

WHITEPAPER

How to Calculate and Improve Your OEE in Manufacturing

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1. Introduction

Overall Equipment Effectiveness (OEE) is a key performance metric used in various industries, including process manufacturing, to evaluate and improve operational efficiency.

OEE assesses how well equipment or machinery is utilised in a manufacturing or industrial setting. While it is traditionally associated with discrete manufacturing, it adapts to the unique characteristics of process manufacturing processes, whether they involve batch or continuous operation.

However, it is crucial to grasp the nuances of approaching OEE and addressing losses within the process industry. OEE solutions are often marketed as one-size-fits-all solutions for all plants, regardless of their industry or type of operation. The philosophy underpinning OEE, and loss accounting must align with the requirements of each process, respecting the inherent disparities.

This whitepaper aims to explore the aspects of OEE and its practical application, equipping professionals in the process industry to enhance productivity. We will examine the origins of OEE, its definition, and its practical implementation in both batch and continuous production processes. We aim to demonstrate the concept and transform it into a valuable resource for achieving sustainable improvements in operational performance.



2. Understanding OEE: A Methodology to Identify Losses

Overall Equipment Effectiveness (OEE) has its roots in the Total Productive Maintenance (TPM) and Lean Manufacturing methodologies. It was conceived as a metric and concept to evaluate and increase the effectiveness of manufacturing equipment and processes. The Japan Institute of Plant Maintenance (JIPM) early advocated the OEE concept. Over time, it became an integral component of the broader lean manufacturing and continuous improvement methodologies.

Seiichi Nakajima, the pioneering founder of the TPM system, notably introduced OEE in his book "Introduction to TPM," published in the eighties. Nakajima was a key advocate for TPM and focused on developing practical methods to measure and enhance equipment performance in manufacturing settings.

OEE is defined as a metric that aims to uncover hidden costs and provide a comprehensive assessment of the efficiency of both equipment and processes. It achieves this by considering availability, performance, and quality losses directly associated with the TPM Six Big Losses.

2.1 The Six Big Losses: A Comprehensive Classification

The Six Big Losses efficiently categorises equipment-related setbacks, as illustrated in image 1 below.

