**SIX SIGMA-In Indian Agribusiness**

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**Abstract**

In today’s competitive world, customer wants perfection and there is no room for error. Delighting the customer and new ways to exceed their expectations is requirement of today’s business world. Quality management helps to achieve this goal. Quality management involves continuously monitoring, analyzing, and improving of systems and procedures throughout the process. Six sigma is a improvement over the indigenous quality management systems. Six Sigma (6σ) is a set of techniques and tools for process improvement. It was introduced by American engineer [Bill Smith](https://en.wikipedia.org/wiki/Bill_Smith_(Motorola_engineer)) while working at [Motorola](https://en.wikipedia.org/wiki/Motorola) in 1980. It is a new way of thinking about work and customer value.

Six Sigma is one of the most popular and reliable methodologies that are presently applied to the agricultural industry. It is useful because its main focus is on reaching top most quality. The ability of Six Sigma to focus more on quality and eliminate defects in production and processes make sure that the agricultural industry continues to have millions of satisfied consumers. With the continued emphasis of Six Sigma, making excellent improvements in the processes used in creating agricultural products and acquiring more satisfied consumers are greatly possible.

Key words : Six Sigma, Agriculture, Agri-business, Industry

**INTRODUCTION**

In today’s **aggressive** world, **patron** **wishes** perfection and **there may be** no room for error. Delighting the **patron** and new **approaches** to exceed their **expectancies** is requirement of today’s **enterprise** world. Quality **control** **allows** to **acquire** this goal. Quality **control** **includes** **constantly** monitoring, analysing, and **enhancing** of **structures** and **tactics** **all through** the **technique**. Six sigma is an **development** over the indigenous **excellent** **control** **structures**. Six Sigma (6σ) is **a fixed** of **strategies** and **gear** for **technique** **development**. Six Sigma is **one of the** **maximum** **famous** and **dependable** methodologies **which might be** **currently** **implemented** to **the rural** **enterprise**. It is **beneficial** **due to the fact** its **primary** **recognition** is on **accomplishing** **pinnacle** **maximum** **excellent**. The **cappotential** of Six Sigma to **recognition** **greater** on **excellent** and **get rid of** defects in **manufacturing** and **approaches** **make certain** that **the rural** **enterprise** **maintains** to have **hundreds of thousands** of **happy** **customers**. With **the continuing** emphasis of Six Sigma, making **extraordinary** **enhancements** **withinside the** **approaches** **utilized in** **growing** agricultural **merchandise** and **obtaining** **greater** **happy** **customers** are **substantially** possible.

A company is left with the following options for fixing the price of a product.

1)The price per unit is the sum of the actual expenses incurred per unit plus desired Profit.

2)Fix a competitive price and then deduct the desired profit from it to derive the total cost of the product per unit. Then focus on the processes and systems to reduce the expenses such that the total cost of the product per unit is well within the derived total cost per unit.

**Evolution of six sigma**

The evolution **started** **withinside the** **past due** 1970s, Japanese **company** took over a Motorola **manufacturing unit** that **synthetic** **tv** **units** **withinside the** United States and the Japanese. In 1984, Harry joined Motorola **wherein** he **labored** with Bill Smith, an engineer who **become** in Mikel Harry's words, “**the daddy** of Six Sigma”. Smith **determined** the correlation **among** how **properly** a product did in its **discipline** **existence** **and what kind of** **remodel** **have been** required **at some point of** **the producing** process. On January 15, 1987, Galvin **released** a **long time** **great** program, called “The Six Sigma Quality Program”.

**Definition of Six sigma**

Six Sigma is **a way** aimed to **get rid of** defects for **reaching** six **preferred** deviations. **that is** the **distinction** **among** the **suggest** and **the closest** specification **restriction** **withinside the** **technique** of a product service.

**Objectives of Six Sigma**

The **essential** **goal** of Six Sigma is the **system** **development** and **discount** of **version** **via** its application. Six Sigma emphasises **the subsequent** key concepts:

Critical to quality: The critical to quality means the attributes which are most important to the customer.

