THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Antecedents and Consequences of Internal and External Team Learning: A Study on Turkish Software Project Teams

Dr. ÖzgeMehtap
Assistant Professor, Kocaeli University, The Faculty of Economics and Administrative Sciences, Department of Business Administration, Management and Organization Sciences, UmuttepeYerleskesi, Kocaeli, Turkey

Abstract:
The purpose of this article is to investigate the relationship between team learning, top management support, project speed and market success. The hypothesis of the study is based on a model in which top management support will lead to team learning, which will effect project speed and which in turn will lead to market success. This is a quantitative research whereby in order to analyze this relationship data has been collected from 73 separate companies from the Marmara Region of Turkey. Team leaders of 73 different teams each from one company are subjected to survey. Structural Equation Modelling has been conducted by using PLS Graph for the analysis of the data. This study has an original value of integrating top management support, external and internal team learning, the speed of the project and market success in one research while analyzing the relationship between those variables through SEM. The results of the study showed that top management support positively effects team learning and that team learning increases market success through the mediation of project speed.

Keywords: *Top management support, internal team learning, external team learning, market success, project speed*

1. Introduction

In this era of global competition and an incredible amount of technological innovations and changes companies are struggling enormously harder to gain competitive advantage and making profit. Especially companies in electronics and technology sectors have an increasingly stress of product developments and new technologies for the survival and good market positions. In many industries, new product development is now the most important instrument bringing the firm success or failure (Griffin, 1997).

Innovation-orientedness naturally should bring organizational learning and organizational support. Organizational learning and knowledge creation are the key strategic focuses in revealing and developing innovation capacity and capability. As all the learning literature states, organizational learning begins in the individual level and develops in the group or team level. Team learning generates a synergy that brings an outcome which is more than a sum of the individual outcomes. Teams and organizations in general may learn both internally and externally. While external learning is mostly devoted to boundary spanning roles which engage in outer environmental changes and draws it into the organizational inner environment; internal learning focuses on inner capabilities and sources.

Learning is directly related to the organizational support environment which should mostly come from the upper levels of hierarchy. So called top management support (TMS) is a critical factor in stimulating and generating a successful organizational learning environment. This support may take many forms like motivating, training, providing sources or even being open to new ideas etc. There are many studies revealing that top management support is considered to be among the project management critical success factors (CSFs) (Johnson et al., 2001; Zwikael&Globerson, 2004; McManus, 2004; Besner& Hobbs, 2008).

Together with organizational learning and top management support which makes a learning atmosphere in the organization; the effect of project speed is also a very critical concern on the way to the market success of the project. In todays' competitive and dynamic environments, what brings companies to the fore is their speed of presenting the final products. Some studies show that innovation speed positively effects new product performance (Kessler & Bierly, 2002; Lynn, et al., 1999) so in the same vein, project speed can be said to improve or positively effect the market success of the project.

From those points of views this study is purported to examine the relationship between those variables so called top management support (TMS), internal and external organizational learning, project speed and market success. Software project teams are chosen for the survey study because software projects are also new products which involves high innovative contributions and bring an innovation itself.

2. Literature Review

2.1. Top Management Support

In new product development projects one of the most important factors contributing to the final success of the project is the top management support (TMS) (Brown &Eisenhardt, 1995; Maidique&Zirger, 1985; Cooper &Kleinschmidt, 1991) which is reflected as their belief in and dedication to the process (Bartezzaghi et al., 2001). Leaders have a very critical situation in those kinds of projects especially where they should be adhered to innovation (Islam et al., 2009).

Team learning and top management support have also been evaluated as significant components of project teams. Since projects are complex processes, project managers can expect support from others in the organization. Top management support usually and naturally positively contributes to project success (Johnson et al., 2001; Zwikael and Globerson, 2004; McManus, 2004; Besner and Hobbs, 2008;).

Top management support may take many manifestations like; developing project procedures, letting the project manager participate during initiation stage, supporting training programs, developing a supportive project organizational structure, defining clear project success measures (Zwikael, 2008), supporting the teams by removing obstacles, demonstrating commitment, making things happen, or just by motivating and encouraging them. (McDonough, 2000).