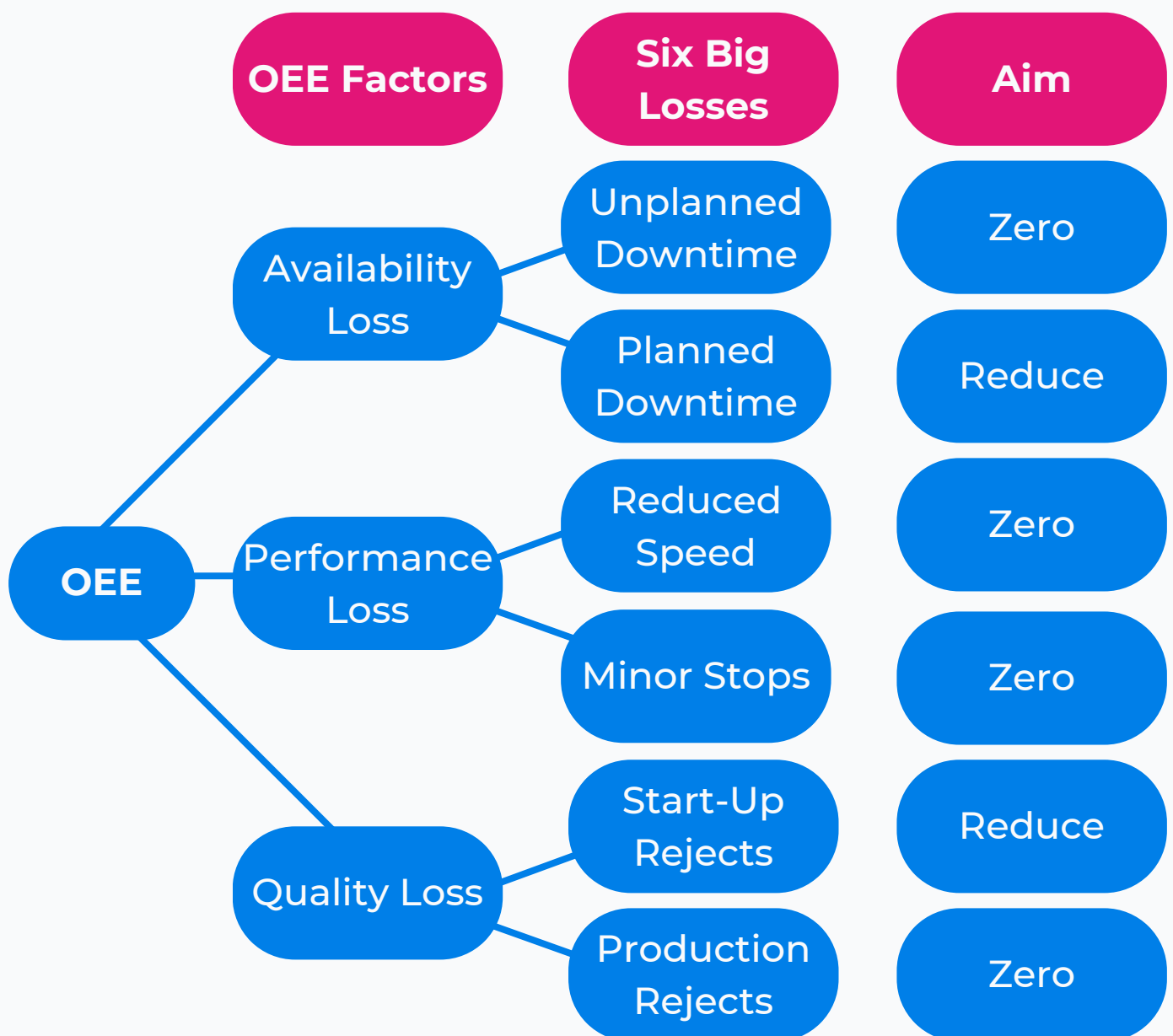


Image 1: As demonstrated, the TPM Six Big Losses can be mapped to various elements of OEE.



It encompasses **Unplanned and Planned downtime, Reduced speed, Minor stops, Start-up rejects, and Production rejects.**

Accurate categorisation of the Six Big Losses helps pinpoint the areas that require improvement in the production process. Each category represents a different type of loss, and addressing these losses individually allows for more targeted and effective improvement strategies.

Additionally, when you accurately identify the nature of a loss, you can apply appropriate problem-solving techniques and allocate resources. For instance, addressing equipment breakdowns (Unplanned Downtime) may involve different solutions than addressing issues with reduced speed or quality defects.

2.1.1. Availability Losses

Availability losses relate to equipment downtime, both unplanned and planned. The most common reason for unplanned downtime is equipment breakdown, which could also be a need for operators or materials. For the planned downtime, the most common losses are related to scheduled maintenance, equipment setup, changeovers, and quality inspections.

It is crucial to notice that OEE considers only the planned production time, so lack of demand and seasonality are separate from the availability calculation. Therefore, if these parameters are vital for improving your scheduled losses, measuring Total Effective Equipment Performance (TEEP), also known as plant utilisation (planned production time/all time), can be more adequate than OEE. We will explore this possibility further in this whitepaper.

2.1.2. Performance Losses

Performance losses are tied to slow cycles and minor stops. Slow cycles refer to the reduced operational speed of equipment or increased cycle time, which can result in lower production output and decreased efficiency.

Minor stops represent brief interruptions or halts in the production process. These disruptions may include equipment jams, short pauses, or other minor issues. These seemingly insignificant can accumulate over time, reducing overall equipment effectiveness.

2.1.3. Quality Losses

Quality losses are connected to production rejects and start-up rejects. Production rejects occur during an ongoing production run when the product falls outside customer specifications. On the other hand, start-up rejects are associated with the initial stages of production setup, which can influence product quality.



3. The OEE Calculation

As we have explored, understanding Overall Equipment Effectiveness (OEE) and the Six Big Losses is paramount for identifying and addressing inefficiencies in manufacturing processes. Now, we will delve into the practical application of OEE, demonstrating how to calculate OEE and utilise it as a metric for driving operational improvements.

Availability, Performance, and Quality are the key factors to consider when computing OEE.

These elements are integral to the formula outlined below:

$$\text{OEE(\%)} = \text{Availability} \times \text{Performance} \times \text{Quality}$$

Because the numbers are multiplicative, if any one component is low, then the overall result will reflect that. The details of each of these factors are shown in the next page.

