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An outline of innovation management process: building a framework for managers to implement innovation

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Abstract

Innovation management emerged as a discipline in the 1890's with Edison's innovation factory. Edison changed the image of the sole inventor by converting innovation to a process with recognized steps practiced by a team of inventors working together– laying the basic design of the R&D department. These steps are streamlined to the major extent in all industries and include idea generation, concept development, feasibility studies, product development, market testing and launch. Innovation management is thus corresponds to the development of new products, processes and services. In cases where the organization does not make or offer products (goods or services), innovation lies in improving the way jobs are done to meet the organization's mission.
This study will outline the general terms related to innovation and how it is evolved through years based on the literature review. Since market demands differ during the time and awareness of the customer increases, companies increased the bar for competencies. This framework starts with the need or problem definition and outlines different techniques to evolve the ideas. In the real life case study, Generator Rewind process is investigated in detail and the core problem is defined. Innovation management process tools are simplified the complex problem and reveals the core problem and basic needs so team members just follow the innovation management process step by step which is determined and investigated before. After that, in order to develop all possible solutions, an engineering team gathered and performed idea generation and developing meetings to find the best solutions. By implementing TRIZ methodology, the team achieved single and lightweight pieces as an innovation for rotor field winding services.

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Keywords: Innovation management process, Innovartion types and models, Poor innovation management

1. Introduction

Today's fast changing environment pushes successful companies to adapt, excel and grow more rapidly than ever before. Consumer needs, technological developments, demands for growth and new governmental regulations put pressure on competitive advantages. Instead of sustainable advantages, today understanding and developing adaptive and changeable settings is key point. Focus has been shifted from financial resources to flexibility and fast incorporation of new technology and services. The former confidence in stability and value of brands are decreasing,

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making no room for safety zones. Even the most stable industries and the strongest brands can be torn apart by a new technology or business model breakthroughs (Jensen, 2006).

Innovation management is the discipline of managing processes in innovation. It can be used to develop both product and organizational innovation. Innovation management includes a set of tools that allow managers and engineers to cooperate with a common understanding of goals and processes. The focus of innovation management is to allow the organization to respond to an external (customers, suppliers, competitors, consultants, media, globalization etc.) or internal (technical divisions, marketing and sales, logistics, production etc.) opportunity, and use its creative efforts to introduce new ideas, processes or products (Kelly and Kranzburg, 1978).

To achieve successful innovation management it is not enough to understand the important points. Companies should consider the poor innovation management examples. Generally poor management can be categorized into five classes; (1) top management, (2) organizational, (3) financial, (4) adaptation and (5) implementation issues. Unclear innovation strategy is a vital step for successful innovation management and generally if there is a problem in top management this condition cannot be guaranteed. In this situation innovation strategy is often badly defined and some areas are simply overlooked and never funded. What is more, if there is an unclear issue for top management in terms of innovation strategy this will lead to non-committed management. Nobody is in charge of innovation so manager will not commit to any decision regarding innovation projects. From the view of organizational issues, organizational environment is affected directly and employees do not trust the company that they are interested in their ideas. The critical third point in the poor innovation management is considered as financial issues. CEO's focus on delivering short-run results, forcing low prioritizing on costly innovation investments and resources are stretched between too many projects. Finally, many creative and potential innovation ideas become blocked and never have any chance to deliver values to an organization. This dissatisfaction with innovation has to do with implementation or execution. Applying traditional management practices that lead to success with sustaining technologies always lead to failure with disruptive technologies.

Importantly, innovation management is not relegated to R&D; it involves workers at every level in contributing creatively to company's development, manufacturing, and marketing. By utilizing appropriate innovation management tools, management can trigger and deploy the creative juices of the whole work force towards the continuous development of a company. The process can be viewed as an evolutionary integration of organization, technology and market by iterating series of activities: search, select, implement and capture (Clark, 1980).