Support is also very important in high-technology projects where there is much environmental uncertainty like in technology and market especially (Reilly et al., 2003). Top management is responsible for generation of an inspiring, creative and supportive environment for learning (Guns, 1996). Senior management influences team learning by putting learning and knowledge management systemsin place and encouraging employees to use them throughout the development project. Islam et al.(2009) have stated that new product development success is positively affected by learning and that in this relationship top management support is also very important.

2.2. Team Learning

Teams are like the microcosms of organizations which represent and act like organizations (Argote, 1999).Senge(1992) has stated that the performance of an organization is an outcome of collective thinking of teams which generates a synergy. The synergy of teams (like cross-functional teams, problem solving, self-managing or virtual teams) is said to be the outcome of a kind of social cognition. Social cognition is defined by Larson and Christensen (1993) as the acquisition, storage, transmission, manipulation and use of information in a group or organization. The major advantages of the teams have been stated as empowerment by group cohesion and motivation and letting managers to focus on strategic issues while team leaders deal with the employee management (Chan et al., 2003).Even though the teams are used in organizations for a long time, team learning concept and its effects on the performance began to be discussed recently. There are few studies which states positive relations between team learning and performance (Edmondson, 1999; Cavaluzzo, 1996; Flood et al. 2001;Katzenbach& Smith, 1993;Senge, 1992).

Nonaka and Takeuchi (1995) and Moorman and Miner (1997) have stressed the importance of cross functional teams. They have stated that organizational learning is actualized in organizations through cross-functional teams by integration of knowledge by acquiring, processing, storing, manipulating and reducing the information and knowledge(Islam, et al., 2009). Cross functional teams are embraced as a convenient strategy of having powerful groups which engenders synergy (Jassawalla and Sashittal, 1999; Taninecz, 1997).

New product development projects are cooperative bringing individuals from different departments with diversified specializations, so are software development projects. Innovative researches require diversified skills, talents, knowledge, experiences etc. So cross-functional teams are the best solutions today that integrate people with those diversities from different functions and specialties. Innovative actions can best be accomplished by those teams (Islam et al., 2009).Learning is a significant factor in new product development projects. According to many researchers new product development team is undeniably a process of organizational learning (Nonaka and Takeuchi, 1995; Moorman and Miner, 1997).

Edmondson (1996) had divided team learning into two dimensions so called internal and external team learning behavior. Internal learning is referred to "the extent to which team members engage in behaviors to monitor performance against goals, obtain new information, test assumptions and create new possibilities.".On the other hand external team learning is defined as: "an assessment by several of the team's customers and/or managers about the extent to which team engages in behaviors such as seeking new information or asking those who receive or use its work for feedback."(Chan et al., 2003)

The internal learning begins in the individual level; the knowledge is created through employees. Knowledge created by individuals first shared by the co-workers working in the same team or any group. Since they also have similar technical backgrounds even the technical or complicated knowledge can easily be understood by each of the group members. And through the synergetic effect of thinking together collective thought becomes more than the sum of the individuals.(Kessler et al, 2000)

In the external learning, learning begins outside of the organization. The new idea begins to emerge by an outside source. This outside source may be any external factor but usually a customer, a competitor, a supplier, business partner or any institution outside the industry like research centers and etc. Usually this idea or ideas detected from the outer environment of the firm is integrated with the internal environment by a boundary spanner. Some researches on the internal and external learning have stated that internal learning will be much more effective in new product development regarding the time (Kessler et al, 2000). It is argued by Kessler and Bierly (2002), that it is harder to develop external learning because of the difficulty in integrating the outside knowledge with the organizational knowledge; there is usually less commitment toward the new ideas coming from outside environment, so they say that external learning slows down the process of new product development.

2.3. Project Speed

At that era of high technology and competitive business environment, time is a scarce resource as it is not been that much hitherto. Innovation or Project Speed is defined as the time from the initialization of the product beginning from the idea generation to the introduction of the product and commercialization (Kessler and Chakrabarti, 1996). Speed can determine the first or second mover strategies. The faster a company in product development, the possibility of being the first in the market increases (Kessler &Chakrabarti, 1999).