Availability assesses equipment run time against planned production run time:

$$\text{Availability} = \frac{\text{Run Time}}{\text{Planned Run Time}}$$

Performance gauges the actual production speed compared to maximum speed:

$$\text{Performance} = \frac{\text{Actual Production Speed}}{\text{Maximum Speed}}$$

Quality ensures adherence to quality standards:

$$\text{Quality} = \frac{\text{Good Material}}{\text{All Material}}$$

An alternative and more visually intuitive approach to grasping OEE measurement and its associated losses is presented below (image 2), all framed in terms of time. Unlike 'All Time,' OEE hinges on 'Planned Production Time' as its foundation for calculation.

Unlike 'All Time,' OEE hinges on 'Planned Production Time' as its foundation for calculation.



Image 2: OEE measurement and its losses.

It's worth emphasising that OEE represents the ratio of Fully Productive Time to Planned Production Time or similarly Actual Good Quality Production Volume to Planned Production Volume. The exclusion of 'All Time' enables the separate categorisation of 'Lack of Demand' and 'Seasonality' as 'Schedule Loss,' keeping them distinct from OEE. Essentially, 'Lack of Demand' and 'Seasonality' do not factor into the OEE calculation.

Note that these calculations are valid for any industry's batch and continuous production processes.

4. The OEE Application in the Process Industry

With our exploration of OEE calculation complete, we've laid the groundwork for understanding the quantification of equipment effectiveness. This section will now transition into the practical application of OEE metrics within the process manufacturing industry. We explore the details of continuous and batch processes.

4.1. Continuous Processes

Continuous manufacturing processes, also known as continuous flow or production, operate without interruption, continuously yielding one or more products. These processes encompass a range of industries, including oil refining, power generation, electrolysis, and pulp and paper, among others.

Continuous process manufacturing typically entails significant capital investment, and a primary concern for operators and production managers is ensuring the seamless and stable operation of production units. This requires minimising downtimes and adhering to the planned production volume, which often aligns with the maximum installed capacity.

To gain a more profound insight into the calculation of each OEE factor for continuous production processes, let's explore the intricacies of these assessments. We'll conclude by delving into these details with a real-life example to illustrate their practical application.

4.1.1. Availability Assessment and Equipment Selection

In the context of OEE, availability examines whether the plant operates as planned compared to the scheduled run time. Typically, Run Time is a binary measure: either the plant is actively running (on) or not running (off). This metric captures the duration when the plant operates, regardless of the load it handles.

Determining which equipment to choose for calculating production availability is straightforward in various continuous processes, and it is usually the constrained equipment, also known as the production bottleneck. However, in other cases, a more meticulous evaluation is required, along with the identification of bottlenecks. Crucial considerations include equipment criticality (assessing the impact on production and overall process efficiency if unavailable), understanding the repercussions of equipment downtime, recognising critical process steps, and drawing insights from historical data.

A pivotal aspect is the engagement of cross-functional teams in this deliberation, incorporating the perspectives of operators, maintenance personnel, production engineers, and managers. Their practical experience and insights prove invaluable in identifying equipment that significantly influences availability.

By selecting the right equipment for measuring OEE, you can achieve precise availability assessments and make informed decisions to enhance the continuous manufacturing process.

4.1.2. Performance Measurement and Target Speed

Performance assessment in OEE considers the actual production speed compared to the target speed, but only when the plant is in operation. (Losses occurring during plant downtime are attributed to availability.)

One parameter in the performance calculation that can lead to confusion and erroneous OEE values is the concept of target speed. This metric is also known as nameplate capacity, ideal speed, theoretical maximum speed, maximum asset capability, or ideal production rate. Often, the target speed is closely linked to market demand.

Each of these terms carries subtly distinct meanings and methods of calculation. The critical point is that the target speed serves as a benchmark or goal, on a day-to-day basis, to strive towards, signifying the ability to produce high-quality products at that rate consistently.

4.1.3. Quality Assessment

Quality in OEE revolves around determining whether the produced material aligns with the predefined product specifications. Typically, quality is assessed using a binary measure: the material is considered good (within specification) or not good (out of specification).

In continuous processes, it is often anticipated that 100% of the produced material will meet quality specifications at the output. This expectation arises from the numerous intermediate process controls incorporated into continuous operations, such as monitoring process temperatures, pressures, and concentrations.

Adhering to the recommended process operating windows typically ensures the end-process quality remains consistent, making the quality factor a relatively minor contributor to OEE. Furthermore, continuous processes tend to experience few shutdowns, often occurring once a year or less, significantly reducing quality issues during start-ups.

