

SIX SIGMA APPROACH OF HRM FOR BUSINESS EXCELLENCE

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Abstract

Six Sigma cannot be viewed as a stand-alone methodology, but as part of a corporate strategy or business philosophy. World class firms like Motorola and GE have relied on six sigma to strengthen themselves, build their cultures for higher performance, are too often left out of human resources functions. Six sigma initiatives have made Caterpillar, to develop a strategic vision that provided a roadmap for change based on fact-based analysis. Samsung, the Korean giant developed a reputation for efficiency, innovation and quality. Intangible and soft processes of HR are possible to measure performance, which pulls the HR function closer to strategic alignment with organizational goals. This explorative study initiated with the conceptual basis for six sigma and identifies six sigma phases, roles, initiatives. Further this study geared with how Six sigma pioneered at Motorola followed by General electric, Caterpillar and Samsung Companies. Then the current study explores the application of linking six-sigma to the HR function. Further this study continued with six sigma approach to HRM resulted into finding out HR competencies.

Key words

Six Sigma, strategic vision, innovation, strategic alignment, HR competencies.

Introduction

While Six Sigma is most commonly looked at as a quality or process-improvement methodology, it is also be viewed as a problem-solving toolset-and even as a corporate philosophy. What is critical for HR professionals to understand is that Six Sigma has a robust set of tools that can be applied to solve business issues. It is a way to actually drive metrics, rather than just tracking them. Six Sigma aims on clearly identifying customer requirements, identifying and prioritizing reasons that requirements are not met, and then systematically creating solutions and executing them so that improvements can be sustained. By breaking down the functions of the organization into the individual processes that takes place and carefully and critically analyzing, improving, and controlling them, improved process management can be the key to driving organizational strategic goals in a organized manner. Through its 6 Sigma initiative, Caterpillar developed a strategic vision that outlined a roadmap for change based on fact-based analysis. Caterpillar's initiative also led to product innovations like its phenomenally successful low-emissions diesel

engine and to redesigned processes including a streamlined supply chain function. Eventually revenues had grown by more than 80 percent.

What Is Six Sigma?

Six sigma is a highly systematic approach used to reduce the process variations to the extent that the level of defects are drastically reduced to less than 3.4 per million process, product or service opportunities. It is a technique pioneered by and applied to Motorola Company in the 1980s by Bill Smith, a Motorola engineer who became known as “the father of Six Sigma.” After that, the other companies, such as Bank of America, Honeywell International, Raytheon, and General Electric, have taken these learned processes and expanded them. Even though many people have reservations about the potential savings from Six Sigma, a story by Charles Waxer reports that GE saved more than \$12 billion over five years, Honeywell saved \$800 million, and Motorola saved \$15 billion over 11 years. Many companies take the Six Sigma process and best practices and makes the technique its own.

Objectives of the study

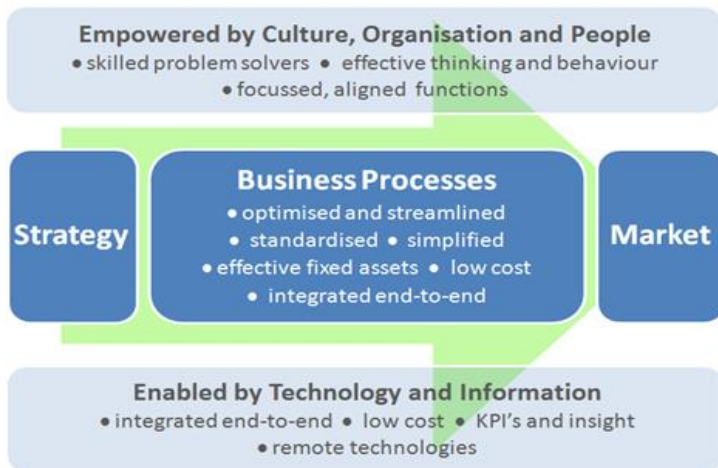
1. To find out Six Sigma approach in Motorola, General Electric, Caterpillar and Samsung companies;
2. To know how to link HR and Six Sigma; and
3. To find out HR Competencies for Six Sigma for business excellence.

Research methodology

Methodology of this paper is explorative in nature to find out how various organizations are pioneering in six sigma. Company websites are studied to identify how six sigma is initiated and implementing for organizational excellence. The companies studied for this paper are Motorola, General Electric, Caterpillar and Samsung.

Figure: 1

Frame work for six sigma initiatives



Source: Kim H. Pries. Six Sigma

In the complex, competitive, and global world of business, there is but one certainty - in order to remain competitive organizations have to find ways to significantly accelerate productivity, as the pace of business continues to change rapidly year after year. Initiatives of Six sigma take from aligned strategy and business process combined with empowered culture and enabled and sophisticated technology.

