Effective cost management is possible through target costing and kaizen costing with the involvement of employees and supply chain members support, and it has the potential to improve the overall performance of each firm in the value chain. It is therefore important to understand the association of all above stated terms. Some of the studies have been conducted on cost management, kaizen, target costing and kaizen costing are delineated to make the concept more exhaustive.

2.1 REVIEWS ON TARGET COSTING

Kato (1993) outlined the involvement and benefits of target costing as cost reduction activities to Japanese Companies. They explained that an information system is necessary to support the target costing philosophy. The author revealed many things which should have in the company for the application of target costing. They said that in companies there should have skills to decompose functions of product into sub functions, a market research system with different forecasting techniques, proper facilities to change the functions into value of product, a value-price adjustment system and a user friendly crossing point.

Lee (1994) reported that due to short product life cycle traditional standard costing systems are no longer effective. The author expressed that target costing as a new cost management concept can assist companies to get significant amount of market shares. The author stated that this method is based on price down and cost down strategy therefore companies can improve their product leadership and position in the market. The author added that it is closely related with the firm’s long term profit and product
planning and development process, also through target costing company can focus on profit and product as an integrated strategy. The author described that in the process of target costing profit is determined on the basis of sales return or return on investment then target cost is determined and after this when target cost is compared to the estimated cost, then engineering decompose target cost into each cost element and through the use of value engineering method they achieve the target cost.

Cooper & Yoshikawa (1994) exhibited a case study of three Japanese firms to examine the cost management practices and to identify the development of inter-organizational cost management systems. They said all three firms were involved in the same supply chain. The system of inter-organizational cost management was planned to create downward cost pressures on all three or the entire supplier chain. They said the cost pressure was attained through different methods like target costing systems, minimum cost investigations and quality-price functionality balances. They concluded that with cooperation or with the system of inter-organizational cost management product can be designed jointly and firms can take more cost reduction then local cost reduction.

Tani et al. (1994) examined the usage rate of target costing in Japanese companies. They found different percentages of target costing use in different industries in transportation equipment industry it was (100%), in the electrical/electronics industry it was (88.46%) and in machine industry it was (82.76%) and these industries were using target costing for the purpose of cost reduction at high level. They found in the implementation of target costing design department was the most valuable department and raw material was considered as the most important cost element for cost reduction in target costing. They also found that 80.7% Japanese companies were using this method to control indirect cost or overhead cost.

Gagne & Discenza (1995) described that cost management methods must be helpful in the reduction of existing products cost and production of new products to meet customer requirements at lower cost. They said that traditional cost methods like standard costing may not work well in the modern competitive environment. It requires modify cost methods to reduce cost and successful introduction of new products. They stated that
Target costing is a market driven management method because it emphasizes on market conditions for target selling price determination to achieve a desired performance level. They discussed that the target costing implementation process which begins by establishing the selling price based on market conditions and market research, is for a new product. The target or desired profit is subtracted from target selling price to determine target cost. After the determination of target cost functional cost analysis is the next step to achieve the target cost. Functional cost analysis they defined as a group activity which involves different employees from different department and it focuses on various functions of the product. They discussed that a team effort is required for target costing implementation and team for target costing must have some characteristics like basic understanding of their work and team members who are measuring product cost or responsible for that work should be well trained. After functional analysis and value engineering target costing team determines the current cost estimates and then current cost estimates compared with target cost. If cost estimate equals the target cost then it moves to the final decision of the production but if not then it again moves to functional cost analysis to reduce the estimated cost up to target cost. They also suggested some factors at work to promote the implementation of target costing in companies and among them two main factors were the short product life cycle and product diversity.

Tani (1995) highlighted that Japanese firms have adopted target costing due to increasing environmental uncertainty. The author stated that target costing supports a firm’s information processing requirements in decision-making. The author said that target costing is mainly adopted and beneficial under intense competitive pressure and it is used to introduce only profitable products into the market. The author stated that cost is important element for a firm’s competitive position and also important for a product’s success so it must be managed forcefully. The author said determination of a target selling price is based on the availability of competitive products and their qualities and rational customers are able to compare the differences in competitor’s product functionality and quality therefore firms cannot increase the selling price and must focus on costs reduction to take an adequate profit margin. They concluded that firm’s extreme focus on product development and costs intend them to adopt target costing method.
Cooper & Chew (1996) reported through a multi-site case study at Olympus, Komatsu about the implementations of target costing. The authors stated that for a company it is not enough to develop or design a good or valuable product for market to become the market leader due to the stress of competitors. They said target costing has the main goal of maximum product profitability instead of minimum the product costs. They explained benefits availed by a company due to the adoption of target costing. They said this method requires the knowledge about customer preferences, efforts of cross functional teams or an integrative organizational structure and starts the management of cost from the design phase.

Slagmulder (1999) proposed a case study of 225 Australian manufacturing companies and studied the adoption rate of target costing technique and the author found that the adoption rate was moderate. The author studied then non-manufacturing firms for which target costing can be inappropriate and found a low adoption rate of target costing in such type firms then other techniques. The author found 78 large Australian manufacturing firms were using target costing and there adoption rate was 38% but this adoption rate of target costing was relatively low as compared to other accounting practices adoption rates. The author discussed also the conditions under which the adoption of target costing is more suitable for firms. The author argued that target costing is mainly appropriate for manufacturing industries because these industries are involved in product development processes and in assembling industries target costing was greatly adopted and also this industry is more benefited from target costing method but target costing was also used in process industries like chemical industry.

Ewert & Ernst (1999) explained a theoretical analysis of strategic management accounting approach target costing and they showed three main different characteristics of target costing namely market orientation, co-ordination and its interaction with other factors affecting long-term cost structure as strategic learning. They said first characteristic of target costing is to produce a product at allowable cost according to market situations and for this design engineers have to focus and employees should be motivated. They explained the second characteristic of target costing is its use as a tool to
coordinate efforts to reach the allowable costs and the third characteristic of target costing is that it is a tool for long term cost management by focusing on cost reductions. They argued that in target costing link between market-determined allowable costs and motivation to employees is essential. They developed two models with three aspects namely learning processes, employee incentives and market orientation and stated that the application of target costing in various industries may depend on learning situations and incentives to employees in these industries.

Kim et al. (1999) discussed the implementation of target costing in Japanese companies. They stated that target costing generally starts with kaizen (continuous improvement) in manufacturing process then it moves to product design. They stated that for accurate estimation of cost reduction, companies focused largely on information processing. In this paper authors also stated that a good understanding between companies and suppliers is required and cost engineering practices can be useful tool to make understand suppliers about the cost estimation. They explained that in Japan suppliers use open book policy and they give all useful cost regarding information to their customer firms. They reported in this paper that cost reduction is mainly the function of purchasing department and these people should have the negotiation skills to adjust the price of raw material and coordination skills to know the activities and for the support of other department’s employees. Authors added that this technique should start with cross functional team and this team should be empowered to take better decisions about material purchase. They expressed that firstly a target cost is set in company and then this target cost decomposes into different departments. They opined that to achieve targets a reward system can be used by companies to motivate employees and employees should feel freedom to give new ideas in company, there should be a good communication system and also proper help from top management.

Cooper & Slagmulder (1999) presented the study of seven Japanese firms which were using effective and full-grown target costing. They revealed three main fundamentals of target costing (1) market-driven target costing, (2) product-level target costing and (3) component-level target costing. They stated that a company will have to manage its cost
in a highly competitive environment to retain in market and these three target costing elements manage the cost of product to launch a profitable product. They described that target costing and value engineering provide a balance of cost and profits to the adopters companies.

Shank & Fisher (1999) illustrated the use of target costing and reported target costing is superior or proactive approach in cost reduction and control in place of ineffective standard costing and stated that this is more allied in the early stage of the product life. They said that incremental slight change in product can be possible with the use of kaizen costing or standard cost systems but a product modification is possible with the use of target costing. In the paper they added a case study of Montclair paper mill and demonstrated the importance or use of target costing in a process industry. They said that kaizen costing was appropriate for the plant of company but the plant required a major strategic change to face competition. They said that firm’s managers believed that their price was not according to the market and their cost was too high so they decided to change the manufacturing process of the product. They found that there was cost savings in each area of major cost components like (1) fiber cost (2) paper machine cost (3) dye cost and (4) conversion cost when the firm replaced target costing with standard costing and specially 60% cost reduction in fiber costs with no negative effect on paper quality by the use of scrap of raw material and after this company continued to reduce cost through kaizen costing.

Nicolini et al. (2000) conducted the case study in the UK construction industry for using target costing by two pilot projects. They stated that target costing was not fully recognized by the adopters or companies only understood its partial purpose. They said that target costing process provided although considerable benefits but this method cannot be used as regular or repetitive approach to reduce the difference between target cost and current cost practices. They suggested that an effective target costing process requires sufficient time, focus on supply-chain relationships and improved methods of mutual cost determination.
Everaert et al. (2000) examined the impact of target costing on the development of new products. They considered target costing as a technique to reduce costs of future products. Target costs are assigned by engineers to design new products. The author explained that the development of a product involves three variables: (1) cost level of new product (2) design quality of new product and (3) development time. Authors studied the impact of target costing and non target costing on the development of new products and also the impact of target costing and non target costing with low or high level of time pressure during new product development. They described that under pressure of time the impact of target costing is weak on the quality and cost reduction of new product. In this paper the authors said that cost reduction and quality of products are high when engineers have proper time than they have to work under time pressure for new product development. The authors also tested two different conditions of new product development by two experiments: (1) development of next generation type of new products requiring high creativity in design process and (2) development of derivative type of new products requiring less creativity in design process. Authors stated that under high time pressure target costing is not at all beneficial for the development of next generation type of new products (these products involve more radical changes to existing products and requiring high creativity) and also in the same situation for derivative type of new products target costing has not good impact on the design quality and costs of these products but under low time pressure target costing can be appropriate for the such type of products (these products involve incremental changes to existing products and requiring high creativity). Authors stated that high innovative products require high creativity in design process and engineers do not prefer target costing as cost reduction method for such type of products, engineers prefer this method for new products development where limited creativity is required and engineers have appropriate time to implement and to find out cost reduction opportunities. They concluded that target costing is effective for derivative type of new products and also when engineers are working under less time pressure condition.