Market speed or time to market is also defined as product development cycle time. It refers to the time from initiation of a project to successful launch of the resulting product(Ali,2000). The literature has stated that on the way to market success and competitive advantage, speed of the product development process is a highly important factor (Griffin,1997; Ittner&Larcker 1997; Bayuset al. 1997; Cohen et al. 1996).

Although innovation speed has been a primary concern for a successful competitive advantage, regarding changing customer demands, changing technology and in general the changing environmental factors, there has been little empirical work about the outcomes of the speed and relations of this variable with other concepts on the way to market achievements. There are some studies that show positive relations between innovation speed and product performance (Kessler &Bierly, 2002; Lynn et al., 1999;Carbonell& Rodriguez, 2006). It is no doubt that speed is result oriented and so a customer oriented factor which directly satisfies customers, so it is a valuable resource (Tatikonda & Montoya-Weiss, 2001). Speed is also a social ability, cannot be achieved individually which in turn is directly related to team success. And it is also an uneasy factor for competitors to imitate (Slater, 1996).

3.Methodology

3.1. Sampling and Measures

Data was collected from software development project teams of 73 separate companies from various sectors which were located in the Marmara Region of Turkey. The team leaders of those 73 project teams were subjected to survey. The questionnaire was designed to measure 5 variables of the model which are; Top Management Support (TMS), External TeamLearning(ETL), Internal Team Learning(ITL), Project Speed(PS) and Market Success (MS).

The questions were designed on a five-point Likert scale, 1 standing for totally disagree and 5 for totally agree. TMS was measured by scale developed by Islam et al. (2009)'s which was composed of six questions. Sample items of the scale were: "Sufficient incentives were provided by top management (TM) for the implementation of the NPD project"; "There was sufficient commitment to the implementation of the NPD project.".

Team Learning was measured using (Team Learning survey) TLS which was developed by Edmondson (1996) which is composed of two factors named external team learning and internal team learning which were defined in the literature review part. Both external and internal team learning scales are composed of 5 items each. The sample questions are as follows for internal learning: "In our team people discuss ways to prevent and learn from mistakes" and for external learning: "My group frequently coordinates with other groups to meet organizational objectives."

Market success of new products scale was adapted from Cooper and Kleinschmidt(1987) which was composed of 8 items. The sample items are as follows: "Our product (software) met or exceeded volume expectations", "Our product (software) met or exceeded the first year number expected to be produced and commercialized".

And finally speed to market scale was adapted from Kessler and Chakrabarti (1999)which was composed of 4 itemsand used to measure project speed. One of the items is: "This product was developed and launched (fielded) faster than the major competitor for a similar product."

3.2. Model and Hypothesis

In accordance with the literature the employed model of the research is shown in below Figure 1. The figure illustrates the hypothetical construction of the study. Model includes five variables which are defined above (TMS, ETL, ITL, PS, MS). Top management support (TMS) is predicted for internal (ITL) and external team learning(ETL) which in turn is expected to affect project speed (PS) which naturally will increase market success (MS). This process is also examined in two connected mediation processes. In the first mediation PS is supported to be effected by TMS through the mediation of ITL and ETL. And in the second mediation process market success is claimed to be effected by ITL and ETL through the mediation of PS.