Six sigma pioneered at Motorola

The term “Six Sigma” was coined by Motorola, and created the original formulas in the 1980’s. The result was a culture of quality that spread throughout Motorola and led to a period of unprecedented growth and sales. The crowning achievement was being recognized with the Malcolm Baldrige National Quality Award.

Japanese management take over the Motorola factory that manufactured television sets in the United States. Under Japanese management, the factory was soon producing TV sets with 1/20th the number of defects they had produced under Motorola management. In 80s the company responded to the competitive pressure by engaging in a publicity campaign describing “unfair” competition and calling for political protection solutions. Finally, even Motorola’s own executives admitted that their quality stinks, and Motorola decided to take quality issue seriously. Bob Galvin, Motorola’s CEO at the time, started the company on the quality path and became a business icon largely as a result of what he accomplished in quality at Motorola. In 1987, Motorola launched a quality program in long term, called “The Six Sigma Quality Program”. The program was a corporate program which established Six Sigma as the required capability level to approach the standard of 3.4 DPMO. This new standard was to be applied in everything, that is, in products, processes, services and administration.

Six Sigma Implementation in General Electric

General Electric is one of the most successful companies implementing six sigma has estimated benefits on the order of \$10 billion during the first five years of implementation. The former CEO of GE, Jack Welch, decided to implement Six Sigma in GE in mid 1990’s. In January 1996, teaming with Six Sigma Academy, Welch announced the launch of Six Sigma at GE. At that time, he called Six Sigma the most ambitious undertaking the company had ever taken on. Welch stated “Quality can truly change GE from one of the great companies to absolutely the greatest company in world business.” He said to his Corporate Executives that “Everyone in this room must lead the quality charge. There can be no spectators on this. What took Motorola ten years, we must do in five – not through shortcuts, but in learning from others”. From that moment, Jack Welch became the global promoter of Six Sigma.

Few of the key aspects of Jack’s approach when launching the Six Sigma program are:

- Leaders of every business unit championed Six Sigma, so the project was sponsored from the top.
- Six Sigma projects were reviewed quarterly at the executive level, providing visibility to leadership on what was important.
- GE’s top talent was assigned to lead every initiative, even taking them out of their jobs to become Black Belts.
- Rewards and recognition went to the Six Sigma community because they were the best, driving home the message of how important this methodology was to the organization.

- Extensive, multi-month training was provided for the leaders of the initiatives.
- Training on concepts and tools to solve problems in everyday work was provided to thousands of Green Belts, in the famous workout sessions you may have read about.
- Every project had to tie into the business objectives and the bottom line of GE, directly contributing to the company's success.

Active role of HRM in Caterpillar to execute Six Sigma

In 2001, to achieve the company's long-term strategic goals, Caterpillar took initiatives for Six Sigma and launched a program to drive change. This 6 Sigma process was and continues to be, extremely successful in the company. Caterpillar is the world's largest manufacturer of construction and mining equipment, diesel and natural gas engines, and industrial gas turbines. It also delivers many related services, including financial, logistics, and remanufacturing. Caterpillar reaches every continent with its products and services and, as of 2010, employs approximately 115,000 people. Caterpillar typically doesn't sell to the end customer but uses a global dealer distribution network.

Over the last fifteen years, Caterpillar has demonstrated the usefulness of 6 Sigma in achieving its strategic goals. This was accomplished by wholly integrating the methodology and its principles into all aspects of the business, including suppliers and dealers. It also allowed the amalgamation of knowledge from Black Belt projects across business units. Further, Caterpillar strongly believes that, by using 6 Sigma as a change driver, its new goals are achievable. One experience that exemplifies Caterpillar's continuing integration of 6 Sigma into all aspects of the business is a project that will improve threaded joint design in the assembly process. This project focuses on continuous improvement in Caterpillar's quality culture and provides an opportunity to leverage best practices and replicate solutions across the company. In addition the company is also working on a 6 Sigma project that focuses on ergonomic improvement. This project is helping Caterpillar put processes in place that allow a proactive and, ultimately, preventive approach to ergonomic injuries—providing an enhanced work environment for employees.

Six sigma excellence in Samsung

Korean giant, Samsung Electronics Co. (SEC), is perfecting its fundamental approach to product, process and personnel development by using Six Sigma as a tool for innovation, efficiency and quality. Samsung's strategic objective is to create both qualitative and quantitative growth and deliver competitive value to all stakeholders like customers, partners and shareholders while maintaining profitability. As a basis of its Six Sigma thrust, Samsung began by pursuing a pervasive goal of developing its internal resources, exclusively people, to put innovation first in the development and design of products, in manufacturing and marketing, and in the growth of employees.