Lockamy & Smith (2000) discussed the selection of most appropriate method of target costing to improve supply chain management which depends on customer requirements and level of relationship among supply chain members. They studied that target costing
approach exploring for the use of supply chain management instead of traditional costing and activity based management they said these techniques have some shortcomings to support effective supply chain management. Traditional costing has been taken as combination of managing cost and it provides misleading information for overhead apportionment. They considered that the traditional costing is not appropriate method for supply chain management. This method has a main weakness that it does not focus on the customer requirements and their needs. Authors stated that activity based management focuses on those activities that can create the value of product to increase organizational profitability and to achieve customer’s satisfaction. In activity based management method, they said some activities which do not create any value of product or not essential for product are considered non-value added activities and they said the identification of such type of activities is not easy for management.

They found activity based management method is also not proper for supply chain management. They stated target costing is a customer oriented approach and it is more suitable method for supply chain management but they said it should be introduced into those supply chains where trading members are ready to use target costing. They stated that supply chain management is a network of relationship among trading members. They described four levels of integration within supply chain partners. The lowest level they called open market negotiations and in the next or second level trading partners formalize their cooperation. In the third level supply chain partners create good relationship enough to support joint efforts and finally at the fourth level supply chain partners reach at the stage of collaboration. They described three approaches of target costing with supply chain management namely price based, value based and activity based target costing. They supported that price level target costing approach is suitable for uniform and stable customer’s condition and in this level relationships among supply chain partners are characterized by open market negotiation. Value based target costing approach is suitable for large variety products and in this level relationships among supply chain partners are characterized by joint effort. Activity based cost management target costing approach is suitable for uniform customer requirements and in this level relationships among supply chain partners are characterized by highly collaboration. They suggested that target
costing is an effective approach to meet customer requirements with the use of supply chain management.

Smith & Lockamy (2000) described that traditional cost management and activity based cost management both are not suitable and not provided a good framework for effective supply chain management. They provided a rational economic framework for target costing implementation with supply chain management. They presented two market variables, first customer satisfaction and second supply chain agility for this framework. They stated that the leading reason for the traditional approach’s failure in supply chain management was its reliance on cost management systems that emphasize the minimization of controllable costs not on the treatment of customers. They stated that the activity based management is focused on the internal economics of activity costs and it fails to address the issue of how supply chains can improve customer value and satisfaction. They said activity based management was better than traditional cost management but it had main problem of the non value added activities identification and it was also not perfect for managing supply chain management.

They said target costing approach is customer requirements oriented. In this approach cost is viewed as an end result and customer requirements are viewed as binding competitive constraint. In target costing the supply chain incurs whatever costs are necessary to satisfy customers’ expectations for quality, functionality, and price of product. They suggested that target costing is better than traditional costing and activity based management for effective supply chain management. Further they discussed target costing strategies and its process throughout a supply chain. They stated that for effective supply chain management with target costing members must share their views or expressed their ideas and must be ready for work, and a supply chain must also operate under an enforceable business protocol. They discussed four different conditions of agility and customer requirements affect target costing with supply chains. In first situation customers were diversify and supply chains delivered a variety of high value products. In second situation supply chain operated in stable business environment and customer requirements were homogenous. In third situation supply chain operated in stable business environment but customer requirements were dynamic. In fourth situation
customer requirements were uniform but supply chains were fixed. They suggested that other than these four situations, value based target costing for supply chain was recommended for dynamic customer requirements regardless the level of agility of supply chain. Price based target costing was recommended for static customer requirements and high level of agility of supply chain. Activity based target costing was recommended for static customer requirements and low level of agility of supply chain.

Ellram (2000) described that supply chain management has a vital role in target costing especially during the initial stages of product development. The author explained the participation of the purchasing and supply chain management functions in the process of target costing. The author observed gaps between existing and ideal participation. The author said that target costing is a valuable tool to remain cost competitive in market though it is not a stand-alone effort; it requires cross-functional team efforts, supplier involvement and integration of value analysis and value engineering tools. The author stated on the basis of a case study that the purchasing and supply chain management function is involved at a variety of levels in target costing. The author recommended that for the success of target costing a cross-disciplinary team with purchasing and supply chain management member’s cooperation and commitment is needed and the involvement of purchasing and supply chain management members at the earlier stage in the product or service development by target costing can create a positive way for organizational success.

Chen & Chung (2002) explored the cause-effect analysis for target costs and he said that target costing is now developing as benchmark and leading tool for the companies cost improvement activities. They presented a case study of Lexmark International (printer) company and stated that the company is now leading in price of product in the industry due to the use of target costing method. They explained the cause-effect analysis is concerned to investigate the causes of quality problems and to analyze opportunities for continuous improvement. The authors added that three engineering techniques are essential to achieve the target cost reduction objectives which are: value engineering, quality function deployment and design for manufacture or assembly and said that these
techniques are applied by product and process engineers. They explained value engineering is also known as value analysis which is used to evaluate the design of a product and also ensures that main functions of product are provided at minimum cost to the manufacturer and consumer, quality function deployment defined as a set of planning and communication process that creates a link between the marketing, design engineering, and manufacturing functions and design for manufacture or assembly tool has the goal to make simpler the product structure, its material costs or reduction of inventory and processing or production costs to improve quality of product. They said that the use of these methods require technical knowledge therefore these are handled by engineers while in kaizen concept every member of the organization are involved for better & improved activities and for task achievement. They concluded that the target costing approach together with cause-effect analysis supports firms in competitive strategies and this analytical tool would be effective as communication medium for target costing efforts.

Min et al. (2002) suggested market driven target costing strategy based strategic decision support systems. They stated that to attain strategic goals strategic decision support systems should be used with firm’s resource planning system. They explained that an organization’s resource planning system is an integrated traditional back office function because it is concerned with finance, human resources and operations. They pointed out four types of strategic decision support systems which can be allied with target costing as: (1) the general strategic decision support activities like environmental scanning, technological forecasting and market analysis and these are important for a firm’s overall strategic planning process, (2) company’s activity based management systems which is used to analysis activities and their costs relations, (3) business process reengineering activities which is concerned with the impacts of information technology and (4) firm’s product design activities to analysis the product or process costs. The authors also added the limitations of the strategic decision support systems and said that enterprises are generally lacking in decision support capabilities and they did not give any explanation to adopt the strategic decision support systems with target costing.
Pierce (2002) presented that total cost of product includes all direct and indirect costs during the whole life of the product or service and this cost is spent to achieve target profit margins. The author said that target costing is generally used in the design process for new products or services and also to change existing products. They said different authors have explained its process in different ways though the author described the key stages which are concerned in target costing implementation process as: (1) establish the market price for the selected product or service, (2) determine the desire profit margin, (3) calculate target cost, (4) calculate the drifting cost and try to reduce costs to meet target cost. The author stated that this method was originated in Japanese culture though it has wider applicability and it is being adopted successfully in other countries culture. The author added that target costing is not limited as traditional type standard costing system. The author also stated that sometimes target costing is viewed as cost reduction method and it is used with other tools for continuous improvement, non value-added activities elimination and quality management of product and target costing is a wide-ranging cost management approach.

Everaert & Bruggerman (2002) demonstrated that new product development is effected by cost targets. They studied this to design an attractive carpet. They said that cost targets have impact on new product development in terms of design quality, product cost and development time. The authors showed this by the comparison of cost targets with new product development environment and through designing a lab experiment. They studied the situation when design engineers have no specific cost target but there is aim to reduce cost of future product with the quality desired by the customers. They investigated the use of target costing when product design quality, product cost and the development time of product are taken in to consideration during the new product development. They investigated the effect of cost targets and no cost targets in a specific environment with high or low time pressure for the development of new product during its development process. They stated that when engineers are assigned cost targets during new product development process it leads development of new product at low cost than when engineers are not assigned specific cost targets. They assumed in this study three main components of new product development environment and they set the components
according to their priorities which include: (1) design quality (2) cost (3) development time and a reward system was used to clear these priorities among respondents. They found (1) there was the positive impact of cost targets on cost of product more in case of low time pressure than high time pressure because the engineers have enough time for the creativity and manage cost (2) when engineers are working under high time pressure they have time constraint and it restrict their creativity therefore it does not lead low cost (3) there was no difference in the quality of product whether they used cost targets or not (4) cost target requires longer development time (5) it was difficult to realize the design quality, cost and low development time at the same time thus engineers skipped the time aspect. They concluded that high time pressure forced engineers to exercise no cost targets to develop product in short period and when engineers focused cost target their priority was the cost, they spent extra time for product development but they not included the teamwork and suppliers involvement in the study. They also suggested that during new product development cost targets attain low cost of new products without sacrifice quality of product at sufficient or not high time pressure while under high time pressure engineers have to work more so they cannot achieve low cost of product. They suggested target costing should be used with caution and target costing is beneficial for new product development when engineers do not face high time pressure.

Swenson et al. (2003) revealed the way in which target costing is applied in a variety of industries, the success level, measurable improvements attained and factors affecting its application. They selected four companies which were using target costing. They explained six key principles of target costing: (1) Price-led costing, (2) Focus on customers, (3) Focus on design, (4) Cross-functional involvement, (5) Value-chain involvement and (6) A life-cycle orientation. They described the target costing process and the enables of target costing as best practice in selected companies, very effective organizational structures, respond to the voice of the customer, their product development process and actively engaged their supply chain. They showed the illustration of target costing process in Caterpillar. They said first of all target cost is set then cost improvement team of various departments works on this to adjust the components of product and to achieve target cost. They concluded that this method is being adopted by
mainly the transportation and heavy equipment industry due to Intensive competition, extensive supply chains and long product development cycles features of these industries. They claimed that other companies can also take benefits of low cost and increasing profits through this method as best practice with the consideration of a cross-functional organizational structure, focus on voice of the customer, focus on cost reduction during the new product development cycle and effective supply chain.