1. Defect: The defect is defined as the failure to deliver a product/service as required by the customer.
2. Process capability: The process capability means whether the process can deliver the quality
3. Variation: The variation is the perception of the customer. How he/she sees and feels about the quality of the product.
4. Stable operations: The stable operations will guarantee a process which is consistent and predictable with reduced venation.
5. Design for six sigma:

**The benefits of Six Sigma**

1. It sets a performance goal for everyone in the organisation.

2. It generates sustained success.

3. It accelerates the rate of improvement.

4. It enhances value to customers.

5. It executes strategic change.

**Elements of six sigma**

1. Customers: The customers of the products/services define quality. The expectations of the customers are performance, reliability, on-time delivery, competitive price, clear and correct transaction processing, service, and beyond. Their voice is to be taken as the basic input while designing use products/services subject to practical constraints of providing them. In the competitive market. Customer delight plays a vital role in retaining customers as well as expanding the customer base. If it is not done by a company, some other company will do it.

2. Processes: At the first instance the process is to be defined clearly. For the defined process, its metrics must be identified. Later, measures of the processes must be listed. Companies must view the quality from customers' perspective, which will lead to greater acceptability of the product at a later stage. The company should understand the transaction lifecycle from customer's needs and process. This will help to discover what the customers see and feel. In turn, the weak areas within the process can be identified for improvement.

3. Employees: The driving force in either manufacturing or services is the employees.

**ORGANISATION OF SIX SIGMA**

The successful implementation of the Six Sigma project throughout the organisation requires a highly structured organisation. The members of the organisation should be assigned with specific roles to play each with a title.

Leadership council: A leadership council sets the goals and objectives for the Six Sigma programmes. The council sets out the goals, which are to be met by the team.

Sponsor:

Implementation leader:

Coach: A control of six sigma is an expert whose responsibilities are schedule preparation, defining the outcome of the project and mediating conflict during implementation stage if there is any resistance.

Team leader:

Team members: A team member is an individual performing specific duties Assigned to him from the Six Sigma project with due date to meet the goal of the project. He must work in synchronisation with other members of the team for the success of the project.

**SIX SIGMA METHODOLOGIES**

The methodologies of Six Sigma are DMAIC, DMADV and DMAIC stands for Define, Measure, Analyse, Improve and Control. DMADV stands Define, Measure, Analyse, Design and Verify. DFSS is another name for DMADV, and it stands for Design for Six Sigma.

**DMAIC Methodology**

Define Phase

This step defines the problem of the project and its goals, which is to be addressed. The tasks that are undertaken during this define phase are the formation of project team, documenting customers core business processes, developing a project charter and developing the SIPOC (Suppliers, Input, Process, Output and Customers) process map. The formation of project team contains two tasks. Viz. determination of team members and their roles. Identifying the right team members will be a difficult task, if the project is large with several departments and complex in nature. So, the project may be divided into smaller ones and they may be executed in a serial phase to overcome this difficulty.

**Measure Phase**

The **critical** **components** of this **section** are plan of **information** **series** and execution of **information** **series**, **information** evaluation/**evaluation** and failure mode and **consequences** **evaluation** (FMEA). The **number one** **supply** of **information** **consists of** **enter** to the **system**, **system** specification and the output of the **system**. The **enter** is **the start** **factor** of the **system** at which **positive** inputs are **added** into the **system**. The **information** for **system** for **distinct** **assessments** of efficiency, **that are** time of theprocess: **fee** **worried** for the **system**, **illness** **charge** of the **system** and **guy** hours spent in theprocess. The output of the **system** represents the **size** of efficiency. At the **degree** of **information** evaluation, the **information** is evaluated and the **cost** of sigma is calculated. which in **flip** is used to compute approximate **variety** of defects. As **said** earlier, the deviation from **consumer** specification of a product/**carrier** is **known as** as Six Sigma Defect. A Six Sigma **possibility** is **the whole** **variety** of occurrences for such defects. A **score** scale **can be** used for **every** of the above. The scale **can be** from 1 to 10: **wherein** 1 is **the bottom** FMEA **degree** and 10 is **the best** FEMA **degree**. If **the extent** is high, the **score** is **greater** severe. On such cases, **similarly** time **want** **now no longer** be spent **at the** project. Analyse Phase Analyse Phase **the sooner** steps are aimed to **outline** and **degree** the defects. The step "Analyse" **targets** to **have a look at** the defects **so that you can** **lessen** them. There are **5** **kinds of** **evaluation** as **indexed** below:

1. **Source analysis:**

Source **evaluation** does root-**purpose**-**evaluation** to **discover** defects. **that are** Obtained from the **reassets** of **facts** of the process. After the **identity** of **the foundation** **reasons** one has to **examine** the **trouble** **earlier than** making an **try and** **keep away from** **illness** from the product. The root **purpose** **evaluation** has **3** steps. Viz the open step, the **slender** step and the **near** step. The open step **goals** to **discover** all **viable** **causes** for the **present day** sigma **overall performance** **via** brainstorming **workout** **completed** **via way of means of** **undertaking** **crew**. The **slender** step narrows the **listing** of **viable** **causes** of the **present day** **stage** of sigma **overall performance** the **decreased** **listing** of **causes** is **confirmed** **via way of means of** the **undertaking** **crew** **withinside the** **near** step**2. Process analysis:**

The process analysis creates and analyses detailed process map to identify the places where maximum Improvements are possible process consists Sequence of process and movement of materials from place to place in the production process

**3. Data analysis:**

Data analysis uses measures and to analyse patterns and identify factors which influence the cause of the problem Resource analysis: Resource analysis is to analyse the lack of functioning means.

**4. Resource analysis**:

Resource analysis aims to analyse the level of functioning/Fitness of the resources, viz. men, machine and materials that are used in the value chain of the employees are not well equipped/trained, it will be reflected in terms of more rejections in the production process or other function like accounting human resource. If the invoicing process is not integrated with the delivery of the goods to customers, confusion at customer end for settling the bill for the product which has not been delivered to that customer Similarly, if the selection of the personnel is not properly done it will be reflected in terms of worst of of the employees for the positions/jobs in the organisation.

**5. Communication analysis:**

The communication analysis aims to avoid the gap between the two parties in the communication process. The communications from in organisation to either external customers or internal customers, should be clear and well sequenced otherwise, it will lead to inefficiencies and ineffectiveness in the processes of the organisation.

**Improve Phase**

The objectives of the improvement step of DMAIC are identification of improvement breakthroughs, identification of high yielding alternatives, selection of desired method, designing the future state of the system, determining the improved level of now sigma. performing cost/benefit analysis, designing dash boards scoreboards and creating preliminary Implementation plan. The identification of improvement breakthroughs stage aims to identify potential solutions that eliminate root causes by using idea generation tools and techniques.

Identification/selection of high yielding alternatives include the following

1. Development of criteria for the evaluation of candidate solution alternative

2. Systematic and holistic thinking for improvement.

3. Prioritisation and valuation of the candidate solution alternative against the evaluation

criteria of the solution alternative.

4. Performing a feasibility assessment for the highest value of solution alternative.

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**DMADV Methodology**

The DMADV methodology has five steps, which are define, measure, analyse, design and verify. The first three steps of DMAIC and DMADV are the same. The DMADV methodology is aSix Sigma approach for new products or services.

1. Define:

2. Measure:

3. Analyse:

4 Design:

5. Verify:

**DFSS Methodology**

The DFSS methodology in known as Design for Six Sigma, which has five steps. viz. Define, identify, design, optimise and verify.

1. Define: The customer and related project for attention are identified in this step.

2. Identity: This step defines desirable needs and undesirable needs of the customers.

3. Design: This step designs a process which meets customer needs.

4. Optimise: This step determines the process capability and optimises the design.

5 Verify: This step tests. verities and validates the design.

**SIX SIGMA TECHNICAL TOOLS**

1. Process map

2. Critical to quality tree (CTQ Tree)

3. Histogram

4. Process summary worksheet

5. Pareto chart

6. Cause and effect diagram

7. Affinity diagram

8. Scatter diagram

9. Control chart

10. Run chart

**Six Sigma Belt Rankings**

The belt **degrees** in Six Sigma are **just like** the belt **scores** **presented** **withinside the** martial arts. Belts are titles **presented** to practitioners **primarily based totally** on their **stage** of skill, experience, **know-how** and **education** in Six Sigma principles. To **recognize** how employees’ strengths and **competencies** **may be** **carried out** in a Six Sigma project, **it's miles** **useful** to **recognize** what **every** belt signifies.