When implemented strategically, Six Sigma can support companies turn over, working capital faster, reduce capital spending, make existing capacity available and new capacity unnecessary, and produce even better results from the design and R&D functions. Such outcomes enrich working environment that stimulates employee development, motivation, morale, empowerment and commitment, leading to increased opportunities for promotions.

The factors that have made Six Sigma successful throughout its international operations and culture are

1. Strong proactive support with sufficient resources provided by top management.

2. Receptiveness and accomplishment of Six Sigma's basic disciplines by employees.
3. Integration with all innovative and infrastructure activities.
4. Perfect and fair evaluation of all successful Six Sigma projects, with significant recognition and rewards for employees.

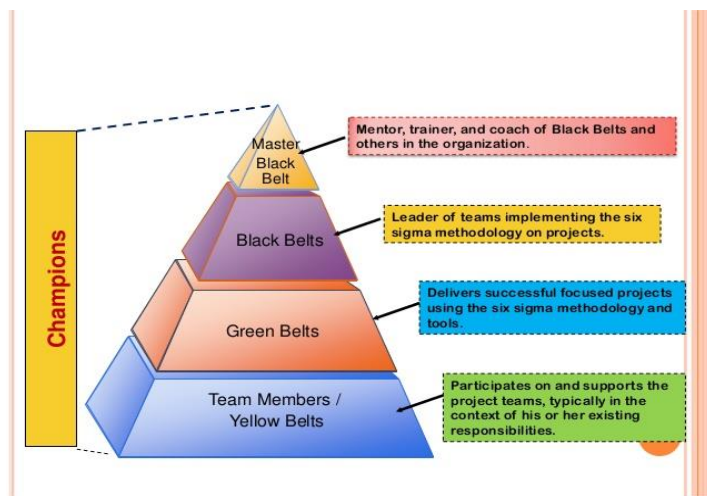
Linking HR and six sigma

The purpose of linking is activating and energizing human resources assigning them six sigma standardized roles and making them accountable towards their contribution for business excellence. Usually yellow belts are participants and supporting team followed by green belts those are users of six sigma methodology and tool. Black belts are the leaders who provide direction to team members and getting the direction from master black belts.

Master black belts are accountable for mentoring, training, coaching the team. This is the way the role of HR is dynamically changing, enhancing and contributing for business excellence and ultimately leading to competitive advantage. The following figure is showing that how the multidimensional roles of HR are leading to become champions for organizational success.

Figure: 2

Six sigma approach to HRM



Source: Donald Lighter - 2012

HR contribution to Six Sigma

Six Sigma should not be viewed as an objective methodology, but subjective to an overall business Strategy and Philosophy. Without this commitment from Senior Management, process performance gains will not be optimized and greatly reduced. The business need for Six Sigma will have to be communicated systematically and reinforced at every possible opportunity until it becomes part of the way people think and act. Senior Management must be willing to make and sustain this commitment.

Six Sigma comes with a series of roles that need to be put in place:

- **Executive Leadership**

This includes the CEO, MD and other members of top management. They are responsible for setting a vision for Six Sigma implementation, while additionally demonstrating their commitment by providing the other role holders with the freedom and resources to explore new ideas for breakthrough improvements.

- **Champions**

Champions got direction from the senior management and take responsibility for the promotion and integration of Six Sigma execution across the organization.

- **Master Black Belts**

The role of master black belts is to assist champions and mentor Black Belts and Green Belts. They may play a role of external consultants initially brought in to establish the Six Sigma program. If internal, they will be 100% committed to the role, ensuring that Six Sigma techniques are applied consistently and correctly.

- **Black Belts**

These operate under the guidance of a Master Black Belt, for delivering the Six Sigma projects. They devote 100% of their time to the task, and are trained in the majority of the Six Sigma tools and techniques. They often train and mentor the green belts. They may be external contractors until an internal resource is trained and experienced.

- **Green Belts**

These are the employees who take up Six Sigma execution along with their other job responsibilities, operating under the guidance of Black Belts as part of the Six Sigma project. They are trained in most of the tools outside of advanced statistical techniques.

- **Yellow Belts**

May not always designated, but if so, these are employees within the target areas used to execute, monitor and control the improved processes. Training in basic Six Sigma awareness and specific tools are provided by green or black belts.

From the above study following are identified as HR competencies for Six Sigma

Findings of HR Competencies for Six Sigma

1. Team building competency has proved that it is one of the essential competencies of HR for the success of Six Sigma.
2. Able to create a leaning culture provides a platform for creating an efficient six sigma system.
3. Develop coaching and mentoring skills is one of the hubs of HR functions for the success of six sigma program.
4. Presentation and training skills are the skills those provide direction to the members to move further steps.
5. Improve project management skills leads to continuous improvement of six sigma projects.