Hung (2003) discussed the application of target costing technique with the relationship among tauguchi loss function, process capability indices and traditional control charts to set up goal control limits. The author used tauguchi loss function as the expected loss of quality to customers and stated that loss to society is less when target value achieved in the production of products and when products are produced away from target value then it increases loss to society. The author included three uses of statistical process control for three purposes. First to know the process in statistical control, second to provide signal that production process is out of control and third for information to use process capability analysis. The author stated that when process is in statistical control then to further examine the capability to produce high quality products process capability analysis can be used by the companies. The author supported that tighter limit of control charts would provide ideal product or high quality products to customers while more cost to production engineers and it requires enough information before the application of good control limits. The author concluded that target costing is a technique to improve product quality and reduce costs in high competitive market.

Dekker & Smidt (2003) discussed the results of a survey that focused on the adoption and use of cost management technique between Dutch firms listed at the Amsterdam stock exchange that similar to the Japanese target costing concept. They reported that nineteen firms out of thirty-two manufacturing firms were using target costing although they used different names for this technique. The study focused the generic stage of the method which was market driven costing. They said that target costing was developed in Japanese and its adoption was highest among assembly firms. The study said that when customers are able to find differences in selling prices or price sensitive then firms have
not space to change the selling price of product and must focus on costs to take an adequate profit margin therefore, firms with a strong cost focus move to adopt target costing in their product development process. They found the reason of non adoption of target costing among few firms was the nature of the firms like food and paper publishing industries while textile, rubber, steel, electric, precision equipment industry was the main adopters of this technique therefore assembly industries are considered the most practicable industries for the use of target costing and overall there was 59.4% adoption rate of the manufacturing sample. They found that main reason to induce firms to adopt target costing or similar practices was the intense competitive and unpredictable environment. Cost reduction was the main goal and it was also the main benefit they received from the adoption of target costing and the firms adopted this system other benefits were introduce products timely, satisfy customer needs and control quality they ranked after cost reduction. They found that there was the involvement of different departments but product development and design departments were more involved than other departments and accounting department was least involved in the target cost management process which was mainly performed in team structures.

Gandhinathan et al. (2004) explained the effect of quality function deployment and value engineering on target costing to achieve target costs. They presented a case study on quality function deployment and value engineering with target costing as a fuzzy approach. They stated that due to high level of competition, today price of product may not be competitive in tomorrow and target costing is a way to produce products at significant level of profit with market conditions. They stated that target costing effective implementation relies upon quality function deployment and value engineering tools but inherited uncertainties involved in cost aspect of product like demand fluctuations, order quantity, foreign exchange fluctuations and reliability aspects also affect the target cost and value engineering and these may lead only temporary achievement of cost. It violates the cardinal rule of target costing that target cost should never be exceeded. They described quality function deployment, value engineering and fuzzy logic. They defined quality function deployment is a procedure to incorporate customers needs into products features and value engineering is a proven management technique using a systemized
approach to seek out the best functional balance between the cost, reliability and performance of a product. They indicated fuzzy logic is a representative of uncertainties in cost aspects of product. They showed a case study of automotive product (air horn) manufactured by M/s Jaishree Industries, Coimbatore, on the quality function deployment and value engineering based target costing model using fuzzy logic. They developed on the basis of data a quality function deployment planning matrix. They demonstrated that after the determination of target cost and technical requirements the next stage is to achieve actual cost of product and to arrive at exact functional cost they used fuzzy approach. They took technical parameters that decide the function of a part as input and cost as output. In this case study they observed a cost of 39.10 cost units which was less than the target cost of 40 cost units. Authors pointed out that uncertainty in cost estimates plays an important role in target costing process and in uncertainty fuzzy logic is important. They concluded that the combination of quality function deployment, value engineering and fuzzy logic appear effective for target costing.

**Davila & Wouters (2004)** indicated other practices rather than target costing because they observed that target costing implementation requires many things and there were several limitations like technology, time-to-market or customer needs. The authors conducted a case study of high-technological firms on product development practices and used facts from other field studies. They studied about cost management teams, design for cost, cost management strategies or policies and product planning. The authors found that the selected sample firms were using above stated practices but not target costing in product development stage and there was effective cost management in firms and the development teams were more concerned about factors time-to-market, technology and customer needs.

**Cooper & Slagmulder (2004)** proposed a study of seven Japanese manufacturing firms and described the role of target costing in a make-or-buy (outsourcing) decision. They argued that target costing is an internal cost management technique and it gives importance to place the supplier in the concerned company or buyer’s cost management program. They said that the company uses purchase price of the raw material in target
costing which shows the role and requirement of supplier’s target costing system and to reduce cost it is necessary. They suggested the application of target costing in the inter-organizational decision making. They also opined the active involvement of suppliers in the concerned company for the joint management of costs in the manufacturing firms.

**Hergeth (2004)** presented the integrated approach of two product development tools namely quality function deployment and target costing for the apparel and textile industry. The author showed a case study of this integrated approach to reduce product development cycle time and to incorporate main features of product to satisfy customers. The author also presented through the case study the use of quality function deployment matrix and target costing in the development of product with the use of waste raw materials. The author said that the target costing is mainly associated with manufacturing or assembly industries. In the paper he stated that price of existing products is easy to set than price of completely new products. The author stated that the important techniques in target costing was value engineering, value analysis and quality function deployment, and also quality function deployment matrix is important technique during product development stage. The author concluded that there are different products changes in apparel and textile industry and in both industries target costing and quality function deployment matrix are important tools. Author pointed out that quality function deployment matrix can be used to redefine market and to satisfy customers also this integrated approach is comparatively easy to implement in textile industry because there are only one main component of raw material instead of apparel industry where are many components of raw materials are used in the production.

**Helms et al. (2005)** expressed the managerial implications of target costing with its implementation guidelines and the controversies of the use of target costing with its problems. They also discussed the international differences in target costing, its challenges and association with supply chain. They said that this technique is more suitable in a competitive market product in which customers are most responsive to price. They supported for the Implementation of target costing within the supply chain, firm requires more efforts than old standard costing method and trust or cooperation of all
supply chain partners to reduce costs. They discussed the concept of outsourcing which was that firms must analyze their technology, strategy and organization to add values and then turns out the non value added activities then after this transfer the task to supply chain partners with their capacities. They provided the list of target costing adopting companies and industries with in Japan and outside of Japan. Authors said that if a firm fails to meet customer’s price then firm has to change the material or production process of product or negotiate with suppliers and with good support of suppliers cost can be reduced. They said implementation of this system is not so easy and demonstrated its barriers or challenges like (1) lack of understanding or culture of firm prefer cost plus approach (2) team and cross functional barrier or the degree of commitment of all key areas in the organization (3) irrelevance and employees feel they are overburdening for cost reduction for their jobs and work against this target cost and (4) lack of good information system which can provide different information on time. They suggested that firm must choose carefully the right supply chain partners because the supply chain partners can be assets or harmful for the firm.

Kocakulah & Austill (2006) discussed the importance of target costing and use of this technique in cost management and to develop a new product. They presented a case study of a poultry processing company, manufacturing home meal and through this they explained target costing benefits and its importance in product planning, its process and problems of this technique. They stated that traditional cost management was used for decades ago and it has been unsuccessful for product development, that was the reason of the development of target costing technique to improve product cost management and product development. Authors added that Toyota developed this concept in the 1960s and this was famous in Japan and during 1990s over 80 percent of Japanese assembly manufacturing companies had adopted this method. They explained that the selected company designed a new product in three flavors to follow the needs and desires of retailer and consumers and also the company fixed the price of product to increase the margins of retailers and their own. They pointed out that the image factor was considered by the company in the market of product, this firm was able to produce a good and rational product in the market and for this company was used the market research to
decide the price of product and to decide the profit company used its own policies. They concluded that the company manufactured products with the use of target costing, to attain this task company’s supply chain management was supported and for any change in product company will use this method in future also.

**Everaert et al. (2006)** explained the characteristics of target costing and study the use and degree of adoption of target costing characteristics in three European companies that were using target costing. The authors studied three manufacturing (1) consumer electronics, (2) machinery and transportation equipment companies. They identified eight characteristics of target costing and they said these characteristics are related to the way of target costing application and its success. The authors identified these eight characteristics of target costing: (1) the target sales price is decided during product planning stage and it is decided in a market-oriented way, (2) the target profit margin is decided during product planning stage and it is based on the strategic profit plans of the company, (3) the target cost is determined based on the basis of target sales price and target profit margin before the starting of new product development process, (4) the target cost is decomposed into different target costs for the product components, functions, cost items and also for suppliers, (5) need of a cross-functional team to attain the target cost, (6) cost information is provided to team members in detail during new product development to hold cost reduction, (7) during new product development the actual cost level of product is compared with the target cost at different points and the last (8) the general rule of target costing recognizes that “the target cost can never be exceeded”. They found variations about the use of these target costing characteristics in the selected three companies.

**Ansari et al. (2007)** expressed that target costing is being adopted more and more by a number of top firms worldwide, even it is adopted in East Asia (India and Malaysia). The authors mentioned that several companies in the USA, like Chrysler and Caterpillar, achieved success in financial matters due to the adoption of target costing after 1990s. They stated that target costing was fairly using method in Japanese assembly industries while they noted that it was quite new in the USA and Europe. They stated that the reason
of target costing low adoption was the under estimation about this method by many managers of companies.

Rattray et al. (2007) indicated the application of target costing in New Zealand manufacturing companies. They found that moderate number of New Zealand manufacturing companies was using target costing and the companies adopted target costing for existing products. They stated that the adoption rate of target costing was different for different countries but it was 38.7% in New Zealand. They found no significant relationship between the firm size and the implementation of target costing. They stated that the confrontational (balanced) strategy was used by the companies and there was no significant relationship between the firm strategy and target costing and also no significant relationship between the performance of firm and use of target costing. Firms those were using confrontational strategy their performance was better than those companies which were using other strategies. They found more involvement of manufacturing department in target costing. They identified reasons of the adjustments made by these companies to achieve their target cost. They provided five reasons for adjustment in costs: (1) to assist sale of future products (2) to achieve target cost (3) to assist sale of existing products (4) long term cost reduction (5) to release product on time. They explained many reasons or limitations of target costing implementation in these companies. They explained the importance of suppliers support to manufacturing companies but found that in New Zealand the exchange of ideas for product design between the manufacturing companies and suppliers was low and the companies were using this technique only to take the benefit of cost reduction. They found the goal of cost reduction was significantly different to the goals of introducing products on time and good quality. Authors described that the application of target costing and achievement of target costs were concerned with the particular firm.