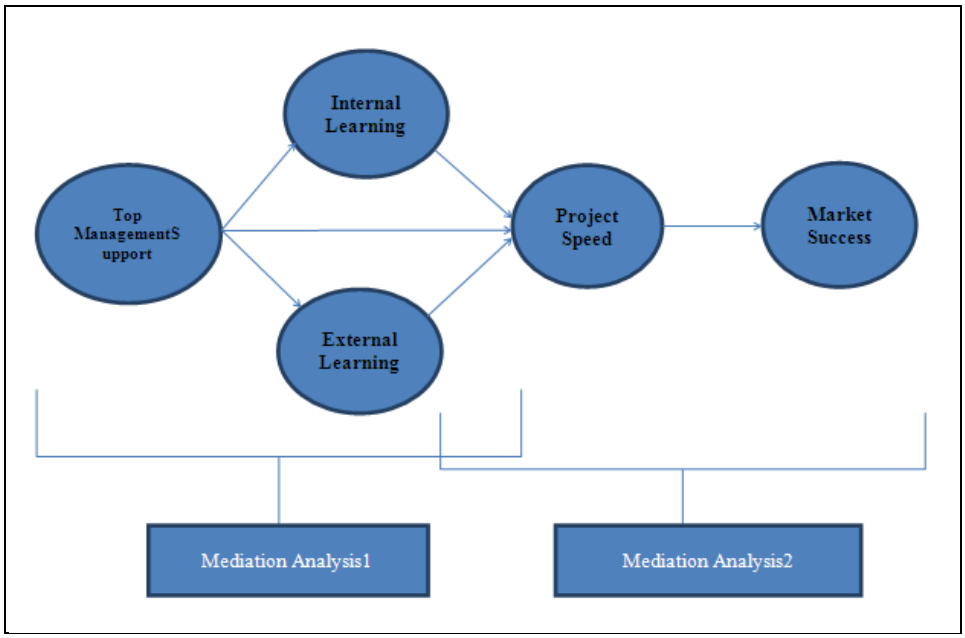

Figure 1: Research Model

In accordance with the model of the research the hypothesis of the study are as follows:

- H1: Top management support is positively related to team learning.
- H1a: Top management support is positively related to external team learning.
- H1b: Top management support is positively related to internal team learning.
- H2: Team learning is positively related to project speed.
- H2a: External team learning is positively related to project speed.
- H2b: Internal team learning is positively related to project speed.
- H3: Project speed is positively related to market success.
- H4: Team learning mediates the relationship between top management support and project speed.
- H4a: External team learning mediates the relationship between top management support and project speed.
- H4b: Internal team learning mediates the relationship between top management support and project speed.
- H5: Project speed mediates the relationship between team learning and market success.
- H5a: Project speed mediates the relationship between external team learning and market success.
- H5b: Project speed mediates the relationship between internal team learning and market success.

4. Analysis and Results

4.1. Validity and Reliability

The partial least squares (PLS-Graph 3.0, Chin 2001) approach to path modelling is used to estimate the measurement and structural parameters in this structural equation model (SEM). To assess internal consistency reliability, convergent validity of the construct measurements, the constructs' composite reliabilities (CR) and the average variance extracted (AVE) were calculated using PLS. Two of the items of Internal Team Learning (ITL) scale and two of the items of External Team Learning (ETL) scale were extracted from study because they were not loaded effectively (below 0.500) and the analysis repeated.

Composite reliability scores for every construct are above 0.70, (Internal Learning α= ,815; External Learning α= ,931; Top Management Support α= , 933; Project Speed α= ,966 and Market Success α= ,978) which is the suggested interval for acceptable reliability (Chin, 1998). Those values show that all of the scales are highly reliable.

Convergent validity is evaluated by examining the standardized loadings of the measures on their respective constructs and found that all measures exhibit standardized loadings that exceed 0.60. PLS path modelling is also used in order to test the structural model and hypotheses.

4.2. Hypothesis Tests

The results of hypothesis tests are represented in the below Table 1. As it is seen on the table, H1, H2 and H3 are accepted. Top Management Support (TMS) has both high significant β values on external (ETL) and internal team learning (ITL) (β = 0,578 and β = 0,620 respectively). So it can be stated that H1a and H1b are supported it can be concluded that H1 is supported which means top management support effects both internal and external team learning positively.

ETL and ITL also have statistically significant effects on the project speed ($p < 0.05$) which means that H2a and H2b and by that way H2 is accepted. Therefore, we can also say that team learning effects project speed positively.
Project speed has a very high β value on market success (0,707), which is also the highest value in the model and is statistically significant ($P < 0.01$). So project speed said to highly effects market success.