A prevalent misconception regarding the calculation of quality losses is the belief that a quality loss should not be registered if the material can be corrected in a downstream operation, such as diluting a lower-quality product with a high-quality one. However, this is not the case; a quality loss is recorded any time spent producing a product that falls outside the defined quality specifications.

4.1.4. OEE Application

Now that we've explored the intricacies of assessing availability, performance, and quality within continuous manufacturing processes, let's step into a real-world scenario to witness how these concepts come together in a practical application.

Implementing OEE for a continuous process involves a combination of real-time loss notification and loss categorisation:

1. Real-time loss notification: it promptly notifies production staff of any occurring loss, empowering them to engage in real-time problem-solving analysis and take immediate corrective actions. It places particular emphasis on the involvement of production operators.

2. Loss categorisation: categorising losses offers a more comprehensive view of the production landscape, precisely identifying loss magnitudes and facilitating informed prioritisation of corrective measures. This approach underscores the engagement of a broader team, including members from the production, maintenance, quality, and process departments.

Both approaches were implemented in this example, and the details will be explored.

4.1.4.1. Real-time Loss Notification

With real-time loss notifications on the Cyzag platform, operators can access the loss trending view and the detailed OEE drill-down view.

Starting with the trending view, the operational staff closely monitor loss accounting through an online trending graph like the one in image 3. The production operator can use this tool to detect deviations from the production plan and receive visual cues for identifying losses.

Downtime is represented in red, while performance losses are indicated in amber. In this case, quality losses are not incorporated into the trends but are shown in the second approach (loss categorisation), which we'll delve into later.



Image 3: Continuous process: real-time loss notification – trending view.

Every loss is automatically quantified. Regarding categorisation, it can be done either automatically or manually, depending on the plant's decision and level of automation. Following a loss event or at the shift end, the operator reviews the availability and performance losses, diligently tracking them and initiating the necessary investigations, often employing root cause analysis (RCA) or another preferred method.

Alternatively, (to the trending view), in the OEE drill-down view, it is possible to follow the OEE data and drill down into specific plant areas and parameters, scrutinising instances where OEE falls short of the planned standards, as depicted in image 4. In this visual format, relationships are easily discernible, fostering transparency and revealing correlations.

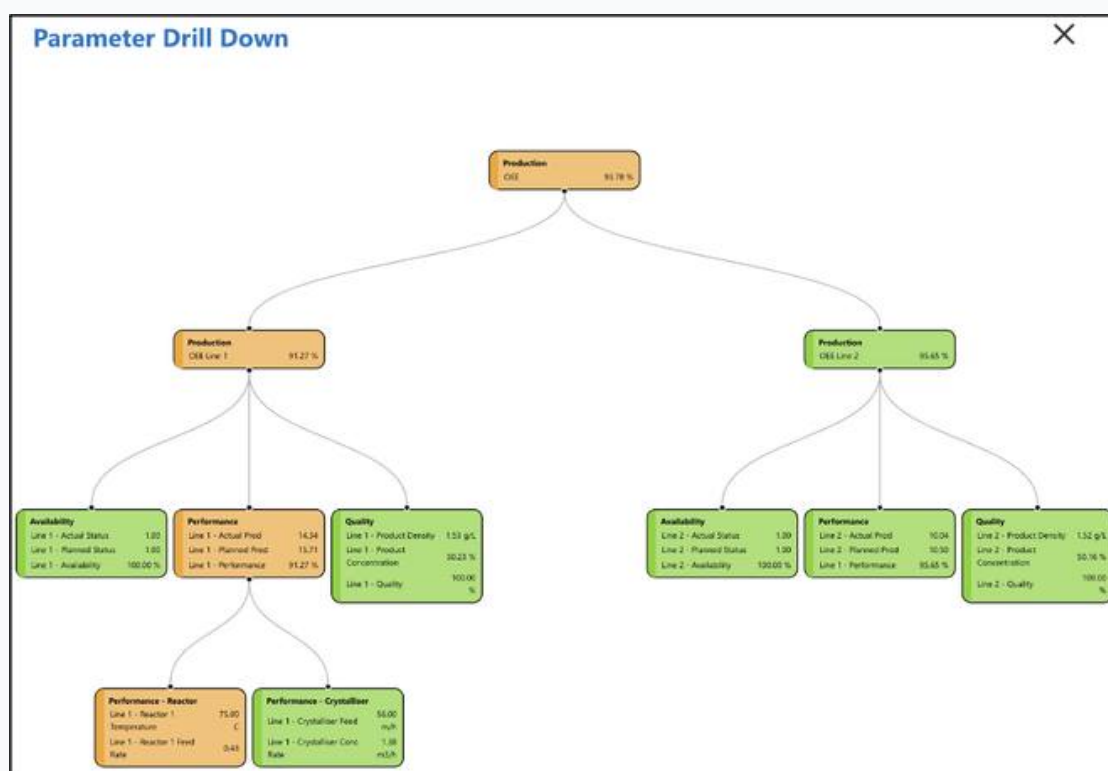


Image 4: Continuous process: real-time loss notification – OEE drill-down view.

