationship between them would be presented.

CSFS IN NPD

Cooper (1982) states that although any manager may consider the uniqueness of their company circumstances (industry type, company's size and possession) as an excuse for failure in NPD, researches have shown these factors do not have considerable effect on a company's efficiency and effectiveness in NPD. In addition, there is no direct relationship between effectiveness in NPD and incurring huge expenditures in research and development, (although the sales volume might be increased but is not efficient) and the relationship tends to be nonlinear (Schimmoeller, 2010). The most reliable method of companies' evaluation should be sought in CSFs (Lester, 1998). Many CSFs have been defined by scholars in the field of NPD. Schimmoeller (2010) distinguished management support, CFTs, and supportive organizational structure as the most critical factors in this area which, in current paper, the impact of framing on them has been discussed. It is well understood that entrepreneurs make the ultimate decision for executing a NPD project and their support is a determining factor, but evidence in successful companies show that the use of opinions and comments of CFTs is a common method which occurs in a good organizational structure.

Management support

Entrepreneur's support as a manager of a business has been considered as success factors of NPD (Zahra and Ellor, 1993; Lynn and Akgun, 2003). An organization's management support provides a bright prospect of team goals and, at the same time, gives freedom to team members to pursue the objectives which will result in the performance enhancement of the product team (Hayes et al., 1985; Schimmoeller, 2010). Studies have led to improvement in team performance and expedition in making key decisions via support of management. It also enhances the CFTs performance to speed up the product launch in market and to improve cooperation environment among other organizational resources (Lester, 1998). This type of support reduces the decision making time (Schimmoeller, 2010). Entrepreneur's support helps

access to human and capital resources and encourages the relationship and collaboration between operational groups in the organization and reduces time cycle (Cooper and Slagmulder, 1997).

Cross functional teams

In recent studies, CFTs have been recognized as the most important element in enhancing the development processes (Schimmoeller, 2010). According to researches, the CFTs, in addition to improving quality and problem solving skills will be conducive to enhancement of product performance (Ulrich and Eppinger, 2000). Combination of various skills will enable groups to promote the product performance by employing fewer resources (Lynn and Akgun, 2003). In different industries, these teams are recruited to cope with existing challenges in NPD. Although managing these teams is difficult, the combination of these teams endowed with various skills and expertise, the company can successfully deal with such problems. Communication in CSFs and between these teams and outsiders is a considerable point which will produce high efficiency of teams' performance (Schimmoeller, 2010). Due to reduced errors and duplications in CFTs, they decrease product development time and costs (Ulrich and Eppinger, 2000; Likert, 1975).

Supportive organizational structure

Researchers have emphasized the importance of a well-organized structure as a key factor in NPD (Hayes et al., 1985). This key factor along with the entrepreneur's role and CFTs will result in increasing the level of product performance, product development speed, and cost reduction (Hayes et al., 1985). Organizational structure plays as a loop between the entrepreneur, CFTs, and company's environment (that is, suppliers and customers). This key factor has a positive impact on the team success and capability in an organization especially for the new projects (Hopkins and Bailey, 1971). The concept of matrix structure could be considered as a good example here. In such structures, teams are assigned to perform their duties based on the projects' requirements (Wehrich and koontz, 1988).

Indicators measure the success of NPD (Ulrich and Eppinger, 2000; Lynn and Akgun, 2003; Schimmoeller, 2010) in manufacturing and service sectors as follows:

1. High performance of product
2. Agility in product development process
3. Efficiency at cost of product development.

Introducing successful new products is essential for the survival of the company, but the failure rate of new products is often more than 50% (Schimmoeller, 2010). So, with this fatal failure rate, other factors, in addition to determination and specifications of the relationship

between components of successful NPD and their relationship with CSFs in the successful evaluation process, must also be considered. Psychological factors, such as people's² mental models in the condition of risk and uncertainty are very important in all entrepreneurial activities. Information asymmetry as one of the entrepreneurial profit sources (Venkataraman et al., 2002), is a consequence of the uncertain and complex circumstances and framing contains both kinds of situations (Baron, 2008). Besides other discussions, framing effects have been the most controversial subjects against the normative decision theory (Druckman, 2001). As long as the organization fails to scrutinize these frames, a correct relationship between CSFs and successful consequences of NPD projects will not be established.