Hypothesis	Relations	Path Coefficients	Results
H1a	→ TMS ETL	β = 0,578***	Accepted
H1b	→ TMS ITL	β = 0,620***	Accepted
H2a	→ ETL PS	β = 0,234**	Accepted
H2b	→ ITL PS	β = 0,270 **	Accepted
H3	→ PS MS	β = 0,707***	Accepted

Table 1: Regression Analysis Results
**P <0.1, **P <0.05, ***P < 0.01*

Table 2 represents the results of the mediation analysis. According to the Baron and Kenny (1986) mediation analysis, there are four steps in establishing mediation. In step 1, the causal variable (X), which is also the predictor variable should be correlated with the outcome (Y-the dependent variable). In the second step, the causal variable should be correlated with the mediator (M). In the third step, it should be stated that the mediator (M) affects the outcome variable(Y). And in the final step to establish a full mediation where M completely mediates the relationship between X and Y, it should be stated that when M is entered into analysis X' effect on Y should be zero. If M does not completely mediate the relationship between X and Y, and the effect is still significant but there is a decrease in the beta values then we should talk of a partial mediation.
In this vein the mediation model 1 and so hypothesis 4 is rejected because the relation between the TMS and PS is found insignificant. So mediation test is not continued because according to Baron and Kenny (1986) mediation analysis the predictor variable (X) should be significantly effective on the dependent variable (Y).
The second mediation model analysis is shown in the Table 2. In order to show all those steps in one table, the above results of H2 and H3 are also added to the below mediation table. As it is seen on the table, in the Step 1 of mediation analysis, external and internal team learning both positively affect market success (β = 0,188 and 0,351 respectively). So it can be stated that causal variable (X), is correlated with the outcome. In the second step of the analysis, the causal variables' effects on the mediator are tested and found that both ETL and ITL have statistically significant positive values on the speed of the project (β = 0,234 and 0,270 respectively) which was also accepted as Hypothesis 2. In the third step, mediator's effect on the dependent variable is tested. As it was hypothesized in the above table, project speed is highly positively effective on the market success which was also accepted as Hypothesis 3. And in the final step the mediator variable, here stated as project speed, is entered into the analysis together with the predictor variables of the model (ETL and ITL). According to the path coefficient results, project speed mediates the relationship between ETL, ITL and market success, since in the Step 4 it is seen that beta values of ITL and ETL decreases as the project speed entered into analysis but they are still significant. Therefore it can be said that PS is a partial mediator in the model. So H5 is totally supported while H4 is not.

Steps of the Mediation Analysis	Independent Variable	Dependent Variable	Path Coefficients	Final Model Results
Mediation analysis 1				
Step 1	TMS	PS	β = 0,294 R^2= 0,087	Mediation Analysis 1 is not conducted
Mediation analysis 2				
Step 1	ETL	MS	β = 0,188*	R^2=0,240
	ITL		β = 0,351**	
Step 2	ETL	PS	β = 0,234**	R^2= 0,204
	ITL		β = 0,270 **	
Step 3	PS	MS	β = 0,707***	R^2= 0,500
Step 4	ETL	MS	β = 0,049*	R^2= 0,530
	ITL		β = 0,162**	
	PS		β = 0,614***	

Table 2: Mediation Analysis Results
**P <0.1, **P <0.05, ***P < 0.01*

5. Conclusion

In this study a new product development process and market success has been evaluated through software project development teams. The aim of the study was to put forth a model which was supposed to explain the market success of the development projects at least partially by engaging organizational learning and top management support processes. The Path Analysis and Structural Equation Modelling have been applied in order to explain the model by using PLS Graph Program. The results of the analysis have supported the model as a whole but just supported the second mediation model, which put forth a relationship between internal and external team learning with market success through project speed while not supporting the first mediation model.