**White Belt**

This is the beginner’s belt of Six Sigma. The White Belt certification **is right** for **specialists** who **need** **to start** their Six Sigma **adventure** **via way of means of** **mastering** **extra** **approximately** the **method** **and the way** **it may** **effect** their organization. White Belts can **variety** from front-line **employees** to **company** executives. This certification **offers** **specialists** with a **primary** **running** **expertise** of the Six Sigma **method**. The White Belt **function** **usually** **calls for** **numerous** hours of Six Sigma **schooling** **earlier than** certification. Once certified, White Belts **normally** **help** problem-**fixing** **groups** **inside** their organization, **even as** **additionally** **supporting** instill Six Sigma **subculture** into the **administrative center** **and inspiring** **different** **personnel** to **exercise** it. For example, a Six Sigma White Belt **might also additionally** lend **a further** pair of **palms** and eyes to **assist** **acquire** **records** and **provide** **perception** into how **sure** **methods** are **running.**

**Yellow Belt**

Unlike White Belt professionals, Yellow Belts **have already got** a **simple** **information** of Six Sigma principles. They **aren't** **professionals** in Six Sigma, **however** they **were** **added** to the jargon and **gear** **often** used **withinside the** approach. Yellow Belts **acquire** **among** 10 and 15 hours of Six Sigma **education**, and **frequently** **paintings** **below** a **challenge** **chief** **who's** **at the least** Green or Black Belt certified. At the **begin** of a **challenge**, Yellow Belts are **usually** tasked with **growing** **technique** maps and contributing to **records** gathering. Yellow Belts **exercise** Six Sigma on a part-time basis, **however** what **they'll** lack in expertise, they **usually** make up for in **neighborhood** **technique** knowledge. Organizations can **assist** **make sure** that Six Sigma **is known** and **carried out** **in any respect** **degrees** of a **organisation** **via way of means of** **imparting** White or Yellow Belt **education** to employees. Professionals **interested by** **greater** in-**intensity** **education** and **gear** **have to** **don't forget** **better** **degree** Six Sigma certifications.

### Green Belt

### Green Belts are on the coronary heart of the action. Most of the paintings finished via way of means of Six Sigma task groups is carried out via way of means of Green Belts. Professionals with this certification commonly devote among 25% and 50% in their running time to Six Sigma projects. At this stage, Green Belts are taken into consideration professionals in Six Sigma philosophies and principles, however possibly maximum importantly, they're appeared as professionals withinside the technique that they're improving. Certification necessities can range relying on enterprise or certifying body. Typically, Green Belts are required to finish a set variety of hours of study room training and byskip a written exam. In addition, Green Belts should take part in an real Six Sigma task earlier than turning into certified. Once certified, Green Belts play an crucial function figuring out and enforcing enhancements for the duration of the organisation via way of means of supporting their task groups acquire and examine data. This allows decrease version to be able to produce better high-satisfactory items and services. Successful Green Belts commonly own sturdy analytical abilities and are capable of speak in any respect ranges of an organisation. This stage of education is frequently relevant for personnel running in a high-satisfactory warranty function or a mid-to-top stage control function.

### Black Belt

### Black Belts function leaders and are accountable for dealing with more than one groups made of Green, Yellow and White Belts. Black Belts exercise Six Sigma on a full-time basis. Because of the know-how required, applicants must gain a Six Sigma Green Belt certification earlier than pursuing their Black Belt. Candidates have to additionally byskip a written examination and feature finished genuine Six Sigma projects. Black Belts must own a mastery of system development and statistical evaluation techniques. They must have sturdy human beings competencies and act as powerful leaders and mentors for venture group members. Black Belts also are capable of educate Six Sigma concepts to venture groups and management while needed. Consistency is prime on the subject of the Black Belt position as holders have to use their time wisely, and be excellent choice makers to make sure their venture groups live on challenge and meet deadlines. While necessities may be greater rigorous for a Black Belt, the certification prepares specialists to be professionals in Six Sigma and leaves them simply one step farfar from reaching the very best of all Six Sigma belts, the Master Black Belt.