Framing effects

Judgment and decision making are very sensitive to the way that decision outcomes are manipulated (Tversky and Kahneman, 1981; Levin et al., 1998). Framing is one of the most controversial issues, which deviates from the rational decision theory (Baron, 2008; Thaler, 1999). Basically, rational decisions follow the normative model of expected-utility theory (Baron, 2008). According to this model, decision outcomes should not violate the principle of description invariance (Kahneman and Tversky, 1984). Based on this principle, the way that a decision scenario is manipulated in different states or situations should not change individual choices. In framing, by differently manipulating a decision problem, even contradictory choices will be made because, framing objectively emphasizes part of the problem information that biases people's decision towards a choice that does not follow a rational process; rather, it follows subjective values (Kahneman and Tversky, 1984). Now, with two problems from a risky framing³ (Tversky and Kahneman, 1981), we would further illustrate the contradictions in choices.

Problem 1

Imagine an unusual disease has begun to spread, which is expected to kill 600 people. Two alternative plans to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the plans are as follows:

1-1-(number of subjects = 152)
If plan A is adopted, 200 people will be saved

2-I.e., Those who have decision making role

3-Risky choice framing is based on the "Prospect Theory" it is: "individuals tend to prefer risk-averse alternative when the outcomes are framed in term of gains (e.g., saving lives, success in NPD), but shift to preferring risk-seeking when the equivalent outcomes are framed in terms of losses (e.g., dying, losing money)"(Druckman, 2001, P.63). There are other kinds of framing (e.g., Task framing and Goal framing) that considering all in the current study is not possible therefore for further study see Levin, et al., (1998).

If plan B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved
Which of the two plans would you favor?

2-1-(number of subjects = 155)

If plan C is adopted, 400 people will die
If plan D is adopted, there is one-third probability that nobody will die and a two-thirds probability that 600 people will die

Plans A and B are identical with plans C and D because they have the same consequences. But results show that 72% chose plan A and just 22% indicated their preference for Plan C (that is, 28% plan B vs. 78% plan D). This means 50% deviation. This is not insignificant.

Problem 2

1-2. (number of subjects = 85)

Consider the following two-stage game. In the first stage, there is a 75% chance to end the game without winning anything, and a 25% chance to move into the second stage. If you reach the second stage, you have a choice between:

A: A sure win of \$ 30
B: 80% chance to win \$ 45

Your choice must be made before the game starts, before the result of the first stage is known. Please indicate the option you prefer.

2-2. (number of subjects = 81)

Which of the following options do you prefer?

C: 25% chance to win \$ 30
D: 20% chance to win \$ 45

In this study, programs A and C in terms of the consequence are equal, because the possibility of 25% chance to move into the second stage is exactly program C in the second question. Program B offers 20% chance (25%*80% = 20%) chance that it is exactly the same as program D in the second question. Nevertheless, these results indicate that 74% of subjects chose program A and 42% selected programs C (26% options B vs. 58% plan D) this indicates the occurrence of conflict in people's choices.

In the two stated examples, we met the life-death and betting task frame, several researches have proven framing effects in other task frames (Druckman, 2001; Huang and Wang, 2010; Emami et al., 2011). Framing problems contain different cognitive biases as well as loss aversion. This bias is defined as the individual tendency to avoid losses in exchange for obtaining equal gains (Inesi, 2010). Loss aversion causes risk seeking behavior because from psychological point of view, losses (for example, losing \$1000) seem more

distressing than equal gains (for example, gaining \$ 1000). The result of this dissatisfaction, for instance in risky framing, biases decision toward more risky choices as it is exemplified in problem 1 and 2. Loss aversion has been identified to be related to the number of important biases in decision making (for example, sunk-cost effect, status quo bias, endowment effect) (Soman, 2004).

METHODOLOGY

The present study is a review research that has been done on a survey basis. The qualitative research method has been used and is retrieved from the review of the text in the field of CSFs in the NPD literature; investigation of frames and their effects in each of the CSFs. Documents extraction method has been the data collection instrument.

RESULTS

Framing is examined to determine whether there is evidence that can influence each of the CSFs of CFTs, entrepreneur support, and organizational structure.