Lord et al. (2007) outlined the implementation of target costing in New Zealand manufacturing firms. The authors did not find any statistically considerable relationship between firm size and the application of target costing and also considerable statistical relationship between target costing and firm strategy. They suggested firms to use a
confrontational strategy with target costing. They stated that target costing was useful to apply only during the pre-production stages of a product’s lifecycle and in some cases they noted that it may be used to redesign existing product and for a new product, target costing have the same principles to apply on both type products. They found that the goal of cost reduction was significantly different to the goals of introducing good quality products on time, the manufacturing department was highly associated in target costing, the involvement of suppliers in target costing was relatively low and they said that target costing achievement depends on firm’s performance though they did not find any significant relation between the performance of firms and target costing practices.

Ibusuki & Kaminski (2007) proposed a methodology for the product development process through a case study which focused on the engine starter system of a vehicle. They developed the methodology for automotive company with the use of proper and systematic cost management approaches value engineering and target-costing to achieve low costs functionality and quality achievement according to needs of customers and the company strategy. They described three different steps of value engineering technique: (1) Concept- value engineering, (2) Project- value engineering and (3) Validation- value engineering. They explained that first concept value engineering is concerned with theoretical stage of product development, second value engineering is concerned with design stage of the product and process and third validation value engineering is concerned with rational stage of the product and process. They concluded that 10% cost reduction in reality is possible even with improved function of the product.

Iranmanesh & Thomson (2008) reported a cost design parameter method that used to adjust cost and design distinctiveness together during product development and this method was based on quality function deployment and also concerned to design the desired product features. The authors verified this model with the use of a loud speaker and compared the customer satisfaction with new cost spent on the product. They stated that this method was effective with value engineering. They stated that the use of this method was simple and assisted designers to decide the correct disbursement on design functions to create product value and the cost.
Ax et al. (2008) outlined the impact of competition and uncertainty on the adoption of target costing in Swedish manufacturing firms. The authors agreed on the fact of previous studies that target costing adoption is positively correlated with the intensity of competition and environmental uncertainty. They found through the survey that adoption of target costing and the intensity of competition were positively related but there was low effect of environmental uncertainty on the adoption of target costing. They concluded that adoption of target costing is directly related with intense competition but not directly related with the environmental uncertainty.

Teixeira & Cavalca (2008) delineated tools and methods which can be used for quality assurance at the product conception project. They presented a case study on automotive product. They said this project or phase was concerned with quality, reliability and the final price of a product. They investigated these through target cost and value analysis in order to estimation of client requirement fulfillment levels, determination of the choice of functions and activities those comparative costs were higher than relative needs and also serve as best utilization and elimination waste. They found that the method was efficient due to two features of target costing in today’s environment and these were: (1) the method focuses all type whether tangible or intangible customer requirements and (2) final performance of the product in terms of optimum cost/benefit solutions.

Agndal & Nilsson (2008) proposed a study on inter-organizational cost management activities of three buyer-supplier relationships. They defined inter-organizational cost management as buyers’ and suppliers’ combined efforts to reduce costs during exchange process. They said that although it had proved that target costing was effective method to select suppliers for complex components but it needed high research and development and it showed various difficulties to apply the literal target costing logic. They observed that target costing was not much effective because suppliers did not know the specific components in detail and increasing price made it difficult therefore they suggested inter-organizational cost management activities.

Kocsoy et al. (2008) demonstrated a study about the application of target costing with its main principals to determine the use of target costing in Turkish manufacturing
companies. They selected top 500 manufacturing companies which were listed in ISO (Istanbul Chamber of Commerce) 2006 index for the study. They stated that target costing has fully different application process and perception in terms of design and pricing of the product than the traditional perspective. They stated that it was first developed and applied by Japanese Toyota in the mid 1960s but in USA in the early 1990s it was first used by Ford Motor Company and after the late 1980s it was started to use worldwide. They stated that application level of target costing is higher in larger companies. The authors found that 63 out of 90 enterprises did not apply target costing while 27 of them applied the method, 67% of the companies were applying target costing for all of the products while 33% for only some products, with 60% automotive industry had the highest application ratio of target costing while machine and paper had a ratio of 50%, textile had 38% and food industry had 36%, some least application ratios industries were iron and steel with 20%, oil-rubber-glass with 21%, cement with 25%, chemical industry with 29% and medicine industries had 0% application ratios of target costing and the average application ratio was 30%. They pointed out that these ratios showed almost similar condition of adoption of target costing in Turkish companies and industries than some of other previous studies on the application of target costing in Japan or in other countries. They added that target costing is more adopted by high-tech based assembly industries like automotive, electronics, machine and textile industries rather than the process oriented industries like medicine, food, iron and chemical industries. They concluded that these companies were applying target costing with its general principles and they suggested that strong relationship with suppliers can increase its benefits to companies.

**Man & Fleser (2008)** explained that the target cost determination is based on target selling price determined by the marketing department of company and target profit margin desired by the company. They described two situations of target cost calculation. In the first situation target cost determines for a certain product without taking into consideration the life cycle of product and second determination of product target cost during each phase of its life cycle. They explained that company also calculated the estimated cost of product through survey of costs during production process. Estimated
cost of product is compared with the target cost and if estimated costs are higher than target cost the technical staff or engineers try to reduce estimated cost by modification in the design of product or by improvement in production efficiency.

Jariri & Zegordi (2008) introduced a new mathematical programming model of quality function deployment and target costing to solve the starting problem of engineers or design team and to provide more benefits to the automobile companies. The basic problem of the design team considered by the authors in this model was the optimizing customer satisfaction with the target cost. The paper presented a case study on one of the biggest automakers in the Middle East and a comparison had been made between this model solutions and company solutions. They developed the platform design in the automotive company through this model. They stated both quality function deployment and target costing are different methods of cost management and they used both terms in their model. They described there is the requirement of balance between the customer satisfaction and price of the product which is paid by the customer, and customers demand more than price therefore, the model was developed to reduce manufacturing cost and time of product development through platform design. Authors demonstrated the company had decided to design its own platform for production and they stated automobile platform comprised 34 different systems and all these were grouped into five main systems which were: (1) powertrain & cooling (2) vehicle dynamic systems (3) body (4) interior and exterior (5) electrical. They had been selected these systems individually from five available alternatives and with the use of this mathematical model. They provided a good modified mathematical model to get customer satisfaction and target cost with proper platform design.

Kocsoy et al. (2008a) pointed out the principles for the application of target costing technique for customer satisfaction, profit margin, price determination, cost reduction and management operations in Turkish manufacturing companies. They studied 500 top manufacturing companies listed in ISO (Instanbul Chamber of Commerce) in 2006 index. They found target costing technique came into Turkish in 1990. They stated that the use of this technique was higher in larger scale technology based assembly industries such as
electronics, automotive, machine, textile than the process based such as food, medicine, and chemical and also in small scale industries. Authors stated that target costing was applying in most of companies those were working in the environment of high competition and ambiguity. They supported that the application of target costing is suitable in high competition and uncertain environment and also for short life products of assembly industries than process industries. They found that companies which were using target costing or similar methods gave more importance to balanced competition strategy and market research and these companies were using different strategies. They also described the application degree of different methods, tools and techniques such as value engineering, kaizen costing, total quality management etc. They revealed that pre design and design stages were using by companies for cost estimation of new products and the companies focused more the manufacturing cost than service costs, marketing costs and distribution costs of products. They found the support of different department members in these companies for the application of target costing. To decrease the cost of product the companies focused on the supply of inexpensive materials but without any change in quality. Authors supported the cooperation with suppliers and stated that high degree of relations with suppliers is good for target costing application.

Lin & Huang (2009) reported the implementation of target costing with supply chain management and they added a sporting goods industry case study in the paper. They explained three phases of target costing which are (1) market driven target costing and it is about to find out the needs of customers and market research (2) product level target costing and it is about manufacturing the product and (3) component level target costing and it is about design of product and operational efficiency. They stated that to face competition there is a need to build a good relationship with suppliers and the implementation of target costing in factories depends on collaborative partner’s relationship for long period. They said that there is linkage between design functions and supplier’s management therefore suppliers are involved early in the process and the collaboration between suppliers and company give benefits to both parties and even when there is loose relationship among them then new suppliers can be replaced but active long run relationship is required for the success in the market.
Chin & Hsin (2009) revealed that original design manufacturing companies meet with the request for quotation process but the companies did not have any specific methodology for this. Authors presented a case study to formulate accurate and profitable request for quotations with the use of quality function deployment, concurrent engineering and target costing based methodology for original design manufacturing companies. They said original design manufacturing companies’ issues request for quotation to capture project of production to several qualified suppliers within an allotted timeline and if request for quotation is inaccurate then it increases the risk and loss of production in original design manufacturing companies. They studied eight Taiwan electronics original design manufacturing companies to understand the problems of their current method of approximation and functioning of these methods for formulating request for quotations and showed integration of target costing, quality function deployment and concurrent engineering into the proposed methodology to formulate an accurate and profitable request for quotation for the case company. The paper presented a systematic ten steps approach for accurate formulation of a request for quotation and they described three parts of request for quotation which were the product specification proposal, the product price quotation and the product development schedule. They pointed out four key points for successful use of the proposed methodology: (1) a committed leader is desired to handle the whole request for quotation formulation process (2) involvement of all responsible departments in the request for quotation formulation (3) participation of parts suppliers in the request for quotation formulation (4) the original design manufacturing customer should be invited in the request for quotation formulation and by using this methodology original design manufacturing companies can provide accurate and profitable request for quotations to original design manufacturing companies and can deal better with the production of product.

Zengin & Ada (2010) discussed the quality function deployment - target costing implementation process. Authors stated target costing as a strategy cost management technique while quality function deployment and value engineering both as operation management tools. Authors explained the integration of value engineering and quality function deployment with target costing. Implementation of target costing with quality
function deployment and value engineering tools provides effectiveness in cost reduction and quality of product. Through case study they pointed out that the use of target costing with value engineering and quality function deployment analysis companies can achieve significant cost reduction without reducing quality and functionality of product. They stated that target costing is an effective strategic management accounting technique for new product and existing product development. They pointed out that quality function deployment – target costing process is costly and time consuming. They stated that market leaders as well as small and medium enterprises can implement quality function deployment – target costing tool as a cost management methodology with the support of financial and professional experts. They explained the quality function deployment – target costing process and in this process first step determines the desired quality and functionality required by customers.