### Master Black Belt

Master Black Belts **normally** do **now no longer** **characteristic** as a full-time member on **someone** **precise** **crew**, **however** rather, **function** an **inner** **representative** for **a couple of** **groups** and **assist** them **conquer** technical **limitations** and **solution** procedural questions. This **lets in** them **to peer** the **massive** **image** of the organization’s **high-satisfactory** **development** efforts and **allows** them to **recognize** and **assist** **affect** the company’s Six Sigma efforts. The **electricity** of a **high-satisfactory** **development** **crew** lies **now no longer** **simplest** in its **information** of the **standards** of Six Sigma, **however** **additionally** **withinside the** **talents** and **self assurance** of its **crew** members. Therefore, Master Black Belts **need to** have the interpersonal **talents** Six Sigma **regularly** **makes use of** **gear** and data-**pushed** **selections** to **clear up** problems, **however** **venture** **fulfillment** is **decided** **through** the **folks who** **manipulate** and **perform** the projects. Understanding the **obligations** and certification **necessities** **of every** Six Sigma belt **stage** can **make clear** **the jobs** **of every** belt **degree** and **assist** **decide** which certification is **proper** for you.

**The detailed methodology for implementation of Six sigma infarming sector**

Existing farming process mapping –In this step the existing scenario in the farming can be capture with of help of industrial engineering tools and techniques. Process flow chart, Spaghetti diagram and value stream mapping can be implemented in order to obtain actual farming process.

Identification of non-value adding activities–The current value stream map will indicate the non-value adding activities that are wastages. The wastages can be classified in the ten forms viz. Transportation, Inventory, Motion, Waiting, Overproduction, Over processing, Defects, Unused skills, Excessive load and physical strain.

Data collection–The primary data can be collected using time study, various templates, interviews and questionnaire. The template includes Process sheet, SIPOC chart, RACI matrix, etc. Also, secondary data can be collected through the research papers, magazine and government reports.

**SIX SIGMA Implementation Model for Indian Industries**

Pilot study–In this study Lean six sigma methodology can be implemented in the specific farm and results after implementation are measured. If the results come positive then the detail framework will be prepared. If the result of pilot study comes negative then again improvements are made in the framework of implementation and again implemented to evaluate theresults Development of six sigma implementation framework – After the pilot study the detail framework will be developed and thisframework can be universally implemented in the Indian farming conditions to reduce the cost of productionSix sigma Awareness & training to farmers–The successful development of LSS implementation framework is not the solution, there is requirement of awareness and training to the farmers about Lean six sigma and their advantages.

Application of LSS tools and techniques–Thereafter, lean six sigma tools and techniques implementation will be carried out in the sample farms. Mostly the implementation of 5-S, Kaizen, SMED, VSM, Kanban, levelling, Poka-yoke, layout planning etc. carried out.

Performance measurement and cost benefit analysis –Performance measurements will be done in order to compare performance with the base value. The performancemeasurement can be carried out with the help of questionnaires analysis, audits and interviews. The performance improvement can be reflected in the monetary value. The reduction in the cost of production is then calculated through Cost-Benefit analysis.

**Application of Six Sigma in Agriculture**

Six Sigma **in particular** **specializes in** **exceptional** to **assure** **client** satisfaction. This prevents **faulty** agricultural **merchandise** that **frequently** **cause** **remembers** and complaints. • The **exceptional** **technique** **targets** **to apply** the **maximum** **effective** analytical **equipment** in **making sure** that the inspection of all **substances** **utilized in** agricultural **merchandise** are **excessive** in **exceptional**. This **guarantees** defect-**unfastened** **merchandise**. • This **targets** to create agricultural **merchandise** **withinside the** **maximum** systematic **way** possible. This **effects** to **tactics** and **manufacturing** which **places** **a number of** emphasis on **exceptional** maximization. • Six Sigma promotes **expanded** **exceptional** product with the least **quantity** of cost. It **additionally** **targets** to **preserve** **substances** and **electricity** **in the course of** the **manufacturing** of agricultural **merchandise**. The **end result** **could** be low **fees** for all agricultural **services and products** and **proper** cost-competitiveness.