It becomes evident in image 4 that Production Line 1 is the origin of the issue. While availability and quality indicators are satisfactory (highlighted in green), performance indicates an issue (highlighted in amber). By tracing the contributors to performance, operators can deduce that the performance loss is associated with reactor conditions. Armed with this insight, they can swiftly inspect the reactor, review operational instructions, perform a root cause analysis, and make necessary process adjustments, directly influencing OEE.

This seamless access to OEE data, coupled with actionable insights, empowers operators to address production speed issues promptly, averting waste and cost accumulation. This forms the bedrock for advancing operational excellence.

4.1.4.2. Loss categorisation

In this second stage, categorising losses provides a more comprehensive overview of the production landscape. It identifies the magnitude of losses and facilitates well-informed prioritisation of corrective measures. This method emphasises the involvement of a broader team, incorporating members from various departments, including production, maintenance, quality, and process.

All losses are readily available and can be categorised to enhance understanding and drive effective action, as Illustrated in image 5.

Quantity	Level1	Functional Location	Start Time	End Time	
100.2	Equipment Failure	FL1	2023-04-10 05:34	2023-04-12 10:08	⋮
78	Planned Shutdown	FL2	2023-04-12 10:42	2023-04-14 03:17	⋮
12	Equipment Failure	FL1	2023-05-01 19:51	2023-05-02 03:17	⋮
24	Equipment Failure	FL1	2023-05-02 13:34	2023-05-03 03:17	⋮
11.6	Planned Shutdown	FL1	2023-05-03 12:25	2023-05-03 19:17	⋮
23	Equipment Failure	FL2	2023-04-10 06:08	2023-04-13 06:42	⋮
12.9	Operator Training	FL4	2023-05-05 15:41	2023-05-05 20:13	⋮

Image 5: Continuous process: loss accounting list.

An alternative approach is available for creating live Pareto charts that illustrate different types of losses, thereby streamlining the prioritisation process. The Pareto chart can be customised in multiple ways, allowing for the examination of categories (image 6), factors, and functional locations, among other possibilities.

Within the platform, you can perform a root cause analysis (RCA) for each loss, connecting events to losses and corresponding actions.