2. Literature Review

2.1. Innovation,

Innovation is development and introduction of a new idea and transforming that idea into a product, process, object, or service. O'Sullivan (2000) stated that "Innovation is the process through which productive resources are developed and utilized to generate higher quality and/or lower cost products than had previously been available". The process begins with the recognition of a problem or finding an idea, extends over the problem-solving and the creation of productive capacity to the introduction of the new product or service on the market." Edison said that innovation "is more than simply coming up with good ideas: it is the process of growing them into practical use" (Bessant & Tidd, 2009). The distinction between "invention" and "innovation" is that invention is the creation of a new idea or concept, and innovation is turning the new concept into commercial success or widespread use.

The process begins with the recognition of a problem or finding an idea, extends over the problem-solving and the creation of productive capacity to the introduction of the new product or service to the market. Dundon (2002) explains innovation as "Innovation is the profitable implementation of strategic creativity" and comprises four key components (1) creativity, (2) strategy, (3) implementation and (4) profitability.

Innovation is both a strategic factor for firms willing to stay competitive in the long run (Prahalad & Hamel 1990 and Gourville 2005) and one of the least known aspects of business (Takeuchi & Nonaka 1986). Due to increased competition and shifts in demand and customer taste (Danneels 2002), it seems extremely important for firms to manage innovation in a fast and flexible way in order to overcome competitors and achieve a sustainable competitive advantage (Takeuchi & Nonaka 1986 and Poolton & Barclay 1998).

Defining innovation can be a complicated process. Sometimes classification is used to define innovation. According to scope classification common types are (Vacek, 2009);

- *Incremental innovation;* Incremental innovation is typically carried out to improve a product with some new feature which is easily integrated. It improves competitiveness within current markets or industries.

- *Radical (or breakthrough) innovation*; Radical innovation is generally associated with completely novel steps and unforeseen uses for existing technology.

Another approach is based on the place that innovation occurs and according to this approach common types are;

- *Product Innovations (good or service);* Product innovation is the development of a new product; on the one hand keep up with the technological development.
- *Process Innovations;* New or significantly improved production or delivery method which includes significant changes in techniques, equipment and/or software.
- *Marketing Innovations;* A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing
  - *Sustaining Innovations:* Better products that can be sold with higher margin to demanding customers (incumbents win)
  - *Disruptive Innovations:* Commercialization of simpler more user-friendly products which are cheaper and targeted to new or less demanding customers (new entrants win)
- *Structural Innovations;* Structural innovations are innovations in the functionality of the working structure (e.g. the implementation of new working hours, work places or enhanced processes of human resources development)

Companies with high innovation potential have high scores in (1) Strategy and planning, (2) Marketing, (3) Technological process, (4) Quality management, (5) Logistics and (6) Human resources. These companies have ability to evaluate the possibility of the innovation idea and to systematic collection of all impulses that could lead to innovation. If a company can be said as an innovative company than in this company, support and trust is developed, all employees are embrace and learn from failure and "can do" environment created. If there is focus on financial points, strict guidelines and control, strong hierarchical structure than innovation can be considered as a purpose that cannot be achievable (Vacek, 2009).

2.2. Innovation types and process models

Many companies claim to be innovative, creative and ahead of their competitors despite the fact they are not using appropriate metrics and methods for innovative processes and outputs. There must be organizational support for the development of more accurate policies to ensure innovation cultures are developed from company inception.

The selection process for a system for managing innovation is the same as the process for choosing any improvement methodology and embarking on organizational change. In-depth diagnosis of the state of the company, its resources and processes must be undertaken to ensure best-fit with the measurement metrics and management approach. (Cormican and O'Sullivan, 2004) There are as many models for innovation as there are definitions for it, the majority of innovation theories are process-based. Kuczmarski (1996) however claims innovation is an art. He argues that it is not a science; hence it is not possible to predict the success of an innovation until it is accepted by its market.

Since the 1950's there has been a proliferation of innovation models, each purporting to explain and/or guide the process of innovation within industrial firms. Table 1 summarizes Rothwell's view of the evaluation of innovation models from the 1950's to the 1990's in five successive generations plus the latest innovation model, open innovation (Hobday , 2005).

1st Generation: Technology Push: First generation models of innovation were called technology push models which were simple linear models developed in the 1950's that treated innovation in a sequential process that took place in discrete stages. As Rothwell argues, the model was often used to justify additional R&D spending by firms and governments as it was held, this would lead to greater innovation and in turn faster economic growth (Hobday, 2005).