**Measuring process performance**

* Farmer wants a seed, which gives good yield, there are two seed companies, x and y
* Average yield of x company’s seed for 5 years = 12.20 q/ha
* Average yield of y company’s seed for 5 years= 12 q/ha

|  |  |  |
| --- | --- | --- |
| Year | X seed(yield) | Y seed(yield) |
| 2013 | 4 | 13 |
| 2014 | 17 | 11 |
| 2015 | 5 | 12 |
| 2016 | 27 | 11 |
| 2017 | 8 | 13 |
| Average | 12.20 | 12 |

By looking into average yield every farmer will choose X company seed, but after seeing the variations in the yield of the X company seeds the farmer will definitely go for the Y company seed which is relatively consistent yield in sequence of years.

***What is DPO?***

The ratio of the **wide variety** of defects in a **pattern** to **the full** **wide variety** of **illness** **possibilities**. As a result, the ratio **right here** **allows** you **matter** the **common** **wide variety** of defects which **arise** **withinside the** **overall** **wide variety** of **possibilities** in a **pattern** **organization**.

Step 1: is to **decide** **the full** **wide variety** of **devices** to be sampled.

Step 2: is to **decide** the **wide variety** of **illness** **possibilities** **according to** unit. Creating a **listing** of **capacity** defects or **mistakes** **according to** unit of **procedure** or **products or services** **clients** will care about ¬ Focusing on routine, **in place of** **uncommon** defects or **mistakes** ¬ Grouping or merging **associated** or **comparable** defects into one category

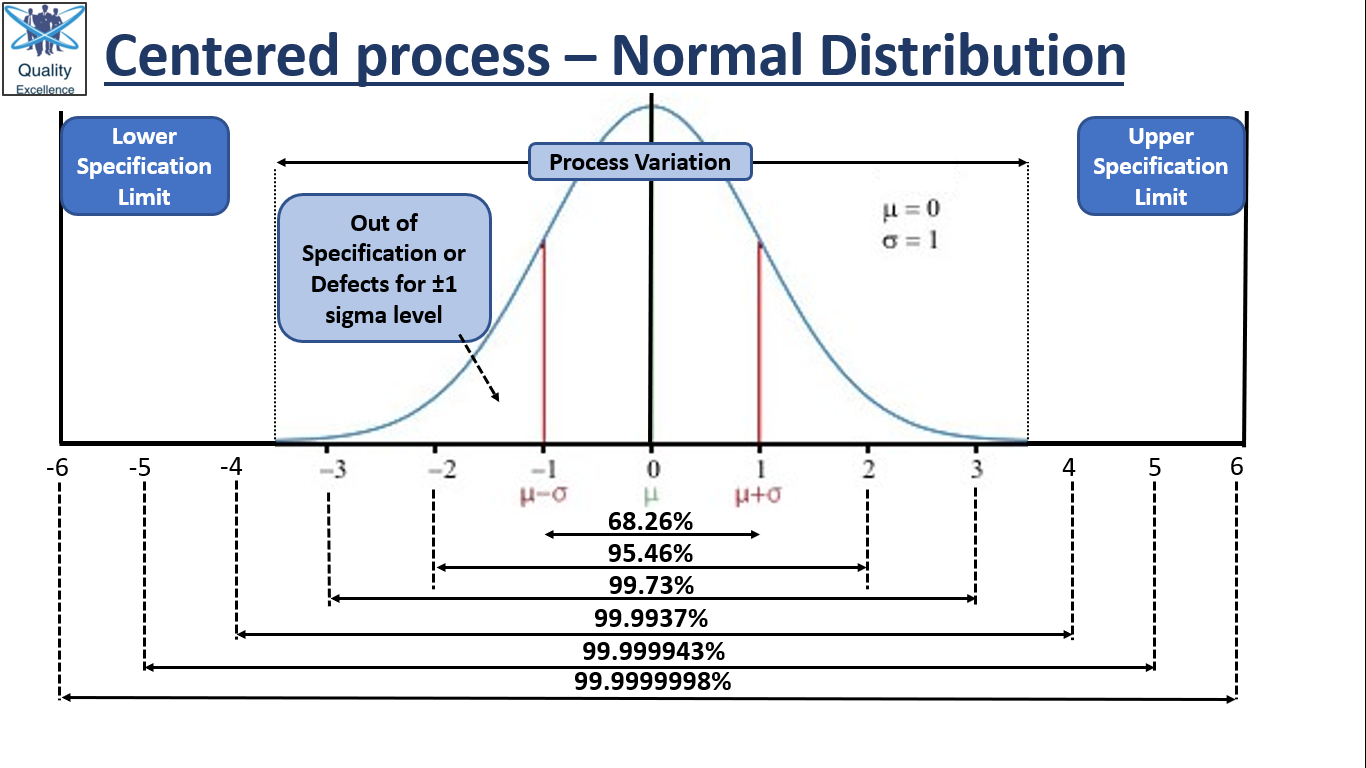
Step 3:is to **decide** **the full** **wide variety** of **illness** **possibilities** ONLY for the **pattern** **length** **below** consideration.