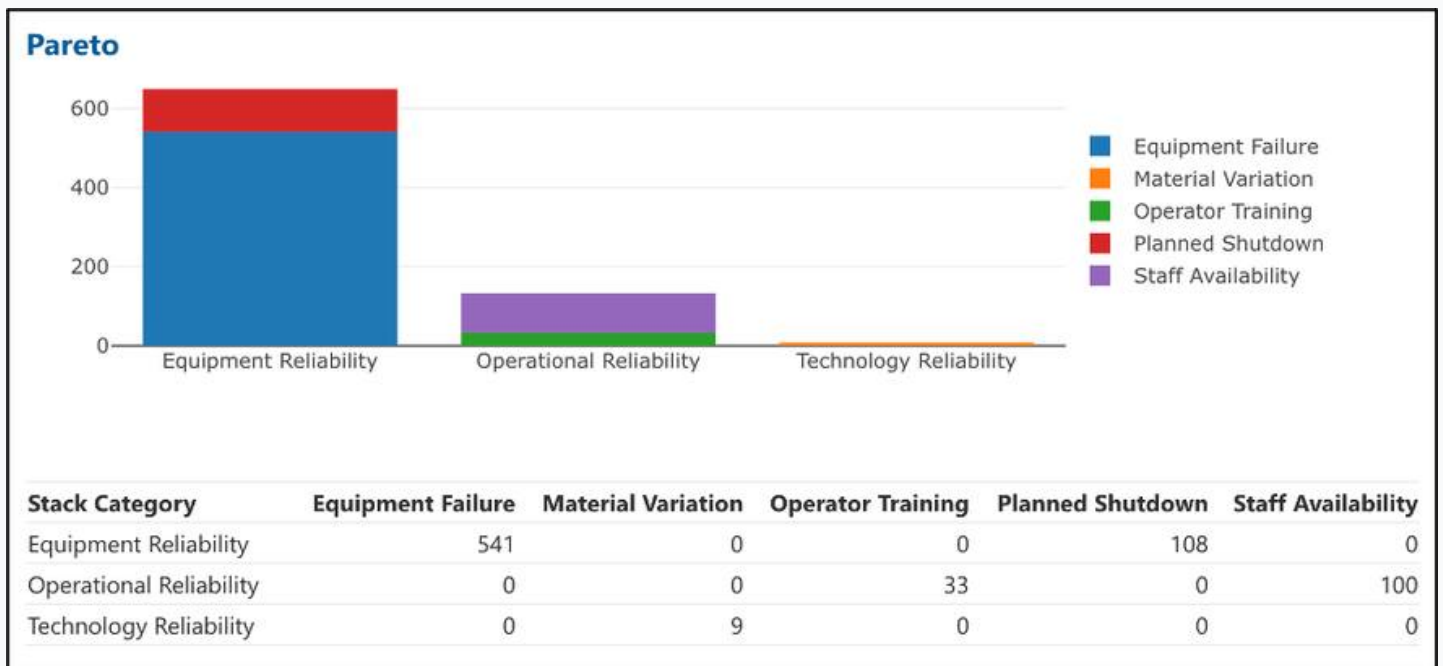


Image 6: Continuous process: Pareto loss categorisation.

4.2 Batch Processes

A batch manufacturing process, often called batch production, is a method where products are created in discrete groups or batches, as opposed to a continuous and uninterrupted manner. Batch processes are prevalent in various industries, including pharmaceuticals, food and beverage, chemical production, and cosmetics.

In batch process manufacturing, the production cycle consists of predefined steps where a set quantity of raw materials is processed together to create a specific product batch. Each batch follows a distinct set of instructions and undergoes a series of stages, such as mixing, heating, cooling, and packaging, depending on the product's requirements.

In contrast to continuous processes, batch manufacturing offers greater flexibility when accommodating various product variations and changeovers. Operators and production managers in the batch manufacturing sector concentrate on optimising the quality of each batch, minimising processing time, and ensuring efficient equipment cleaning and setup between batches. This adaptability is particularly advantageous when dealing with diverse product lines with varying formulations and specifications. However, it also introduces various possibilities for efficiency losses.

In batch manufacturing, OEE assessment typically centres around time, primarily focusing on ensuring that each batch, (preferably each step within a batch), is completed within a specified timeframe while meeting predefined quality targets. Now, let's look into a more detailed examination of each OEE factor calculation for the batch production process. We'll wrap up by exploring these details through a real-life example, demonstrating their practical application.

4.2.1. Availability Assessment and Equipment Selection

Availability assesses whether the plant or equipment is operating as planned. Run Time typically adopts a binary measure: the equipment is either in operation (on) or not (off). Consequently, Run Time denotes the period during which the equipment actively functions, irrespective of batch size.

A crucial aspect in batch processes is including setup and changeover time in availability calculations. These represent instances of lost production time and present valuable opportunities for improvement. Reducing setup time, for instance, can significantly enhance availability. Applying SMED (Single-Minute Exchange of Die) principles can often optimise changeover times.

Determining the equipment for calculating production availability is typically straightforward in most batch processes. It often centres around the constrained asset, frequently referred to as a bottleneck, such as reactors or mixing tanks. However, data collection and control systems can pose more significant challenges in batch processes, mainly when dealing with extended batch durations. Engaging cross-functional teams, encompassing operators, maintenance personnel, and production engineers and managers, can be instrumental in determining the most effective approach for data collection.

4.2.2. Performance Measurement and the Golden Batch

In batch processes, the batch size, often linked to reactor size or recipe, is typically fixed with minor variations. Unlike volume, time spent in production is frequently the most critical and favoured metric in batch processes. Therefore, the performance measurement assesses whether the batch steps exceed the ideal durations observed in the Golden Batch.

Performance assesses the actual batch production speed compared to the ideal speed when the equipment is in operation. This measurement can be expressed in terms of volume, akin to continuous processes, such as tons per hour (ton/h) or time, considering the entire batch or each individual batch step.

The ideal speed, often called the 'Golden Batch,' signifies an exemplary benchmark where a batch is produced at the pinnacle of efficiency. It serves as a reference point for evaluating the performance of subsequent batches. Deviations from the Golden Batch accentuate areas necessitating improvement, encompassing the entirety of the batch and its individual steps.