6. Able to encourage statistical thinking will make decision making process accurate.
7. Competencies in setting challenging targets will allow people in the organization being tough in handling difficult situations.

Discussion for further research

Being most of this study is based on secondary data, this paper has focused on past and existing process of six sigma. For further research, it can be discussed of future orientation of six sigma which can make fuel to competitive advantage.

Conclusion

Six Sigma is powerful approach to achieve breakthrough improvements in manufacturing, engineering and business processes. The approach relies heavily on advanced statistical methods that complement the process and product knowledge to reduce variations in process. It is new way of doing business that would eliminate the existing defects efficiently and would prevent defects from occurring. Even though Six Sigma technique pioneered by Motorola, today it is wide spread of the business world and integrating with human resource function. This emerging trend may open the doors for many companies to initiate Six sigma approach of HRM for business excellence. Six Sigma comes with a series of roles those Executive Leadership, champions, master black belts, black belts, green belts, and yellow belts. Team building, learning culture, coaching and mentoring, project management are the major HR contributions in six sigma process.

Bibliography

Book references

1. A. Aruleswaran (2009), Changing with lean six sigma, LSS academy
2. C.M. Creveling, J.L.Slushkey (2003), Design for six sigma, Pearson education, inc.
3. Donna C. S. Summers (2007), Six sigma: basic tools and techniques, Pearson pub.
4. Ronald D. Snee, Roger Weseley Hoerl (2003), Leadin six sigma: A step by step guide, Prentice Hall pub.
5. Daniel Bloom (2014), Achieving HR Excellence through six sigma, CRC Press
6. Ian Hunter, Mircea Albeanu (2010), Six sigma in Hr Transformation: Achieving Excellence in service delivery, MPG Books group.
7. William Kahnweiler, Jennifer Kahnweliler (2011), Shaping your HR Role succeeding in today's organizations, routledge pub.
8. John Hills, Kirsty Saddler (2011), Developing HR Talent: Building a strategic partnership with the business, Gower pub.

Journal references

1. Forrest W Beryfogle (2009) , Implementing six sigma – smarter solutions using statistical methods published by John Wiley and Sons, Inc.volume 1.
2. Drug sanders and Cheryl Jild (2000), A discussion of strategies for six sigma implementation quality engineering, Vol. 12, number 3,
3. Gerald J Hahn and Necip Doganaksoy (2002), Roger Hoerl, The Evolution of six sigma, quality engineering, Vol. 12, number 3.

4. Dr. Manisha Sharma (2012), Case study On Six Sigma at Wipro Technologies: Thrust on Quality.
5. Gosnik D et. al. (2010). Success Factors For Six Sima Implementation in Slovenian Manufacturing Companies. *Advances in Production Engineering & Management*, 4, 205-216 J
6. Moeller. (2001). The EFQM Excellence Model. German experiences with the EFQM approach in health care. *Int.Journal for Quality in Health Care*, Volume 13, No.1.
7. Maria Leticia Santos-Vijande et.al. (2007). TQM and firms performance: An EFQM excellence model research based survey. *Int. Journal of Business Science and Applied Management*, Volume 2, Issue 2.
8. Marija Andjelkovic Pesic,et al. (2010). Business Process Management Maturity Model and Six sigma:An Integrated Approach for Easier Networking [Online] Available: emnet.univie.ac.at/uploads/media/Andjelkovic-Pesic_01.pdf (12 April, 2011)
9. Schroeder, R.G. et al. (2008). Six Sigma: Definition and underlying theory. *Journal of Operations Management*, Vol. 26, No.4, 536. <http://dx.doi.org/10.1016/j.jom.2007.06.007> Su et al.
10. Majrekar (2014),Optimizing the IC delimitation quality via six- sigma approach. *IEEE Transactions on Electronics Packaging Manufacturing*, 28(3), 241-248.

Web references

1. <http://www.isixsigma.com/new-to-six-sigma/roles-responsibilities/role-human-resources-hr-six-sigma/>
2. <http://www.slideshare.net/SHUBH009/six-sigma-19973321>
3. <http://www.crcpress.com/product/isbn/9781466586468>
4. http://offers.bycontext.com/scjs/tb/ctxjs/index.php?kw2=www.humanresourcesiq.com&affid=1145&subaff_id=540243510326000000&intformat=roll&nextpage=http%3A%2F%2Fwww.humanresourcesiq.com%2Fbusiness-strategies%2Farticles%2Flean-six-sigma-in-hr-understanding-hr-process-stre%2F&ch=741&sbrand=MedPILtdEditionv2.3&folder=v4.14&typrd=ctx&cu=30736&country=IN&original_country=IN
5. <http://www.businessgyan.com/node/5847>
6. http://fullerjonesassociates.com/FJA&BAHREC_Transforming_HR_Results_Through_Six_Sigma.pdf