In today's globalization era, it is obvious that companies are highly engaged in innovative projects and processes. As new product developments are directly related to the market successes of the firms so do the software projects which are also a significant part of the new product development or the directly the product itself. As it is stated in the literature it is widely known that learning is an undeniable and extremely important component of the development processes. In most of the companies especially the innovative ones, the power of the teams in idea generation and innovative capacity is appreciated and considered as the pretty most significant constituent. Teams also act as the pieces of the big jigsaw puzzle while learning internally they should and will also acquire knowledge from the outside of the team and the company. But this learning process is not possible without a top management support. Learning begins in the individual level and then shared in the group level but this process is also so much dependent on the organizational culture and values and attitudes of the managers. Both external and internal team learning will mostly be enhanced by top management support.

This study makes a contribution to the management science literature and practice in general especially for the managers of the innovative companies emphasizing the importance of top management support for increasing team learning and also emphasizing the critical role of team learning in increasing the speed of the project and also leading to the market success.One of the limitations of the study is the size of the sample. The number of the participants -73 project leaders- of the survey is a relatively small number. A larger sample could have generated a quite better result.

6. References

1. Akgün, A.E. & Lynn, G.S. (2002).Antecedents and consequences of team stability on new product development performance.Journal of Engineering and Technology Management (JET-M), 19, 263-286.
2. Ali, A. (2000). The Impact of Innovativeness and Development Time on, New Product Performance for Small Firms.Marketing Letters, 11(2), 151–163.
3. Argote, L. (1999). Organizational Learning: Creating, Retaining and Transferring Knowledge. Kluwer Academics Publisher, Norwell, MA.
4. Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
5. Bartezzaghi, E., Boer, H., Corso, M., Coughlan, P. &Gieskes, J.F.B. (2001). Managing innovation as a continuous learning process: new challenges for innovation management. Proceedings of the 1st European Academy of Management, Barcelona, Spain.
6. Bayus, B. L., Jain, S. & Rao, A.G. (1997). Too Little, Too Early: Introduction Timing and New Product Performance in the Personal Digital Assistant Industry. Journal of Marketing Research, 34 (February), 50-63.
7. Besner, C. & Hobbs, B. (2008). Project management practice, generic or contextual: A reality check. Project Management Journal, 39(1), 16–33.
8. Brown, S.L. &Eisenhardt, K.M. (1995). Product development: past research, present findings and future directions. Academy of Management Review, 20(2), 343–378.
9. Carbonell, P. & Rodriguez, A.I. (2006).The impact of market characteristics and innovation speed on perceptions of positional advantage and new product performance.International Journal of Research in Marketing, 23, 1–12.
10. Cavaluzzo, L. (1996). Enhancing team performance.The Healthcare Forum Journal, 39(5), 57-9.
11. Chan, C.C.A., Pearson, C., & Entrekin, L. (2003).Examining the effects of internal and external team learning on team performance.Team Performance Management: An International Journal,9, 174–181
12. Chin, W.W. (1998). The Partial Least Squares Approach to Structural Equation Modeling. in G.A. Marcoulides [ed.]. Modern Methods for Business Research, 295-336. Mahwah, NJ: Lawrence Erlbaum Associates, Publisher.
13. Chin, W. W. (2001). PLS-Graph User's Guide Version 3.0. C. T. Bauer College of Business, University of Houston, Houston, Texas.
14. Cohen, M., Eliashberg, J. & Ho, T.H. (1996). New Product Development: The Performance and Time-to market Tradeoff. Management Science, 42, 173-186.
15. Cooper, R.G. &Kleinschmidt, E.J. (1987).New Products:What separates winners from losers?. Journal of product innovation management, 4(3), 169-184
16. Cooper, R.G. &Kleinschmidt, E.J. (1991). New product processes at leading industrial firms. Industrial Marketing Management, 20(2), 137–47.
17. Cooper, R.G. &Kleinschmidt, E.J. (1994).Determinants of timeliness in product development.Journal of Product Innovation Management, 11(5), 381-396
18. Edmondson, A. (1996). Learning from mistakes is easier said than done: Group andorganizational influences on the detection and correction of human error.Journal of Applied Behavioral Sciences, 32(1), 5-32.