Entrepreneurs and framing biases

Numerous studies have emphasized the importance of entrepreneurs' perception and also the use of heuristics and cognitive biases by them (Busenitz and Barney, 1997; Barbosa and Fayolle, 2008). Psychological viewpoints in entrepreneurship field have a significant improvement in decision making and judgment fields. Researchers in entrepreneurship have broadly investigated the characteristics of the entrepreneurs, whilst others in the field of psychology of judgment have widely studied the credit of models which are based on the expected utility theory. Their research resulted in more complex models such as the emergence of prospect theory (Kahneman and Tversky 1979) which led to expansion in the area of judgment, biases and cognitive heuristics (Busenitz and Barney, 1997). This expansion implies the effect of cognitive heuristics on risk behaviors and perceptions which will provide new definitions for the new risky ideas that entrepreneurs follow (Barbosa and Fayolle, 2008). From psychological point of view, there are different traits and characteristics of entrepreneurs. One of these traits is the entrepreneur's propensity to cognitive biases (Burmeister and Schade, 2007). Often, entrepreneurs' decisions are made in the state of complexity and uncertainty because there is either no historical data (for example, about products or rivals in the market) or the shortage of resources availability (Busenitz and Barney, 1997). Such decision always appears in business models like planning to produce a prototype of a new product. Those who have more tendencies to apply cognitive bias or heuristics in their decision are usually more susceptible to be entrepreneurs. In addition to the importance of cognitive

heuristics, research in the field of decision making psychology has revealed the importance and effect of framing on the risky behaviors of entrepreneurs and managers (Kuhberger, 1998; Barbosa and Fayolle, 2007; Emami and Talebi, 2011).

CFTs and the framing effects

Typically, groups have a little tendency to framing effects, since they have more information resources and knowledge in comparison with individuals (Milch et al., 2009). Groups can also diagnose errors that individuals cannot (Maier, 1967). Accuracy of the judgments and risk assessment is higher in groups (Hastie, 1986). However, a group of people who are already aware of the decision scenario also have specified their preferences to the decision within themselves and, being well informed with previous related data (such as pre-decided groups), are more affected by framing problem, compared to the groups who are confronted with the decision scenario for the first time without any prior knowledge (such as naive groups) (Milch et al., 2009). To rectify this matter, important decisions are needed by a group of people who are somehow working together, have different expertise, former acquaintance and continuous contact with policy making field. Since CFT groups have access to a wider range of views and information, cognitive biases have less effect on their decisions. By and large, the diversity of views, comments and capabilities of the group members will promote decision making and is an important factor in detecting frames (Hinsz, 1997).

Organizational structure and framing effects

Organizational structure as an intermediate element minimizes the risk of biases in judgment and decision making process which exhorts formality. The more a process becomes formal, the more decisions would be taken rationally (Barbosa and Fayolle, 2008; Schimmoeller, 2010). A suitable organizational structure optimizes relationships between the entrepreneur, CFTs, and environment for firms (Schimmoeller, 2010). This clearly provides a winning position for the organization in the business. Those in winning position have more power perception (Inesi, 2010). Power creates positive effects (Berdahl and Mortorana, 2006) on the individuals' subjective value which cause people to achieve their goals faster (Chen et al., 2001). Therefore, either the entrepreneurs or CFTs in this kind of organization have more power perception. Inesi (2010) indicates that individuals in power position are less loss-averse than others because they are less concerned about avoiding losses. This is a fundamental function of the high power mindset. Loss aversion introduced as the root of decision conflicts in framing effects so entrepreneurs and teams in a well-organized structure would make less unstable decision (such as, less conflicting) when they are faced with

with different problem manipulations.