4.2.3. Quality

Quality evaluation determines whether the produced material conforms to product specifications. Typically, quality is assessed as a binary measure: the material is deemed either good (within specification) or not (out of specification). In batch processes, unlike continuous ones, quality holds paramount importance. Subpar quality in batch processes can result in the scrapping or reprocessing of entire batches, leading to significant losses.

Quality losses in batch processes are often quantified in terms of time. This calculation should encompass both scrapped and reprocessed materials. Additionally, 'start-up rejects' relate to issues encountered during the initial phases of production setup that can adversely affect product quality.

One challenge in calculating quality losses is that quality can only be ascertained at the end of the production process. Another challenge arises because quality audits can sometimes extend over hours or even days. In such cases, an alternative option is to compute OEE solely based on availability and performance, omitting the quality factor. This approach proves reasonable when there is a significant lag in obtaining reject or scrap information, typically spanning a day or longer. For many manufacturers, availability and performance are the primary contributors to lost production time. Reporting quality losses through alternative Key Performance Indicators (KPIs) is advisable.

4.2.4. OEE Application

We've explored the critical considerations for measuring availability, performance, and quality, each playing a significant role in optimising production efficiency and minimising losses. Now, we'll put these theoretical aspects into practical perspective through a real-life example.

Like the continuous process, OEE holds significance in two distinct phases: real-time loss notification and loss categorisation. Both approaches have been implemented in this example, providing valuable data for the site management team and operations staff. We will delve into the details.

4.2.4.1. Real-time Loss Notification

In the real-time loss notification, using the Cyzag platform, the operator has a comprehensive view of losses in real-time. This view encompasses the entire batch and individual steps, facilitating a comparative analysis against the benchmark 'Golden Batch.'

Within this trending view, operational staff track loss accounting through an interactive online graph akin to the illustrative image 7. The current batch is compared in real-time to the best or last batches to give the operator a live view of the current batch performance.



Image 7: Batch process: real-time loss notification – trending view.

Facilitating swift comprehension, a colour-coded scheme enables operators to discern whether a step's duration is faster (depicted in green) or slower than the corresponding step in the “Golden Batch” benchmark, as illustrated in image 8. Instances of downtime events are highlighted in red, providing a quick reference for operational interruptions. Both downtime and step-loss events undergo automatic identification and recording in a detailed loss table, aiding in the discernment of their impact on the Overall Equipment Effectiveness (OEE) value.



Image 8: Batch process: batch timeline with associated losses.

It's worth noting that, in this specific context, quality losses are excluded from the trending analysis. This exclusion is attributed to the nature of quality assessments, which often occur as post-process inspections. The consideration of quality losses is reserved for the loss categorisation phase - an offline measurement but still a valuable tool for process improvement.

4.2.4.2. Loss Categorisation and Analytics

In this second part, categorising losses offers an exploration of the production landscape, delivering a comprehensive overview for broader improvements.

This approach pinpoints the extent of losses and facilitates well-informed prioritisation of corrective measures. The system allows for the creation of various perspectives tailored to specific interests. For instance, the graph in image 9 was generated to pinpoint the primary losses affecting the OEE (availability and performance) observed in every batch produced in the last month.