Table 1: Development of Innovation Models (Adapted from Hobday, 2005)

Model	Generation	Characteristic
Technology Push	First (1950-1960)	Emphasis on R&D and Science. Market receives the results of the R&D
Market Pull	Second (1960-1970)	Emphasis on Marketing , market is the source of new ideas for R&D
Coupling Model	Third (1970-1980)	Feedback loops between R&D and Marketing
Interactive Model	Fourth (1980-1990)	Combinations of push and pull models, integration within firm , emphasis on external linkages
Network Model	Fifth (1990-2000)	Emphasis on knowledge accumulation and external linkages, systems integration and extensive networking
Open Innovation	Sixth (2000-)	Internal and external ideas as well as internal and external paths to market can be combined to advance the development of new technologies

2nd Generation: Demand Pull Models: Rothwell argues that in the latter half of the 1960s, empirical studies of innovation processes began to emphasize market theories of innovation. These were again linear in nature, stressing the role of the marketplace and market research in identifying and responding to customer needs, as well as directing R&D investments towards these needs. In these models, the marketplace was the chief source of ideas for R&D and the role of R&D was to meet market demands (Hobday, 2005).

3rd Generation: Coupling or Interactive Models: The third generation model is coupling model that recognizes the influence of technological capabilities and market needs within the framework of the innovation firm (Preez and Louw, 2008). Innovation was characterized by a coupling of science, technology and the marketplace. Although the coupling approach contains feedback loops, it is a sequential model with limited functional integration. One of the most popular linear innovation process models is the Stage-Gate model from Cooper (Cooper, 1990). The stage-gate model divides the innovation process into stages with gates, in which evaluators decide whether to continue or to kill the project.

The advantage of the stage gate process is that each level is involved with engineers, marketing engineers, financial employees and so on which ensures better quality in the innovation process and reduces the critical issues. In other words, each phase has its cost, duration and probability of success. Activities were standardized and the indicator of the process performance significantly improved. The problem with this model is process is taking too much time due to approvals from different individuals.

4th Generation: Integrated Models: These models are combinations of push and pull models and emphasizes on external linkages. Although third generation models were non-linear with feedback loops, Rothwell criticized them as being essentially sequential in nature. Japanese automobile companies' integrated or parallel models began to be developed that involved significant functional overlaps between departments and activities.

5th Generation: Integration and Networking Models: This model offers innovation as a distributed networking process based on corporate alliances, partnership, joint venture and government funding. This increases the strategic alliances with suppliers and customers also collaborating competitors. According to Rothwell, fifth generation model is the development of the fourth model and fifth model represents the electrification of innovation (Hobday, 2005). Fifth generation models are closed networks of innovation. In closed innovation a company generates, develops and commercializes its own idea. This philosophy of self-reliance dominated the R&D operations of many leading industrial corporations for most of the 20th century (Chesbrough, 2003).

6th Generation: Open Innovations: A company commercializes both its own ideas as well as innovation from other firms and seeks ways to bring its in-house ideas to market by deploying pathways outside its current business. This is also network model of the innovation process, but instead of being only focused on internal idea generation and

development, internal and external ideas as well as internal and external paths to market can be combined to advance the development of new technologies (Preez and Louw, 2008).

3. Innovation Management Process and A Case Study

3.1. Innovation Management Process

Innovation process starts with defining the customer and jobs need to be done. At initial phase, customer needs are uncovered so it is not wrong to say that core problem is to discover unmet needs and define customer needs. After defining core needs, segments of opportunities need to find, market opportunity sized, competitive analysis conducted, innovation and pricing strategies formulated. After all these analysis completed finally solution can be defined and evaluated. This process can be classified and analyzed into 6 steps which are (1) identifying innovation projects, (2) scoping and focusing innovation projects, (3) leveraging brainpower and turbo-charging creativity, (4) selecting the best ideas for further development and design, (5) evaluating how new products/services perform prior to release and finally (6) diagnosis problems and improvements for prior commercialization. For each step there are several tools and techniques that can be selected based on the structure of the company, target market or product/service type.