Framing effects and decision to launch new products

Close relationship between framing's bias and risk perception establish when people begin to analyze and assess conjunctive (continuous) and disjunctive events (Tversky and Kahneman, 1974). This case contains an interesting concept in entrepreneurship and NPD issues, especially because an NPD project can be framed as a series of disjunctive or conjunctive events. Conducting an NPD project is a process whose success depends on several individual activities associated with each other. If this process is framed as a string of critical events (conjunctive), for instance, identification of an opportunity, prototype product development and capital increase etc., the overall success of an NPD project will depend on individuals' success in each critical event. There is usually an exaggeration in estimation of conjunctive events, while the estimated probability of disjunctive events deemed to be insignificant (Barbosa and Fayolle, 2007). Since the number of events that should happen to guarantee the success of an NPD project may be significantly high, but the probability of success of each of the individual events may also be high. In this regard, they tend to over-estimate⁴ the overall probability of success. Thus, based on the prospect theory in framing, when actions and events required for successful NPD are framed as a positive issue (means high estimate of project success), they will exaggerate a company's success probability in projects (Barbosa and Fayolle, 2007). On the other hand, when the events, necessary to successfully implement the project (for example, a venture) are negatively framed (failure probability), a structure very similar to the disjunctive (discrete) will rise. In disjunctive structure, failure in one component is total failure of the structure. A good example of disjunctive structure is a complicated structure like nuclear reactor or human body in which, if each of the necessary components is damaged, the whole system will act problematically or will even be paralyzed (Slovic et al., 1982; Barbosa and Fayolle, 2007). Individuals tend to underrate the failure of disjunctive structures because the probability of its components failure is usually low. In general, based on the prospect theory in framing, when actions and events required for a successful NPD are framed as a negative issue, they evaluate the project's failure probability low (Barbosa and Fayolle, 2007). Barbosa and Fayolle (2007) found that on the one hand, when the flow of new information is framed as negative, this may result in increase in the perceived risk (for example, the risk of launching a new product increases) and thus the desire to launch the project reduces. On the other hand, if the slew of new information is framed in a positive way, the perceived risk would be reduced and thus the desire to

launch the project grows. However, in all cases, it is the role of the interaction between the CFTs and the entrepreneur who can identify this type of frame and neutralize its effect. If so, they can have an unbiased look at the problems.

Research model

Based on the result of this study, a complementary factor for CSTs in previous studies is awareness of framing Effects and its cognitive biases which are illustrated in Figure 1.

What is obvious in this model is the role of framing effects as a gorge between Critical Factors of NPD and development component. These frames, in case of identification and employment, can reinforce CSFs. All the key factors are somehow resulting from humans' thinking, perception and cognition. So the framing effects are considered subtle but determining parts in the model.

DISCUSSION

Framings matters are always present anywhere and at any time, especially in situations where risk and uncertainty, exist in decision making. In these situations heuristic and bias cause quick decisions to be made, but there may be traps that will lead to the conflicting choices. In such circumstances, a novel opportunity has been lost and sometimes, an entrepreneur or a group is not aware of it and competitors with awareness in a situation could capture the market. In the current intense competition, competing companies are well aware of this issue and are trying to surpass others. Therefore, identifying farming problems is imperative. External and internal environment of a company, with a view to their specific conditions, can unconsciously form a specific frame of information that may contain framing effects. If entrepreneurs and CFTs combine to enhance their skill levels in framing problems via practice and learning, they may be able to recognize and change (reframe) these issues. In this case, they can use biases and heuristics in a more efficient way, and consequently, their judgments and decisions will be more stable and less conflicting.

Conclusion

Usage of heuristics and cognitive biases by entrepreneurs has been stressed in various researches. Surveys conducted show that groups, particularly non-homogeneous ones such as CFTs, may be less affected by these cognitive biases. Although these cognitive biases sometimes help entrepreneurs to make decisions in risky and uncertain circumstances, when misleading frames occur, knowledge and awareness of tools to deal with it become necessary. In this study, cases of ways to deal