19. Edmondson, A. (1999). Phychological Safety and Learning Behavior in Work Teams.Administrative Science Quarterly, 44(4), 350–383.
20. Flood , P. MacCurtain, S. & West, M. (2001). Effective Top Management Teams: An International Perspective. Blackhall Publishing, Dublin.
21. Griffin, A. (1997). The Effect of Project and Process Characteristics on Product Development Cycle Time.Journal of Marketing Research, 34 (February), 24-35.
22. Guns, B. (1996).The Faster Learning Organization.Jossey-Bass, San Francisco, CA.
23. Islam, Z., Doshi, J. A., Mahtab, H. & Ahmad, Z. A. (2009). Team learning, top management support and new product development success. International Journal of Managing Projects in Business, 2, 238 – 260.
24. Ittner, C. D. &Larcker, D.F. (1997).Product Development Cycle Time and Organizational Performance.Journal of Marketing Research, 34, 13-23.
25. Jassawalla, A.R., Sashittal, H.C. (1999). Building collaborative cross-functional new product teams.The Academy of Management Executive 13 (3), 50-63.
26. Johnson, J., Karen, D., Boucher, K.C. & Robinson, J. (2001).The criteria for success.Software Magazine, 21(1), 3-11.
27. Katzenbach, J.R. & Smith, D.K. (1993).The Discipline of teams.Harvard Business Review, 71(2), 111-20.
28. Kessler, E. H., &Chakrabarti, A. K. (1996). Innovation speed: A conceptual model of context, antecedents, and outcomes. Academy of Management Review, 21(4), 1143−1191.
29. Kessler, E. H. and Chakrabarti, A. K. (1999).Speeding Up the Pace of New Product Development.Journal of Product Innovation Management, 16, 231-247.
30. Kessler, E. H., Bierly, P. E. &Gopalakrishnan, S. (2000). Internal vs. external learning in new product development: effects on speed, costs and competitive advantage. R&D Management, 30(3), 213–223.
31. Kessler, E. H., &Bierly, P. E. (2002). Is faster really better? An empirical test of the implication of innovation speed.IEEE Transactions on Engineering Management, 49(1), 2−12.
32. Larson, J. R. & Christensen, C. (1993). Groups as problem-solving units: Toward a new meaning of social cognition. British Journal of Social Psychology, 32(1), 5–30.
33. Lynn, G. S., Skov, R. B., & Abel, K. D. (1999).Practices that support team learning and their impact on speed to market and new product success.Journal of Product Innovation Management, 16, 439−454.
34. Maidique, M.A. &Zirger, B.J. (1985).The new product learning cycle.Research Policy, 14(6), 299–313.
35. McDonough, E.F. (2000). Investigation of factors contributing to the success of cross-functional teams.Journal of Product Innovation Management, 17, 221–235.
36. McManus, J. (2004). Risk Management in Software Development Projects. Butterworth-Heinemann, Oxford.
37. Moorman, C. & Miner, A.S. (1997).The impact of organizational memory on new product performance and creativity.Journal of Marketing Research, 34(1), 91-106.
38. Nonaka, I. & Takeuchi, H. (1995).The Knowledge-creating Company. Oxford University Press, Oxford.
39. Reilly, R.R., Chen, J. & Lynn, G.S. (2003). Power and empowerment: the role of top management support and team empowerment in new product development. Paper presented at Management of Engineering and Technology, PICMET Conference, Portland, OR
40. Senge, P. (1992). Mental models.Planning Review, 20(2), 4–44.
41. Slater, S. F. (1996). The challenge of sustaining competitive advantage.Industrial Marketing Management, 25, 79−86.
42. Taninecz, G. (1997). Best practices and performances. Industry Week, 2468(22), 28-43.
43. Tatikonda, M. & Montoya-Weiss, M. (2001). Integrating operations and marketing perspectives of product innovation: The influence of organizational process factors and capabilities on development performance. Management Science, 47(1), 151−172.
44. Zwikael, O. &Globerson, S. (2004). Evaluating the extent of use of project planning: a model and field results. International Journal of Production Research, 42(8), 1545-56.
45. Zwikael, O. (2008). Top management involvement in project management: Exclusive support practices for different project scenarios. International Journal of Managing Projects in Business, 1(3), 387 – 403.