3.1.1. Techniques and Tools for Identifying Innovation Projects

Once you have defined your opportunity you can scope and focus your innovation projects. There are several techniques which will enable you to create innovation opportunities. One of them is called as "Jobs to Be Done (JTBD)". In the 1960s, Theodore Levitt said, "People don't want a quarter-inch drill; they want a quarter-inch hole." His point was profound: people buy products and services to accomplish a task or achieve a goal. We call these tasks or goals jobs-to-be-done (URL 1). Jobs to be done process is a revolutionary concept that guides toward innovation and helps move beyond the norm of only improving current solutions (Silverstein et al., 2009). There are 6 steps for JTBD process which are (1) Identify a Focus Market, (2) Identify Jobs Customers Are Trying to Get Done, (3) Categorize the Jobs to be Done, (4) Create Job Statements, (5)Prioritize the Opportunities and (6) Identify Outcome Expectations Regarding the Job.

To identify innovation process to other technique which is commonly used is "outcome expectations". This technique means that companies must analyze the job of interest and ascertain from customers what metrics they use to measure, how well the job is being executed (URL 2) Instead of assuming what their customers want or need, typically product developers determine the voice of the customer (VOC). Outcome Expectations takes VOC a step further by focusing on JTBD rather than product improvements. The objective is to translate customers' needs into products or services they can't live without (URL 2) There are four types of outcome expectations (1) Desired outcomes customers want to achieve, (2) Undesired outcomes customers want to avoid, (3) Desired outcomes provides want to achieve and (4) Undesired outcomes provides want to avoid. By segmenting outcome expectations in this manner, it is possible to find what the customer wants and doesn't want, as well as what the provider wants and doesn't want. Both parties must benefit from the innovation or it will never reach viable commercialization (Silverstein et al., 2009). After the JTBD identified and "Related Outcome Expectation" identified outcome statements needs to be created.

One of the most useful techniques to identify project is using values quotient. Value quotient is the ratio of solution's desired outcomes to its undesired outcomes. This is a great exercise exploring value ratio for all choices available to customer. Generally value quotient is represented using a graph. These graphs illuminate solutions whether they are inferior or superior to other alternatives and which superior elements should be prioritized for protection and strengthening or which inferior elements should be prioritized for improvement (URL 3). For example, Sanyo engineers received a patent for an electric washing machine that generates water streams containing an electrolyzed liquid that cleans clothes without detergent. In doing so, this creates the potential to close several value gaps, including a reduction in the total cost of ownership, a reduction in harm to the environment, in resource usage, and in germs and bacteria left in clothes after washing (Silverstein et al., 2009).

3.1.2. Techniques and Tools for Scoping and Focusing Innovation Projects

Scoping and focusing innovation projects can be seen as a redefinition problem. From this point of view "Heuristic redefinition" can help a team to visualize the various elements of a problem as well as its underlying structure

(Revelle, J. B., 2004). The heuristic redefinition process is a robust tool used to generate alternative problem statements. Unlike other problem identification tools (e.g., opportunity analyses in marketing, function modeling in TRIZ, Pareto classification in Lean), HRP is based on the existing system or process under consideration (URL 2) As HRP is intended to stimulate thinking about the role of subsystem elements or sub-process steps on the overall system goal(s), it is a powerful tool to highlight and strengthen links between system levels, between process steps, and between the system or process and the overall strategy (URL 2). Heuristic redefinition begins by creating a visual presentation of a problem. This is followed by a systematic evaluation to search for the optimal solution to the problem. Development of a visual presentation is encouraged. It is accomplished by having a team draw a picture of the overall system as well as symbol or icons for the most important components of the problem. The isolation process clarifies the problem as a system because the resulting picture represents system components, its subsystems and interrelationship expressed in terms of specified goals (Revelle, J. B., 2004).