Quality function deployment analysis they said is used for gathering market and price information from customers. Second step determines target selling price accordance with customers’ requirements and competitive market conditions. Third step determines the target cost of product. Step fourth involves cost breakdown on cost drivers first by using target costing and after this current cost of product is determined and after actual cost determination actual cost drivers identified and these cost drivers focuses for cost reduction. Step fifth involves use of value engineering with target cost in the product design stage. In step sixth after target cost has been achieved by the team, kaizen costing technique supports target costing in continuous improvement. They concluded that quality function deployment – target costing process is a dynamic and market oriented approach which helpful in continuously increases the product quality and functionality with a balance in cost. They also showed a relationship between accounting means cost management technique target costing and operation management means quality function deployment and value engineering and suggested that the integration of target costing with quality function deployment and value engineering tools can prove a competitive cost advantage taking strategy for companies.

Gera & Chaklader (2011) described that target costing may serve better solutions for developing new products and minimizing costs with the integration of supply chain
management. The adoption of target costing technique would be better strategy for the appropriate product development, process technologies and production at a minimum cost with supply chain management. They said supply chain management involves supplies, producers and third party like stores, warehouses, transport agency so that product is produced and distributed to the desired consumers at right time, place and quality. The management focuses to make product either at same quality level but with low cost or to produce product at high quality but with same cost. They stated that supply chain management strategies and development chain of product are interrelated and affect each other. Development chain was defined by them as a set of activities and processes associated with new product introduction and design stage of a product. The integrated approach of supply chain and development chain would be helpful in reducing the main cost of production which is about 80% incurs in the design stage of product. Authors illustrated the Tata Nano Car which was produced at low cost with the integration of supply chain members by reducing inventory waiting time and delays, optimum transportation channel, optimizing location and utilization of warehouses. They stated that strategic cost management contains three types of analysis; supply chain analysis, strategy positioning analysis and cost driver analysis. Strategy positioning analysis decides the cost leadership or product differentiation value proposition of the company. Cost driver analysis decides transactions and processes which create costs in supply chain and supply chain analysis is concerned with the proper flow of information from suppliers to customers. They suggested that the integration of cost driver analysis along with supply chain and strategy positioning analysis with supply chain analysis is a better strategy to reduce cost of product in entire system. They said that any product can be produced at minimum cost significantly by strategically managing cost at each level of supply chain.

Yazdifar & Askarany (2011) presented a case study of manufacturing and service firms in the UK, Australia and New Zealand three western countries about the adoption rate and level of implementation of target costing. The authors stated that target costing is equally useful among manufacturing and service firms but there are some differences in terms of the levels of implementation of target costing between manufacturing and
service firms. The authors also studied the importance of attributes of target costing for decision makers and the levels of association between target costing and its attributes. They examined the four levels of target costing implementation and these four levels include two main processes as first the determination of target cost and second its attainment, and the levels were: (1) determination of target cost of product as the difference between target or expected price and required profit also the authors explained that this level includes three sub levels namely establishment of target sales price, establishment of target profit and establishment of target cost, (2) use of cost-cutting strategies at the production stage to attain the target cost and this level includes two sub levels namely establishment of target cost for different activities, functions, designers and suppliers and establishment of link between these functions, (3) assessment of all cost-reducing strategies during pre-production stages and this level includes two sub levels namely requirement of detailed cost information to examine progress towards cost reduction targets and continuous comparison between the actual cost and the target cost and last (4) use of value engineering to add value in product according to customer requirements. The authors found no significant statistical difference between manufacturing and service firms as overall adoption rate of target costing while they pointed out that there is a statistical significant difference between these firms in terms of the implementation of target costing.

2.2 REVIEWS ON KAIZEN COSTING

Monden & Hamada (1991) described the system of total cost management used by Japanese companies. Authors stated that this system includes target costing and kaizen costing as two main pillars and the first pillar target costing is used to reduce the cost of new products in the design and development stage while kaizen costing is used by the Japanese companies for the cost reduction of existing products in the manufacturing stage and through these two methods Japanese companies control the overall cost of product during the whole life cycle of product. In the paper authors explained the link between these methods and stated that management accounting is functioning well with these two methods in Japanese companies. They discussed the system of target costing, it’s various
properties and said value engineering is very important in target costing though there is difference between value engineering and value analysis they stated that value engineering is used for new product development stage while value analysis is vital for existing products manufacturing stage. They stated that kaizen costing is not implemented like standard costing in Japanese companies. They showed the example of kaizen cost committee for cost reduction. They said the main part of cost is covered by variable cost like material, labour and other direct costs thus in kaizen costing target of kaizen cost is determined for variable cost only not for fixed cost in the Japanese companies. They stated that kaizen cost targets are achieved by kaizen activities and kaizen cost targets are decomposed among different departments on the basis of management by objectives. They pointed out the necessity of the involvement of all level employees for the implementation of target and kaizen costing and incentives for their motivation.

**Chesar & Tanner (1993)** indicated the use of kaizen costing within a given framework and with the involvement of groups. They stated that after the estimation of investment working groups which are working with that issue are informed about these estimates to make them understand about the earlier stage of the challenges and this also provides a clarification about the problem issues and cost rationalization to the working groups. They said usually the operators develop the ideas then designers apply the changes and the consumers give the purchase price. They stated that in kaizen costing every activity is managed by a work team and these teams share the outcome by establishing new ideas. They said that knowledge is developed by groups about the different ways to reduce costs.

**Monden & Lee (1993)** presented a case study of Daihatsu motor company of Osaka, Japan a mini car manufacturer on kaizen costing practice and this company was the partner of Toyota. They said that target costing is an effective system to manage the costs of new products in the design and development stage while kaizen costing is used to reduce the cost in the manufacturing stage of product and both target costing and kaizen costing helps Japanese companies to reduce the overall cost of a product and both techniques are used by Japanese companies to achieve the goal of total cost management.
They pointed out six plans for implementation of kaizen costing: (1) production, distribution and sales plan (2) projected parts and material costs (3) plant rationalization plan (4) personnel plan (5) facility investment plan and (6) fixed expense plan. They said that actual cost of the previous year is used as cost standards for next year in the company and variable cost is the main component of kaizen costing and for fixed cost target of cost reduction is generally not set by the company and these rates revised by the company in mid of the year mainly when there is a need of change in the quality of product or to adjust the expectations of customers. They stated that target cost reduction rate is determined for each cost element on the basis of last year performance of the element and target cost reduction rate is almost not changed. The overall cost reduction target are decomposed into different cost elements. They added that to evaluate the performance of each department actual cost reduction is compared to target cost reduction and find out the variance to know the favorable and unfavorable variance of the department. Authors explained that kaizen costing has aim to reduce the actual cost below cost standards while standard costing aim is to meet the standard cost only thus kaizen costing and standard costing are different methods and kaizen costing is superior method than standard costing.

Cheser (1994) demonstrated that kaizen costing creates a situation for those companies whose assignment is to cut those costs which are not adding any value in the product. The author said that investment in terms of resource and in costs of product can be estimated because the basis of estimation is determined in advance. The author said that it is basically a matter of entering the relevant values of product through the active members who are implementing kaizen costing in the organization. The author stated that kaizen costing is appropriate method for the survival of a firm. The author highlighted that long term competence development of firm is engaged in the activities and the value added activities develop the ability of firm to survive in the short period.

Lee & Monden (1996) reported the comparison of some manufacturing friendly management systems considered in the U.S.A and Japan. Authors focused on the comparison of activity based costing with new cost management systems target costing and kaizen costing. They expressed these two systems are popular on international level
and they showed comparison of these systems on the basis of advantages in cost management, control and operational improvement. Authors presented a field study of a Japanese automaker and an analysis of cost management through past studies. They also pointed out most wanted characteristics of cost management systems that can solve the problems of many manufacturing firms under the speedily changing international market conditions.

Williamson (1997) explained the concepts of the manufacturing techniques, target costing and kaizen costing which developed in Japanese companies and stated that these two methods provide the base for total cost management. The author discussed that in a highly competitive market situation a firm can survive better with the implementation of these two techniques. The author said that target costing is a process to design products in such manner that products can be produced at low cost, the company can sell them at cheap price and still make a fair profit while kaizen costing focuses on the manufacturing phase of product to generate the value and profitability by the production of new and existing products. The author observed that the main aim of target costing and kaizen costing is to produce a product that can meet the customer’s requirement by the functions and qualities of product and also can increase the profits of firm by profitable price and they said that cost reduction is vital to do this. The author opined that kaizen costing activities should be involved in the process of business improvement constantly with focus on the improvements in quality and product functionality. The author stated that targets and kaizen activities may differ on the basis of the type of cost and combination of target costing and kaizen costing provides a root of the total life cost management or the way to manage cost throughout the product life cycle. The author concluded that the increasing profit and value of products both are important but customer satisfaction is preferable for companies.

Bayou & Reinstein (1998) explained three routes of target cost management and all three routes have their own ways and goals. They included total cost management, cost cutting and cost shifting as three routes of target cost management. The author explained that the first route is total cost management which includes general target costing with
kaizen costing methods for different stages of product and they used cost reduction or cost improvement only for this route. They stated that this route uses different strategies to achieve goals or to reduce costs. If firm can not apply strategies properly then they move to second or third routes which are cost cutting and cost shifting. They said cost cutting refers to decreasing avoidable inefficiencies and it is just moving downside on the same cost line means the resources used by the company are reduced to decrease costs like reduce raw material, less no of workers and other while cost shifting refers to movement from one alternative to other alternatives of costs or resources but it does not reduce quantity of resources instead it uses low or sub standard resources like low grade material, local suppliers and other. They concluded that first route, total cost management is beneficial for companies than other two cost cutting and cost shifting routes because first routs focuses on improvements.