4 -a heuristically mechanism

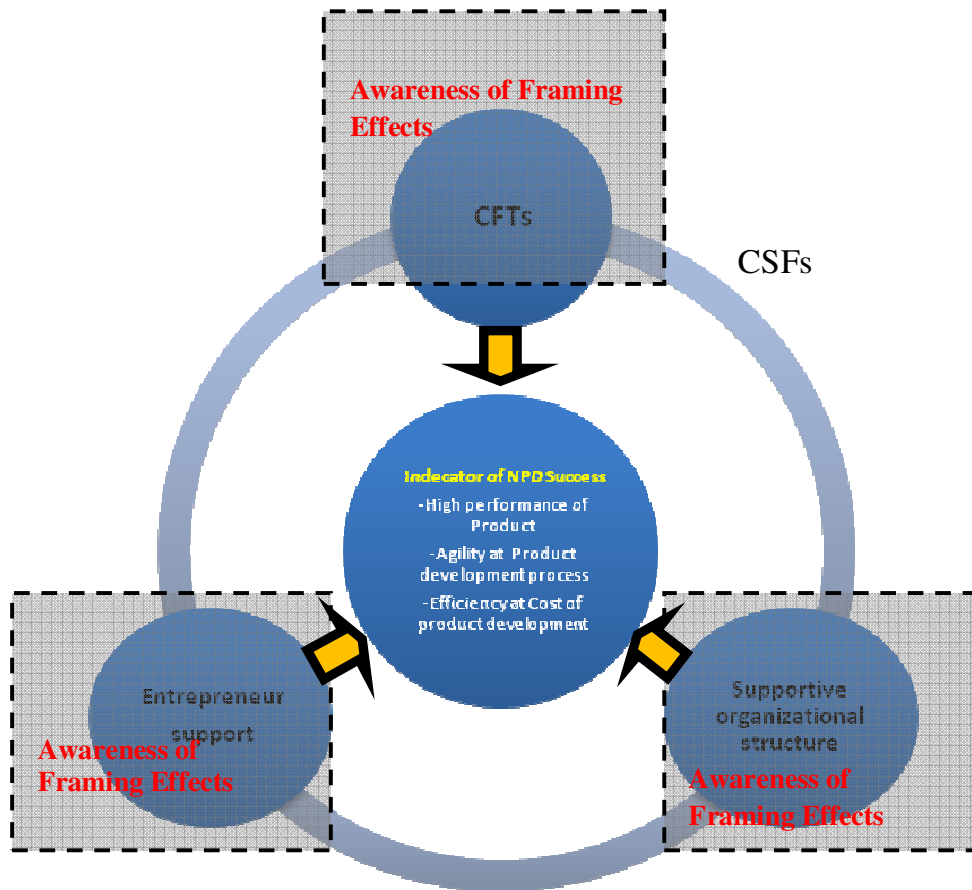


Figure 1. Awareness of framing effects and its biases as a complementary part for CSFs of NPD.

with these frames is mentioned and also, it was outlined that because of the well-organized structure and CFTs' advantages in confronting frames, they are considered as more critical factors than before in assisting entrepreneurs in this respect. In addition, awareness of framing effects is regarded as a complementary factor to these CSFs. Finally, the model derived from the research paper was presented. It is recommended that further research could be done on the mental and psychological factors in order to provide more comprehensive models for CSFs of NPD.

RECOMMENDATIONS TO ENTREPRENEURS

- i. Seeking professional advice from psychologist alongside the corporate affairs in decision making as an effective tool.
- ii. Companies must also be able to provide information systematically in order to make decisions logically and normatively, and this systematic information will assist them in making rational decisions.
- iii. Companies must increase channels of communication; this action will enable the entrepreneurs to review various

aspects of problems. Also, companies are recommended to analyze the information from various aspects and in crucial circumstances such as strategic decision, making to use employees' diverse views, tastes and expertise.

ACKNOWLEDGEMENTS

We thank John Gourville, Reza Zafarian, and Maryam Khaleghy Baygi for many helpful comments.

REFERENCES

- Barbosa SD, Fayolle A (2007). Where is the Risk? Availability, anchoring, and framing effects on entrepreneurial risk taking. Presented at Babson college entrepreneurship research conference.
- Berdahl JL, Mortorana P (2006). Effects of power on emotion and expression during a controversial group discussion. *Eur. J. Soc. Psychol.*, 36: 497-509.
- Busenitz LW, Barney JB (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision making. *J. Bus. Vent.*, 12: 9-30
- Burmeister K, Schade C (2007). Are entrepreneurs' decisions more biased? An experimental investigation of the susceptibility to status quo bias. *J. Bus. Vent.*, 22: 340-362.
- Chen S, Lee-Chai AY, Bargh JA (2001). Relationship orientation as moderator of the effects of social power. *J. Personal. Soc. Psychol.*