Although heuristic redefinition is a useful approach, to examine the innovation opportunity across the dimensions of time (past, current, future) and space (super-system, system, subsystem) "Nine Window" technique can be also used. The core of Nine Windows is a simple grid consisting of nine boxes, or windows. Filling in the boxes provides eight additional perspectives on the problem which is identified before and helps to decide how and at what level to apply innovation (Silverstein et al., 2009). After filling in the nine windows grid, re-assess the innovation opportunity to determine whether focusing on efforts at the system, subsystem or super system level, and in which temporal dimension (URL 4).

Job Scoping ensures that the innovation opportunity is effectively targeted at an actionable level. If the project scope seems too broad, Job Scoping helps to drill down a level by identifying obstacles that keeps away from goal. If the scope is too narrow, Job Scoping moves the focus up a level to explore so working on the innovation problem in the first place is refined (Silverstein et al., 2009).

3.1.3. Techniques and Tools for Leveraging Brainpower and Turbo-Charging Creativity

Heuristic Ideation is a very efficient group technique that helps to generate new and innovative ideas. The participants compare two items or concepts that are not apparently related (McFadzean, 2002). In order to implement this technique two items of interest that are already in existence but are not connected need to be chosen. On the other hand, scamper can be another useful technique for leveraging brainpower. Scamper is a technique which can use to spark creativity and help to overcome any challenge that may be facing. In essence Scamper is a general-purpose checklist with idea-spurring questions. What is more, concept trees are commonly used in this stage. Concept tree starts with an idea and uses that idea to identify concepts or connection points from which alternative ideas can be derived. By using an existing idea as a source of inspiration for untapped ideas, Concept Tree can lead to a unique approach to an old problem.

3.1.4. Techniques and Tools for Selecting the Best Ideas for Further Development and Design

The KJ Method was developed as the Affinity Diagram by Jiro Kawakita in the 1960s and has become one of the Seven Management and Planning Tools used in Total Quality Control. It provides a way to organize and refine innovation ideas, sparking further dialogue and achieving consensus about which ideas are worth developing. In advance of the idea-generating session, participants receive a description of the challenge, posting the JTBD associated outcome expectations so the team can keep these in mind. Forming a team around 4-6 and including the stakeholders or the ones who lives the problem will create better ideas during development stage. After all ideas created and posted by all participants giving more time to the participants will create time to everyone to submit more ideas inspired by the first round of ideas. This is called YES&AND activity. The next step is sorting the ideas into related categories based on functionality, features, outcome or whatever makes sense and voting on ideas. Each team member gives 3 to 5 votes to place on the same or multiple ideas. The idea with the most votes merit further discussion and/or development. KJ method allows free and creative thinking and frees everyone from problem so that can pursue creative thinking based on facts without any constraints.

"Six Thinking Hats" which is written by Edward de Bono and the associated idea parallel thinking provide means for groups to plan thinking processes in a detailed and cohesive way. De Bono identifies six distinct directions in which the brain can be challenged. In each of these directions the brain will identify and bring into conscious thought certain aspects of issues being considered (e.g. gut instinct, pessimistic judgment, neutral facts). Since the hats do not represent natural modes of thinking, each hat must be used for a limited time only. However, many will feel that using

the hats is unnatural, uncomfortable or even counter-productive and against their better judgment. Colored hats are used as metaphors for each direction. Switching to a direction is symbolized by the act of putting on a colored hat, either literally or metaphorically. These metaphors allow for a more complete and elaborate segregation of the thinking directions (Birdi, 2005).

3.1.5. Techniques and Tools for Evaluating How New Products/Services Perform Prior to Their Release

A prototype is an early sample, model or release of a product built to test a concept or process or to act as a thing to be replicated or learned from. This term used in a variety of contexts, including semantics, design, electronics, and software programming. A prototype is designed to test and trial a new design to enhance precision by system analysts and users. Prototyping serves to provide specifications for a real, working system rather than a theoretical one. It also tests the robustness of design and its sensitivity to uncontrollable factors (Hernley, 2011).

One of the most common pitfalls is the tendency to wait until they have everything right before sharing their prototype with others. Ironically, the primary reason of prototyping is to communicate ideas and get feedback to validate project requirements. It's human nature to want that prototype to be "perfect" before showing it to anyone.