**Monden & Hamada (2000)** revealed the practices of target costing in Japanese car manufacturers and stated that only target costing in not final cost management the concept of final cost management also includes kaizen costing. They said that target costing is used in the developing and designing phases of product and kaizen costing is used in the manufacturing stage of both new products and existing products. They stated that kaizen costing always focuses on excellence by continuous small improvements in process and product with the involvement of all working levels in the company.

**Feil et al. (2004)** described that target costing is being used worldwide and previous studies had explained specific aspects of target costing they said there was some misconceptions about Japanese target costing therefore they presented the origin of target costing. They said before World War II it was used under the name of value engineering later it became target costing. They stated that target costing evolved slowly. They said this is useful for new product having complex and extensive process. The authors also showed that target costing is associated with kaizen costing and explained that both are different in application, have different attributes and used for different aspects still target costing and kaizen costing cannot be separated. They said both are basic elements of cost management and these are known as Japanese cost management system. They concluded
that top management leadership, team-orientation, commitment to work, mutual trust and information network are the pillar of target costing implementation.

**Cooper & Slagmulder (2004a)** presented a case study of Olympus Optical Company in Tokyo, Japan and discussed that cost can be reduced throughout the life cycle of product and the way a company manages costs across the product life cycle of consumer product. They explained five major cost-management techniques: (1) target costing, (2) product-specific kaizen costing, (3) general kaizen costing, (4) functional group management and (5) product costing in integrated manner that can be used across a product’s life cycle. They demonstrated that costs can be forcefully managed not only in design phase of product but throughout the product life cycle. They found Olympus Optical Company was able to manage costs throughout a product’s life cycle. They explained all five techniques have their own objectives, focus and application as: (1) Target costing technique is used in product design phase, cost reduction is its objective, it focuses on product design and it has systematic application, (2) Product-specific kaizen costing technique is used to redesign a new product during the early stages of manufacturing stage to correct any cost overruns after target costing, and when target cost is not achieved then this technique is used in manufacturing phase, cost reduction is its objective, it focuses on product design and it has ad-hoc or temporary or requirement base application, (3) General kaizen costing technique is used in manufacturing phase, cost reduction is its objective, it focuses on production process and it has systematic application, (4) Functional group management technique breaks the production process into autonomous groups and (5) Product costing technique helps to coordinate the efforts of above stated four techniques by providing them up to-date information and last two techniques are used almost in same situation of general kaizen costing. They concluded that target costing is used during design phase and other four are used during manufacturing phase and cost reduction is not important only in design stage but also important in manufacturing phase. They suggested that company should use multiple cost management techniques or integrated cost management techniques because it can provide benefits to the organization and also long life products have more possibility of cost reduction during manufacturing phase.
Granja et al. (2005) explained the concepts of target and kaizen costing in a construction company. They presented the framework to take these two matching concepts target and kaizen costing together approaches and stated that these two provides a basis for a total cost management system. The authors mentioned that there is the requirement of continuing series of kaizen activities to achieve product quality and reduce the cost. They pointed out that combination of target and kaizen costing is a commanding approach for the construction company to ensure value of product for the customer at a low cost with profitable price for company.

Modarress et al. (2005) presented a case study of kaizen costing implementation in Boeing Commercial Airplane Company’s Interiors Responsibility Centre (IRC) division. They said that standard cost accounting and traditional cost management systems provide only cost related information and they cannot adequately evaluate the importance of non-financial measures such as quality and flexibility. They stated that kaizen costing activities focus on continual small product cost improvements in the manufacturing phase as opposed to improvements in the design and development phase. The authors mentioned that to face fierce competition US manufacturing companies adopted lean manufacturing philosophy. Many US manufacturing companies had used traditional standard costing systems to control costs during the manufacturing process but these systems were not sufficient in supporting lean manufacturing objectives. To remain in competition US manufacturing companies adopted kaizen costing as a new cost management tool and philosophy to support lean manufacturing. They described kaizen costing process and two key factors in successful implementation of kaizen costing which are: (1) after the establishment the cost-reduction targets, these cost reduction targets are displayed for information to everyone and then the work cell can be held accountable to these targets and (2) the kaizen process should be consistent and repeatable. They said that target setting for work cell is the most important step in the kaizen costing process and these targets must be achievable and according to company’s objectives. They recommended the use of value-added analysis on the shop floor level to facilitate work cells in reaching their kaizen targets. They said that the value added analysis is used to determine which activities in the manufacturing processes is value added and which one
is not then work cells reduce non value added activities in the kaizen costing process. They compared the company’s selected division condition before and after implementation of kaizen costing and found it was effective in cost reduction.

**Hines et al. (2006)** presented a case study of Australian canned pineapple industry to establish an alternative of traditional standard costing which was developed and implemented for non-engineered (agriculture and food) products. They used the approach holistic quality-based pricing for continuous improvement and change, which has similar features like target and kaizen costing but they studied the above said approach especially for agriculture and food products where this approach can be used well than target costing and kaizen costing however this approach has almost same criteria of use in food processor companies and for farmers. They said this approach also uses suppliers’ development and highlighted six critical success factors for the implementation of this approach.

**Ellram (2006)** presented a case study of 11 organizations which were actively using the target costing method. The author stated that target costing process focuses on the voice of the customer, earlier supplier involvement, concurrent engineering and cross-functional teams. The author explained the target costing process for practices in the United States or for other Western firms with the popular theoretical model of target costing which can be fit in the current business environment and culture. The author highlighted the role of purchasing and supply chain management for successful application of target costing. The author said that to improve the cost and functionality outcomes of new product development process through target costing role of supply chain management is critical. The author mentioned that the new theoretical model of target costing is consistent with the existing theoretical framework explained in previous studies though there is very little difference among the old and modern theoretical framework of target costing process. The author stated that the last step of target costing process includes continuous improvement which is now referred as ‘kaizen’ in Japanese manufacturing practices. Therefore after target costing next kaizen costing picks up by the firm which focuses on improving the cost of product when product has introduced in
the market and supply chain management also vital in this stage and this is the basic difference between old framework and modern target costing process. They concluded that supply chain management is vital throughout the new product development in target costing process and for continuous improvement efforts.

**Budugan & Georgescu (2009)** reported integration of budgeting and kaizen costing during budget period for continuously improving the number of work hours and way of cost management to reduce costs. They said that target costing is the first step and after these employees of the firm are tried to attain the cost targets by eliminating certain activities and by the reduction of the costs through kaizen costing. They expressed that kaizen costing focuses on the production process not on the product and it considers organizational aspects and it is calculated according to the standard cost. They found that if company does not achieve the continuous improvement kaizen costing objectives then the number of work hours will exceed and it will increase the budget level and if company achieve kaizen costing objectives then it will lead to the reduction of the general variable costs during budget but target costing and kaizen costing continuous cost reduction methods are stressful for the staff. They concluded that to achieve the continuous cost reduction objectives there must be entire organization involvement and adequate cost management which include: (1) control over all stages of product life cycle (2) profitability of the product during its life cycle (3) establish all main elements of the supply chain (4) engineers must collaborate with the suppliers to reduce costs (5) mobilization and motivation of workforce. They stated that kaizen costing with budgeting results in the form of minor improvements.

**Utari (2011)** outlined a case study of PT. Coca-Cola Bottling Indonesia-Central, Sumatera, on the application of kaizen costing to reduce the problem of increasing the rejected product in the production process which affect the cost of production and profit of the company and also provide suggestions to overcome the problems of increasing rejected products in the production process. Author also compared the traditional costing and kaizen costing. In the paper he concluded that rejected product is a main factor that causes of increase the production cost and reduce the company’s profit and to reduce
rejected products and maintain quality of product the company used kaizen costing and the implementation of kaizen costing method improved the production costs. The author discussed two sub cycles of kaizen costing method PDCA (Plan, Do, Check, Act) and SDCA (Standardize, Do, Check, Act) to solve these problems and said through the implementation of kaizen costing the number of rejected products can be decreased to zero and company can produce a quality product based on the customer desires.

Sani & Allahverdizadeh (2012) explained the concept of cost management, traditional tools of cost management and modern tools of cost management. They included mainly overhead cost allocation, budgeting, value engineering and standard costing as traditional cost management tools while in modern cost management they included mainly target costing or target pricing, kaizen costing, activity based costing, total quality management and integrated strategic management accounting. They described the functioning of traditional costing system and difference among old and modern costing tools. In the paper they also included the process of target costing and the benefits of target costing.

Saleh et al. (2012) discussed three methods of cost management and they identified three essential criteria and effective indicators for each system. The selected three cost management methods were: (1) activity based costing, (2) target costing and (3) kaizen (quality) costing. They developed a model. They considered that the use of each method was different according to production and activities of organization. They explained different indexes or factors required for the use of each method and found these cost management methods were different on the basis of factors. However they studied common factors which were required budget, human resources, required time for settlement, software system, hardware system and integration system. They found the activity based costing method was more adopted than target costing and kaizen costing by the firms for cost management.

2.3 REVIEWS ON KAIZEN
Watson (1986) added that the concept of Plan-Do-Check-Act (PDCA) cycle or Deming cycle was introduced by Shewart in the 1920s and later this Deming modified the Shewart cycle as: Plan, Do, Study and Act (PDSA). The author stated that the Plan-Do-Check-Act cycle is also known as Deming cycle and the Deming cycle is a continuous quality improvement model which consists a sound sequence of these four recurring steps for continuous improvement and learning. They explained that ‘plan phase’ is related with plan the objectives for change, ‘do phase’ executes the plan by taking small steps, ‘study/check phase’ studies the results and ‘act phase’ is related with actions are taken to improve the process.

Suzaki (1987) commented that continuous improvement is a philosophy which is broadly practiced in manufacturing and quality circles of the organization. The author stated that this philosophy is based on thought that there is no stop to construct a process better. The author stated that each incremental improvement has the potential of many phases of development which can be used for enhancing manufacturing processes and this philosophy has gained extensive recognition recently and this philosophy can be applied in different aspects of business including the software industry.