- 80: 183-187.
- Cooper R, Kleinschmidt E (1995). Benchmarking the firm's critical success factor in new product development. *J. Prod. Innov. Manage.*, 11: 374-391.
- Cooper RG (1980). New product success in industrial firm. Hopkins DS. *New Product Winners and Losers. Conference Board Report No. 773. Ind. Mark. Manage.*, 1: 215-2238.
- Cooper R, Slagmulder R (1997). *Target costing and value engineering. Productivity press. Portland OR.*
- Druckman JN (2001). Using credible advice to overcome framing effects. *J. Law Econ. Organ.*, 17: 62-82.
- Emami A, Talebi K (2011). The effect of framing on experienced and nascent entrepreneurs' judgment and decision making, international conference on economic, business and marketing management. Shanghai, 11-12th March.
- Emami A, Zarei B, Ebrahimzadeh M (2011). Citizen participation and framing effects: an empirical study in Tehran municipality idea bank. *Global J. Hum. Soc. Sci.*, 11: 1-7.
- Ena Inesi M (2010). Power and loss aversion. *Organ. Behav. Hum. Decis. Process.*, 112: 58-69.
- Hastie R (1986). Experimental evidence on group accuracy. In Grofman B, Owen G (Eds.). *Information pooling and group decision making (2nd ed. Decision research. Greenwich, CT: JAI Press, 2: 129-157.*
- Hayes RH, Clark K, Lorenz C (1985). *The uneasy alliance: management productivity technology dilemma. Harvard business school press, Boston, pp.337-375.*
- Hinsz VB, Tindale RS, Vollrath DA (1997). The emerging conceptualization of groups as information processors. *Psychol. Bull.*, 121: 43-64.
- Hopkins DS, Bailey EL (1971). New product pressures. *Conf. Board Record*, 8: 16-24.
- Huang Y, Wang L (2010). Sex differences in framing effects across task domain. *Personal. Individ. Differ.*, 48: 649-653.
- Kahneman D, Tversky A (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47: 263-291.
- Kahneman D, Tversky A (1984). Choices, values, and frames'. *Am. Psychol.*, 39: 341-350.
- Kühberger A (1998). The influence of framing on risky decisions: A meta-analysis. *Organ. Behav. Hum. Decis. Process.*, 75: 23-55.
- Lester D (1998). Critical success factor for new product development. *Res. Technol. Manage.*, 41: 36-43.
- Levin IP, Schneider SI, Gaeth CJ (1998). All frames are not created equal: a typology and critical analysis of framing Effects. *Organ. Behav. Decis. Process.*, 76: 149-188
- Likert R (1975). Improving cost performance with cross functional teams. *Manage. Rev.*, 65: 36-43
- Lynn G, Akgun A (2003). Launch your new products/services better, faster. *Res. Technol. Manage.*, 46: 21-26.
- Maier NR (1967). Assets and liabilities in group problem solving: The need for an integrative function. *Psychol. Rev.*, 74: 239-249.
- Milch KF, Weber EU, Appelt KC, Handgraaf MJJ, Krantz DH (2009). From individual preference construction to group decisions: Framing effects and group processes. *Organ. Behav. Hum. Decis. Process.*, 108: 242-255.
- Schimmoeller LJ (2010). Success factor of new product development processes. *Adv. Prod. Eng. Manage.*, 1: 25-32
- Soman D (2004). Framing, loss aversion and mental accounting. In N. Harvey and D. Koehler (Eds.) *Handbook of judgment and decision making research Blackwell, London, England, pp. 379-398.*
- Slovic P, Fischhoff B, Lichtenstein S (1982). Facts versus fears: Understanding perceived risk. In Kahneman D, Slovic P, Tversky A (Eds.), *Judgment under uncertainty: Heuristics and biases. Cambridge University Press, pp. 463-489.*
- Thaler RH (1999). Mental accounting matters. *J. Behav. Decis. Mak.*, 12: 183-206.
- Tversky A, Kahneman D (1981). The framing of decisions and the psychology of choice. *Science*, 211: 453-458.
- Tversky A, Kahneman D (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185: 1124-1131.
- Ulrich KT, Eppinger SD (2000). *Product design and development. McGraw-Hill, New York.*
- Venkataraman S, Dew N, Velamuri R, Sarsavathy SD (2002). Three Views of Entrepreneurial Opportunity", Invited book chapter in the *Entrepreneurship Handbook*, pp. 1-29.
- Wehrich H, Koontz H (1988). *Management, 8th ed., New York: McGraw-Hill, Inc.*
- Zahra S, Ellor D (1993). Accelerating new product development and successful market introduction. *SAM Adv. Manage. J.*, 58: 9-15