Prototyping lets visual communication and interactive design concepts to both team members and non-technical stakeholders so that constructive feedbacks can gather earlier in the process when it's most valuable. A prototype to validate existing requirements, uncover missing requirements, help to clients understand exactly what they need, and ensure that correct designing based on correct assumptions. Repeated sharing, gathering feedbacks and refining prototypes through as many cycles are required to reach a right decision. Each cycle turns the dial, bringing the customer's needs, and the project itself, into clearer and clearer focus.

3.1.6. Tools for Problem Diagnosis and Improvement Prior to Commercialization

Control charts are one of the main tools for the problem diagnosis and improvement stage. Control charts have upper and lower warning or control limits that indicate the threshold at which the process output is considered statistically 'unlikely' and are drawn typically at 3 standard errors from the center line. If the process is in control (and the process statistic is normal), 99.7300% of all the points will fall between the control limits. Any observations outside the limits, or systematic patterns within, suggest the introduction of a new (and likely unanticipated) source of variation, known as a special-cause variation. Since increased variation means increased quality costs, a control chart "signaling" the presence of a special-cause requires immediate investigation (Wheeler, 2010).

Common uses of the Ishikawa diagram are product design and quality defect prevention, to identify potential factors causing an overall effect. Each cause for imperfection is a source of variation. Causes are usually grouped into major categories to identify these sources of variation. Cause & Effect (C&E) Diagram enables you to brainstorm and categorize the variables that might be causing poor performance in your new process, product, service, or solution (Poots and Woodcock, 2012).

A Control Plan provides a single point of reference for understanding process characteristics, specifications, and standard operation procedures also known as SOP for the process. A control plan enables assignment of responsibility for each activity within the process. This ensures that the process is executed smoothly and is sustainable in the long run (Poots and Woodcock, 2012). Control Plan is critical to ensuring that your innovation will be produced or delivered according to your careful design, regardless of location, personnel, environment or other variables that you won't be able to control (Silverstein et al., 2009).

3.2. Case Study

In this study, innovation management process tools and techniques are classified according to their purpose and then examined in detail. After a general outline of innovation management process created for managers, a real life case study about generator rewind process is presented.

One of the hard tasks performed during "Generator Rewind" is the copper removal. Each copper bar looks like a children's slinky tool and having 2 coil brazed bar at the corner which forms a layer and nested in a slot up to 8 layers. Since the length of the copper is more than 6 meters, copper removal needs 6 to 8 men to handle.

The first thing needs to be performed is to define the core problem that the customer is having so JTBD process is used and needed jobs are identified. After initial stage completed and the case identified the next thing is to identify the possible solutions.

In order to develop all possible solutions an engineering team gathered and performed idea generation and idea developing meetings to find the best solutions. According to type of the problem and the target market outline of innovation management process and related tools are considered. Thus, by implementing the TRIZ solution "SEGMENTATION", the team decided to cut the layer pieces into smaller bars for operators to carry out easier. During the segmentation the pieces will be brazed together which requires high quality surface and a straight cut to achieve high quality braze. Figure 1 represented the US 2013/0312250 Generator Rotor Refurbishing System and Method of Repairing a generator Rotor. Figure 2 is represented the Cutting Tool vs. Rotor Forging Size Comparison.

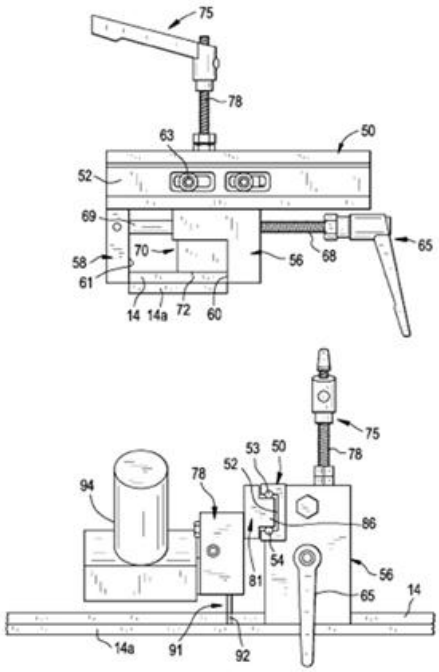

Fig. 1: US 2013/0312250 Generator Rotor Refurbishing System and Method of Repairing a generator Rotor