Webb (1991) defined that kaizen is related with the reduction of waste and for the application and success of this approach an organization and also management should become aware about wastes. The author stated that the responsibility for kaizen or continuous improvement lies on management and these Japanese management practices are not difficult to apply in the organization but this approach requires concentration on human issues first and then corporate strategies around them. The author explained that first concentration on human issues because after a long groundwork job and job rotations bring a vast wealth of experience and working knowledge related with problems and due to the vast experiences employees become multi-specialist and can understand a wide variety of issues which is important to the running of organization because they also deal with problems. The author suggested that managers should broaden their specialty to handle the unstable nature of business.
Radharamanan et al. (1996) presented a study on the application of kaizen technique in a small-sized custom-made furniture industry. The authors identified many problems in that organization and the problems identified were as: absence of appropriate methodology to assure quality, old machines, disorganized workplace, less compatibility of the individual protection equipment, inadequate and insufficient number of measuring instruments, poor quality of raw material and lack of training. They suggested many solutions to solve these problems of the organization through the use of kaizen concept in the company. They also discussed about the use of kaizen to develop the product having high quality, lower cost, higher productivity and that can also meet customer requirements.

Womack & Jones (1996) delineated kaizen as a lean thinking and explained the systematic approach to aid organizations to reduce wastes. They defined waste as any human activity that consume resources but adds no value to the product or process. They stated that employees are able to identify several different types of wastes/muda in their workplace but they can identify not think seriously until they have been trained about the essentials of lean thinking they cannot recognize the wastes actually present in the workplace. They illustrated this through preparing a newsletter for mailing and generally to mail newsletters persons perform these activities as printing the letter, placing stamps on the envelopes, folding all copies of the newsletter and inserting the folded newsletter into an envelope and at last sealing all the envelopes but comparatively muda or waste can be reduced if focused on effective manner to mail letter. They stated that when it was recognized it moved the way of manufacturing processes and the kaizen approach has many other benefits as well.

Soderquist (1996) studied continuous improvement and innovation practices in French small and medium scale enterprises. The author studied the factors requiring change and short and long term goals of innovation and also its management in French small and medium scale enterprises. The author revealed top nine sources of innovation for introduction of the new products which were as: continuous improvement of work processes, radical change through business process re-engineering, focus on marketing
efforts, reduction the number of indirect or unnecessary staff members, improvement of staff capabilities, improvement of the quality of product or services, improvement of the quality and skills of management and finally efforts to improve the performance of suppliers.

Ghalayini et al. (1997) added that kaizen is characterized and mainly used by operators on the shop floor level to identify problems and suggestions to solve problems which essence bottom-up change. They stated that tuning of a system on shop floor level can be reduced the costs because kaizen is based on the knowledge of shop floor workers about the small parts of the work or system. They stated that through this system progress is likely to be large which is beyond the control of management because shop floor persons play a supporting role in this system but there can be also fear of irregular process.

Malloch (1997) presented a case study about kaizen in Diesel Engine Manufacturer of U.K. The author explained kaizen as an emergent strategy and its effectiveness is in the cost reduction. Diesel Company was the leading multinational firm in diesel engine industry. It was introduced lean production system in 1989s and company was using some principles, practices and processes in lean production system. The author stated that managers should be cautious while formulating strategy and planning. The author explained the process of kaizen implementation by the workforce of Diesel Company. The author showed that kaizen is portable between organizations but its outcome depends on the deep knowledge about the production processes of workforce. The author argued that for waste elimination the reduction of unnecessary human movements and well managed environment were essential. The author said that the difficult tasks can be analyzed by paper based system. The author found two dimensions of shop floor workers regarding kaizen. Many employees took kaizen as a stress while some other employees considered kaizen as a positive way of working because they said that training on kaizen made their job interested and easier. The overall perception of the workers who took training under kaizen work in the kaizen team was favourable. The author stated that kaizen was both positive and negative in workers thinking but it helped management to achieve objectives. Diesel Company saved £2 million in three and half years as cost
reduction by the use of kaizen. The author suggested that kaizen is a source of sustainable competition advantage and cannot be neutral for every organization. The author studied that the reason of kaizen works, was not the tighter control on employees and effort bargain in which managers had complete freedom to select operators and activities but it was achieved by the effort rewarded bargain which included different rewards like job status, earnings and future career progressions. The author supported that perception about kaizen was contradictory among shop floor workers though it was adopted as favorable thinking of work for both workers and companies.

Imai (1997) indicated that improvement can be divided into two terms namely kaizen and innovation. The author described that kaizen signifies small improvements through ongoing efforts while innovation involves big improvement as an outcome of large investment of resources in new equipment or technology. The author explained that kaizen includes mainly two functions: (1) maintenance and (2) improvement. They defined maintenance as that condition or those activities which are directed related towards maintaining current standards of technologies, managerial and operating status through training and discipline and also management assigned tasks to employees to manage standard operating procedure. The author defined improvement as that condition or those activities which are directed related towards uplifting current standards.

Jones et al. (1998) reported about the role of the UK management accountants as a hurdle to the adoption of Japanese management accounting techniques. They highlighted that unwillingness was the main hinder. The authors observed that unwillingness was the hinder due to different background and status therefore they pointed out that successful adoption of Japanese management accounting techniques depends on social aspects also not only considerations. The authors claimed that if UK manufacturing organizations are not able to adopt Japanese production techniques such as just in time and kaizen or they do not adopt new techniques then this will adversely affect UK manufacturing competitiveness and these techniques require a combination of extensive organizational redesign, interest of management accountants and diffusion of information.
Erlandson et al. (1998) examined the application of kaizen tool poka-yoke in fuel-fitter assembly. The authors stated that the new fixtures that had been used made considerable variation in the assembly process. They stated that the old fixture was replaced with more efficient two fixtures which were designed, built and tested. They revealed that after the replacement of new fixtures with old fixtures there was an increase in the production rate about 80% and the error rate was decreased from 50% to about 1% and the large number of workers who were not performing well the assembly task with the old fixture were working effectively to perform the task with the new fixture.

Bond (1999) examined the kaizen and re-engineering programs in a top international company which was manufacturing surgical products. The author studied mainly two aspects as: (1) the role of continuous improvement in the company and (2) new ‘quantum project’ of process innovation and step change. The author found some key performance factors which were quality, cost, safety, delivery, reliability, customer satisfaction and morale. The author stated that performance measures are used in different stages and the performance measures should be focused while applying kaizen and re-engineering techniques.

Kim & Mauborgne (1999) discussed on innovation and incremental improvement as ‘imitation’ and not ‘innovation’. They stated that companies should focus on a proactive strategy and this strategy focuses on the increasing number of customers with existing customers. The authors stated this strategy as ‘value innovation strategy’ where the stress is on value, customers and lesser extent on the competition. They stated about the importance of value innovation and said it forces managers to work beyond continuous incremental improvements and to find new ways of doing things.

Lee (2000) proposed a case study at Nichols Foods manufacturing. The author stated that there was lack of standard operating procedures and structure. The author described the way to improve the values of the company and also to improve the work environment for the workers that could be motivated them to achieve excellence. The author also explained the way of implementing the kaizen program with its 5S technique and team
training. They found that due to the implementation of kaizen program there was decrease in quality rejections and increase in manufacturing efficiencies.

**Chen et al. (2000)** studied kaizen approach in a small manufacturing designing arrangement. They stated that before the application of this approach there were expensive products. They stated that to use this approach to solve problems a team was built where a design engineer, a quality engineer, a manufacturing engineer and two machining operators were the members of that team for the application of kaizen project. They stated that after the identification of the problem a brainstorming process had been used to ascertain the team goals through receiving information on current process of the product and then after this manufacturing system was introduced to cut production costs of the product. They said that kaizen helps in continuous improvement and they found that the unit cost was reduced 25%, floor space requirement by 15% and also kaizen developed a very impressive communication network throughout the organization.

**Soltero & Waldrip (2002)** described the origin of kaizen and explained that kaizen is a workforce development approach that helps companies to reduce wastes. The two waste reduction approaches lean manufacturing and pollution prevent can be easily adopted with kaizen implementation. They explained that for kaizen implementation a most desirable organization is one which has an open atmosphere of communication and promotes creative thinking among workers. Kaizen requires a democratic culture and work place for employees. They stated that a kaizen program requires involvement of all employees and it is different from innovation. They defined innovation as immediate quantum leap in technology when kaizen is a baby step improvement method. The continual improvement process includes two wheels one is innovation another is kaizen. They said that continual improvement wheel kaizen is more powerful and it provides greater competitive advantage than capital investment in equipments or innovation. For continuous improvement with the application of kaizen they suggested a three phases approach. They discussed that before the three phases continuous improvement approach organization must think about kaizen requirements. Phase I involves the standardization of all current processes of production. Phase II involves the simplification method to
eliminate wasteful practices. They said lean manufacturing includes in simplification and they defined it as an approach of wastes reduction through the use of a set of tools or methods that focuses on the mainly reduction of waste of materials and energy. They stated that with kaizen a company can use lean manufacturing to improve programs and without kaizen it is not effective. Phase III means reduce variation through six sigma which is a statistical tool to remove errors and waste free manufacturing and solutions to specific problems. They said that six sigma provides immediate benefits with kaizen. They opined that kaizen is better than innovation and it promotes lean manufacturing and pollution prevents approaches. They opined that for effective application of kaizen involvement of everyone and hearing everyone’s idea in the organization are important.

Brunet & New (2003) studied the implementation of kaizen, its nature and principles in Nippon Steel Corporation (NSC) as a base model company and then comparison made between the data collected from other companies which were also using kaizen approach, to access the uniformity or significant differences in the implications of kaizen concept. They explained some common features of kaizen for all companies as: (1) targets for work teams or members established by each company, (2) to encourage employees participation in each company through long term motivational packages, (3) life time employment, seniority based wage system and significant bonus based on performance, were mainly adopted by companies as incentives to encourage employees under the use of kaizen thinking. The authors discussed diversity in the conditions and nature of organization in the use of kaizen. They presented many differences when base model company and other companies were implementing kaizen in depth as: (1) some companies were using individuals or small groups while some companies were using large groups of employees for kaizen implementation, (2) some companies supported voluntary participation in kaizen while other companies considered mandatory participation of employees in kaizen and (3) the reward system and incentives for employees varied among different companies. They described the nature of kaizen and focused on three key notions of kaizen as: (1) kaizen is continuous and never ending concept towards quality and efficiency, (2) kaizen is different from innovation and (3) kaizen demands participation and it involves different members but mainly focuses on
shop floor employees of companies. They found that kaizen was not uniform in Japanese companies and its implementation depends on different conditions. They concluded that involvement of employees is required for implementation of kaizen and for employees’ continuous participation different reward and incentives were used by companies and also kaizen evolves commonly within each organization.