Step 4: is to **matter** the **faulty** **possibilities** **withinside the** **pattern** **organization**. You will **absolutely** **need to** calculate **what number of** **possibilities** **withinside the** **pattern** **organization** **sincerely** **incorporate** defects or **mistakes**.

Step 5: divide **the full** **wide variety** of defects **via way of means of** **the full** **possibilities** **handiest** for the **pattern** **length** **below** consideration. This step **offers** you the DPO as a decimal **wide variety**, which **may be** **transformed** to a percentage

**Etymology of Six sigma process.**

The term "six sigma **method**" comes from the **belief** that if one has six **popular** deviations **among** the **method** **imply** and **the closest** specification limit, as **proven** **withinside the** graph, **almost** no items will fail **to fulfill** specifications.



This is **primarily based totally** **at the** calculation **approach** **hired** in **method** **functionality** studies. Graph of the **everyday** distribution, which underlies the statistical assumptions of the Six Sigma model. In the centre at **zero**, the Greek letter μ (mu) marks the **imply**, with the horizontal axis **displaying** distance from the **imply**, marked in **popular** deviations and given the letter σ (sigma).

The **more** **the usual** deviation, the **more** is the **unfold** of values encountered. For the **inexperienced** curve **proven** above, μ = **zero** and σ = 1. The **top** and **decrease** specification limits (marked USL and LSL) are at a distance of 6σ from the **imply**. Because of the **residences** of the **everyday** distribution, values **mendacity** that **a ways** **farfar from** the **imply** are **extraordinarily** unlikely: **about** 1 in **1000000000** too low, and the **identical** too high. Even if the **imply** **have been** **to transport** **proper** or left **via way of means of** 1.5σ **in some unspecified time in the future** **withinside the** future (1.**five** sigma shift, **colored** **purple** and blue), **there may be** **nonetheless** **a terrific** **protection** cushion. This is why Six Sigma **goals** to have **strategies** **in which** the **imply** is **as a minimum** 6σ **farfar from** **the closest** specification limit. The **position** of the sigma shift is **specially** academic. The **motive** of six sigma is to generate organizational **overall performance** improvement. It is **as much as** the **business enterprise** to **decide**, **primarily based totally** on **purchaser** expectations, what **the ideal** sigma **stage** of a **method** is. The **motive** of the sigma **price** is as a comparative **parent** to **decide** **whether or not** a **method** is improving, deteriorating, stagnant or non-**aggressive** with others **withinside the** **identical** business. Six sigma (3.**four** DPMO) **isn't always** the **intention** of all **strategies**