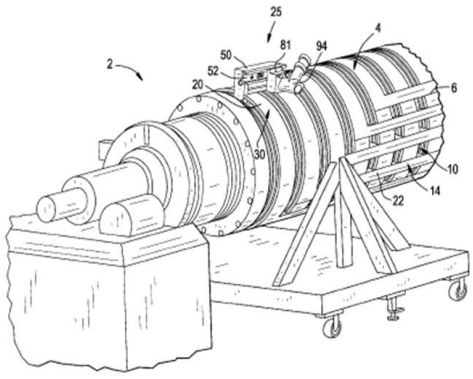

Fig. 2: Cutting Tool vs. Rotor Forging Size Comparison

The developed cutter provides valuable features as follows;

- Piece 75 – While the cutter (92) cutting the copper bar (14) the team did not want the blade hit the below layer (14a) so adding this piece lifts the cutting fixture up and down to adjust the cutting depth.
- Piece 50 – This track enables a straight cut while guiding the cutter
- Piece 65 – Pulls back piece 58 to clamp the fixture on the copper bar to hold it stiff

Instead of having a continuous field winding the team performed the segmentation and achieved single and lightweight pieces as an innovation for rotor field winding services. The new parts are easy to handle and reduce the ergonomic concerns.

4. Conclusion

Innovation management is a critical interdisciplinary in 21st century for every company. Globalization make business environment tougher in terms of competition and companies should be recognize the importance of innovation. After Edison changed the image of the sole inventor by converting innovation to a process with recognized steps practiced by a team of inventors working together in 1980s, companies start to manage innovations step by step.

Innovation management can be used to develop both product and organizational innovation and includes a set of tools that allow managers and engineers to cooperate with a common understanding of goals and processes. It is an obvious necessity that managers need a clear road map in innovation management which is a complex procedure especially because of the characteristic of innovation itself. A company with high innovation potential scores should study about their strategy and planning in detail. They have an idea and vision about their company future and their innovation programs. They should have a technological process which can lead the future company's competitiveness in the industry. What is more quality management is one of the most important issues in the monitoring of changes. Innovative companies have systematic collection of all impulses that could lead to innovation and they have the ability to evaluate the possibility of the innovation idea. At this stage, creativity of employees and good team work is vital.

As it is clearly seen in the case study, complex problems can solve when core problems and basic needs are uncovered. To define this initial stages innovation management process has a vital role to know where to start and how to carry on the project itself. New ideas or innovations are difficult to generate nevertheless to manage the process of innovation is as difficult as the generating idea itself. In "generator rewind" process JTBD is simplify the complex problem and reveals the core problem so team members just follows the management process step by step. Innovation process can be classified and analyzed into 6 steps which are (1) identifying innovation projects, (2) scoping and focusing innovation projects, (3) leveraging brainpower and turbo-charging creativity, (4) selecting the best ideas for further development and design, (5) evaluating how new products/services perform prior to release and finally (6) diagnosis problems and improvements for prior commercialization.

Analyzing the innovation management system in this way has two common advantages. Firstly it is simple to manage when define the steps of a complex process and secondly classification of techniques can be a clear road map for managers and provide a great help to them. As in every field of business-life practices, globalization and high competition highlighted the importance of innovation management for firms in terms of implementation. New ideas can be influential not only knowing how to operate technical equipment but also having developments in administrative fields. Rapidly changing conditions affected each company in different way. Companies who started improvements before and accelerated technology transfer continuously gain advantages among its rivals. On the other hand companies who are just starting their development process in terms of innovation management had to move forward with right steps because there is already a gap between their rivals. Consequently, it is not wrong to say that in creating and sustaining competitive advantages require an effort beyond cost reduction and operational efficiency. Furthermore, innovation strategy plays an important role to manage activities that transcend the limits of business units, and thus it contributes the development of basic skills. From this point of view, creating a general outline with this study can be considered a necessity but need to be extended from several ways.

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