Shimizu (2004) described the beginning of kaizen activities in Japan (Toyota Carmaker Company). They stated that Toyota carried out many re-organizations from the beginning of 1990s in office work and in engineering design but changes made in the cost management i.e. through target costing and kaizen activities were the most important. The author said, Toyota adopted kaizen activities to improve labour relations and workers production efficiency. Toyota realized many changes for labour management; cost reduction made in the product design stage more than in production stage, changes in wage systems to motivate workers and also change in working hours, production efficiency management was moved from unilateral to an autonomous production division. The author explained that after labour crisis Toyota realized that not only cost reduction through production efficiency but humanization of work is also necessary. The author said that in Toyota, kaizen was used by engineers, chief leaders and group leaders but after labour crisis they involved ideas from workers about the quality improvement in kaizen. The author made a case study of new kaizen activities at Tahara no. 1 plant and he showed there was a new possible concurrent engineering in which the production division involved product design process and also shop floor personnel played an important role in that. The author said that high performance of Japanese firms is based on the kaizen mind or thinking and the Japanese employees organized in teams were making improvement in their own jobs through quality circles or other initiatives like suggestion system. The author showed that in the beginning, kaizen activities were out by group leaders and engineers now kaizen activities are not only centered to increase productivity but also includes humanization of work. The author suggested a good human relationship among workers and company managers.
Dehghan et al. (2006) revealed a case study of kaizen project which was performed through National Productivity Improvement Program at Chaharmahal Bakhtiari Agriculture Organization. They discussed about two kaizen methods which are applied for continuous improvement project as: (1) 5S and (2) process improvement. They explained the position of the process before and after use of kaizen activities through flow charts and diagrams. They stated the limitation of work processes and reduction in financial expenses outcome in increasing the satisfaction level of all customers whether domestic or foreign. They found reduction in costs of different types of activities in the kaizen project through the use of 5S and process improvement methods of kaizen in the organization.

Doolen et al. (2008) described an overall kaizen event assessment methodology to measure and evaluate the impact of kaizen events on both human resource outcomes and business performance. They defined that kaizen event is a focused and structured continuous improvement project it uses a dedicated cross functional team to address a targeted work area to achieve specific goals in a specific timeframe usually one week or shorter. They explained kaizen events improve business performance and human resource outcomes. Kaizen events is based on both technological system (improvement tools and techniques) and human resource subsystem (a team of participative employees) to achieve goals. Business performance can be measured through lead time, productivity, on-time delivery rate and defect rate, and human resource outcome can be measured through three capabilities knowledge, skill and attitude of human resources. They studied six variables related to employees’ knowledge, skill and attitude and the variables were: (a) attitude to measure how participants feel about continuous improvement activities, (b) impact on work area to measure about the impact of kaizen activities on work environment, (c) impact on participant to measure the impact of kaizen activities on workers participation perception, (d) skill to measure new skills gained by workers as a result of involvement in kaizen activities, (e) knowledge understanding the need for change and (f) knowledge understanding the need for kaizen. The authors illustrated that kaizen events may vary in effectiveness as human resource outcomes and business performance even within a single organization. They demonstrated that the initial success
in business performance and human resource outcomes may vary over time. They suggested that kaizen event team can better able to achieve targeted business performance goals with limited scope.

**Rivera & Cox (2008)** presented the implementation of 5S kaizen in Frencer Corporation Mexico and it was based on the information gathered from selected company division. They considered 5S kaizen is a part of overall kaizen; it is very powerful tool and can be implemented in both manufacturing and service industries. They stated that these 5S in Japanese words were as: seiri, seiton, seiso, seiketsu and shitsuke. U.K adopted 5S as: sort, set in order, shine, standardize and sustain. They compared the situation before and after the implementation of 5S kaizen in the manufacturing division of Fender Corporation. The before situation gave a result of 61% and after the implementation of kaizen they found result was 82%. They found higher level of standardization regarding procedures, clearing roles, label and formats. They explained 5S kaizen implementation process and it started with the meeting of members then second step was training session of team members about 5S kaizen in the third step team was organized to help with cleaning of their areas including dusting areas in forth step a timetable was arranged in a standardize format for team members activities regarding 5S kaizen and finally auditing format was delivered to the teams. They measured the impact of 5S kaizen on production and on employee’s attitude and the impacts were positive for both areas. They explored the practical and analytical aspects of production related to job satisfaction of employees through 5S kaizen approach and found correlation in job satisfaction, adaptability and efficiency. They argued factors like low educational qualification, marital status of female and children employees and limited growth opportunities were the cause of low attachment and low level of satisfaction among employees. They suggested job satisfaction is the important attribute of employment relationship. It affects productivity, efficiency, absenteeism of workers and largely associated with work environment.

**Nicoleta & Marascu (2009)** discussed the importance of employee’s suggestion system to face competition by the companies and they provided guidelines to implement and draw up an employee suggestion system through which employees can be motivated.
This system especially adopted in automotive industry to fulfill their needs. They stated that to draw up and implement this system company vision, mission, strategy and local conditions should be taken into account. They explained four components of a suggestion system as: (1) Encouraging people to participate and for this lecture on suggestion activities, articles in the company newspaper, reference manuals and campaigns were important tools. (2) Motivate employees to write proposals and authors said that 20% employees think about innovation whether an employee suggestion system is in use or not, another 20% do not want any change and the remaining 60% can participate in creative continuous improvement if an employee suggestion system is in use. They suggested that ideas should be in writing to take ideas from employees as proposal. (3) Review, evaluation and implementation and for these companies assign a suggestion committee or workplace supervisors who review the proposals and take the decision whether the proposal should be implemented or not. (4) Award, payment and commendations and authors described a company has to take decision about reward factors and their choice. The authors presented some qualities for the evaluation of ideas such as effectiveness of idea, wide range of application; eliminate the cause of problem, economic and easy in implementation. The authors suggested that for the success of kaizen an employee suggestion system is important and its use depends on management commitment to support employees.

**Barraza & Pujol (2010)** explained the lean kaizen implementation in the human resource service process of a Mexican public service organization. They found lean kaizen approach helped this organization to improve the cycle times in the selection and hiring process of human resource. They stated that both external and government pressures changed the concept of management in public service organization. The public service organization started the use of techniques, tools and practices adopted by the manufacturing sector. Their study was based on the implementation of lean kaizen in a service process. They found that implementation of kaizen technique was possible in service processes also. They explained some enablers that could be helpful in successful implementation of lean kaizen in service processes and these were: commitment and
determination by senior management to change and improve their service and processes, the establishment of clear and specific objectives for improvement, focus on simple and practical methodologies, techniques, practices to stimulate the participation and involvement of staff in lean kaizen activities, active leadership of both senior and middle level managers for improvement, customer oriented services, establishment of a performance measuring system and effective implementation of best human resource management practices. The authors explained four main activities for effective human resource management and these were; high level of teamwork and small improvement group, effective communication arrangement throughout the redesigning process and employee’s involvement, extensive training and incentives related to performance and pay. The authors explained some hinders that can block the implementation of lean kaizen in service sector which were; a classical bureaucratic mode of organization, trade unions effect the little change and improvement, resistance to change by employees who were in good position, lack of effective professional training in lean kaizen technique and practices, excessive regulation negatively effects employees thinking about quality of services and improvement, lack of a strong relationship between management and employees and lack of a strong link between lean kaizen efforts and human resource management practices.

2.4 RATIONALE OF THE STUDY

The long-term financial success of any company depends on whether its prices enough to financial growth and yields a satisfactory return to its stakeholders (Blocher, 2002). As competition grows the supply exceeds demand thus market control prices more significantly. Berliner & Brimson (1988) noted that ninety percent of product cost is associated in process design stage of product. According to Clark & Fujimoto (1991) competitive advantages of successful automobile manufacturers arise from product development through which automobile companies can produce reasonable products meeting customers’ needs. These studies show that the performance of automobile
companies can be improved through better product development processes. In this context to support this practice techniques target costing and kaizen costing evolved.

Some researchers propose that well implementation of target costing can provide an alternative solution to the above stated problem (Ansari & Bell, 1997). The literature says that the concept of target costing is known in Japanese as “Genkaki-kaku” and it originated by Toyota Motor Corporation in the 1960s. Since that time it has been recognized as a complete system of cost reduction and strategic profit planning (Ansari & Bell, 1997; Hibbets et al., 2003). Literature shows that the manufacturing firms that have adopted these systems have been benefited in the form of increased performance and higher productivity. Wide literature on target costing is available in Japanese journals however in the West its literature in English is limited (Ansari & Bell, 1997). One major reason for the lack of availability of literature on target costing and kaizen costing is that these techniques are implemented in different stages of production, and companies maintain a high degree of secrecy in regarding their production costs. Gagne & Discenza (1995) stated that the available literature on target costing focuses on the target costing benefits, its practices and its suitability in certain environments. Nicolini et al. (2000) added that target costing is successfully implemented in manufacturing companies. Granja et al. (2005) claimed that target costing is a good strategy for cost reduction in the construction industry and target costing is closely related with kaizen costing to achieve continuous cost reduction. Some authors discussed the aspects on whether the manufacturing companies still use traditional management accounting tools or use modern tools.

2.5 INSIGHTS TO THE RESEARCHER

The adoption of target costing and kaizen costing techniques by manufacturing companies has been a worldwide matter in recent years due to increasing competition and customers’ expectations. The review of the literature on target costing and kaizen costing has revealed gaps and also the need for further studies to be conducted. It is observed that both target costing and kaizen costing are vital Japanese costing tools and these techniques are using by mainly manufacturing companies worldwide thus there further
research is needed to know the adoption of target costing and kaizen costing in Indian automobile companies. This thesis seeks to verify that the selected automobile companies use modern cost management methods namely target costing and kaizen costing, the association between these methods and also this study aims to explore the adoption level of the techniques. Therefore, this study refines and extends the work conducted in this area.