**REVIEW OF RELATED CASE STUDIES**

1. **Six-Sigma: A case study on Mumbai DabbawalaShubham Vashisht (2018)**

The Dabbawallas **affiliation** is an **terrific** **instance** of **talented** Logistics and Supply Chain Management. Corporate and **pupils** **have to** make **observe** **in their** **running** **with the aid of using** **retaining** in **thoughts** the **quit** **purpose** to **realise** their **certainly considered one among** a **maximum** **specific** **shape** and process. Today the Dabbawallas have **reputable** the **usage** of **net** innovation **simply** to **boom** their **patron** base and **not anything** **extra**. Numerous **rapid** **meals** chains and **accommodations** **withinside the** **town** will dependably be rivaling the Dabbawallas **but** their **believe** of **unhappiness** of Dabbawallas framework **might also additionally** **by no means** emerge. The dabbawallas are an **wonderful** **affiliation** of **extra** than 5,000 **people** in Mumbai. People in Mumbai who works in banks, colleges, hospitals, **authorities** offices, factories and ports are all **unfold** **throughout** **distinctive** **elements** of the **town**. The dabbawallas **supply** lunch **packing containers** for **approximately** 2 lakh **human beings** at their **paintings** **locations** on time. They **additionally** **convey** the empty lunch **packing containers** from the customers; they made **handiest** one mistake in six million transactions and **were** **continuously** **appropriate** at it for **all of the** time **in their** operations. Forbes **international** **mag** **performed** a **pleasant** **warranty** **observe** on dabbawalla operation and gave six sigma **rankings** of **ninety nine**.**ninety nine** **on account that** they made 1 **blunders** in six million transactions **and that they** stood **excessive** **at the side of** MNCs like Motorola, GE etc

**Conclusion**

By **making use of** Six Sigma, the **challenge** **control** **organisation** **makes use of** a disciplined, data-**pushed** **technique** to **decrease** or **dispose of** defects in any **system**. This **system** **may be** **utilized in** manufacturing, engineering, leadership, and any **position** **wherein** **there may be** **a selected** **system**. DMAIC is the **precise** **technique** of Six Sigma that walks **challenge** managers **thru** **a hard and fast** step-**with the aid of using**-step **gadget** to systematically **pick out** defects, measure, analyze, improve, and **manipulate** the **system**. Many **corporations** **stay** and breathe **with the aid of using** the methodologies of Six Sigma. These **corporations** have **pronounced** **better** income, **quicker** **techniques**, and **multiplied** **worker** morale. Similarly, in Farming **quarter** farmers are overloaded with **the weight** of the **economic** problems. Farmers are **going through** the **hassle** of **better** **price** of production. It **may be** minimizing **with the aid of using** **supplying** **appropriate** **high-satisfactory** of seeds, fertilizers and **insecticides** at **low-priced** price. Through **software** of Six sigma that **consists of** standardizing **techniques** and **making use of** **sources** optimally can **lessen** the **price** of production.

**Discussion**

1. Can six sigma apply to Agriculture.

Yes, six Sigma can apply to agriculture it tells about variations occur in the agriculture and it predicts upcoming problems so by adopting Six sigma in agriculture farmers can utilize the resources very effectively.

1. Six sigma and Total quality management are same?

No, TQM focus only on the quality but six sigma defines quality as well as variations in the process. So, six Sigma is the improvement over the TQM.

1. Can six sigma apply to our department.

Yes, absolutely we can apply six sigma to our department, first we have to collect decide the topic on which we are applying the six sigma then the collection of data regarding that topic after that we can access the sigma level thereby we can find out the solutions to the problems.

1. What is the procedure to get the six sigma belts?

There are training programmes for different belts based on the hierarchy of the belt the duration of the training programme will be decided. For instance, for green belt 3 to 4 weeks training programme.

1. Agriculture is gamblingwith monsoon can you tell how six sigma can apply in this situation.

Agriculture is depending upon the monsoon if enough showers will not receivefarmers will face the problem, six sigma report this variation in one year, then it will suggest the alternative solutions for upcoming years for example subsidiary occupations like dairy, poultry, fishery etc.

**Reference**

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