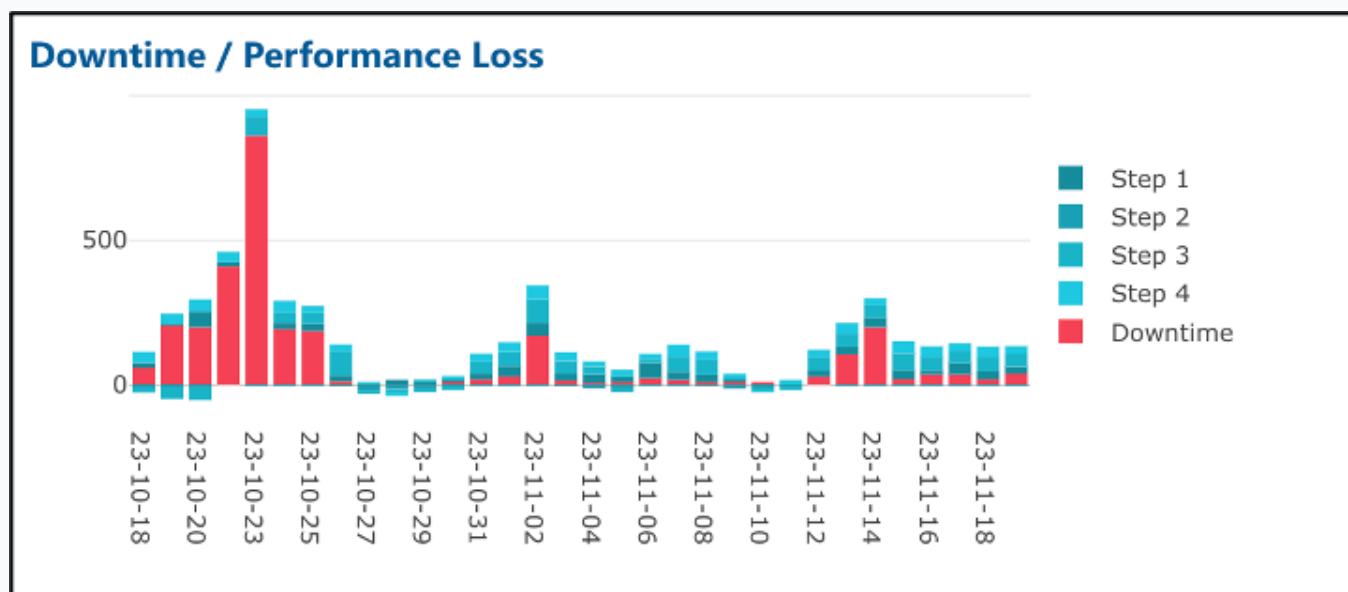


Image 9: Batch process: availability and performance loss overview.

This method also enables the examination of statistics for each process step, facilitating the comparison of individual steps or products and the construction of Statistics Process Control (SPC) charts, as per image 10. The accumulation of comprehensive data enhances understanding of longer-view process behaviour, driving effective actions.

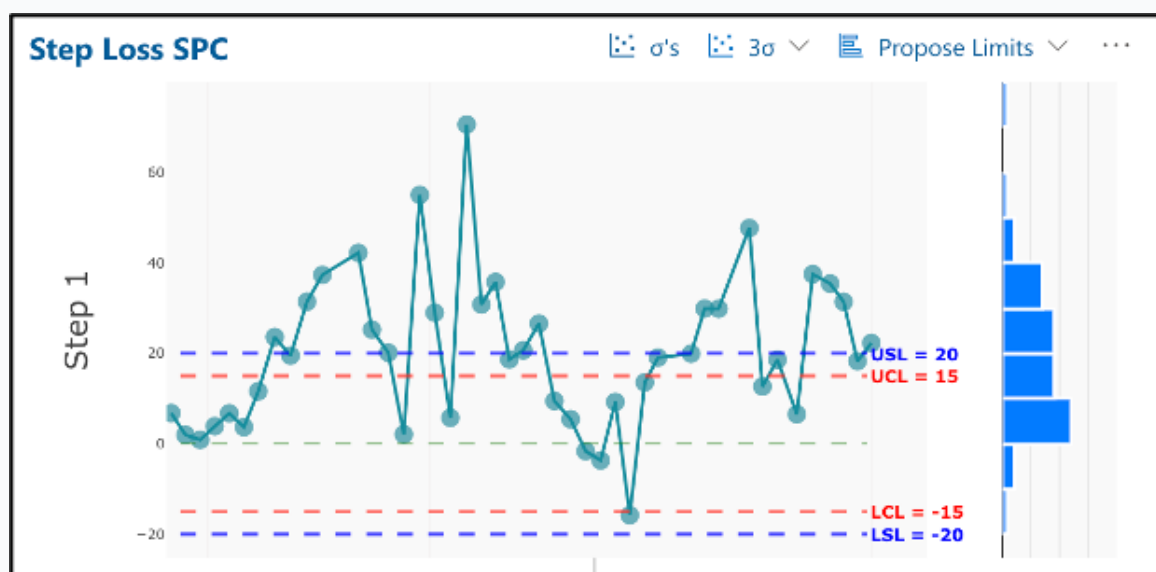


Image 10: Batch process: "Step 1" statistical process control.

Another available technique is the generation of Pareto charts, streamlining the prioritisation process. The Pareto chart comes with extensive customisation options, providing the ability to delve into products, steps, categories, factors, functional locations, and more.

A practical example in image 11 illustrates the total losses over the past 30 days across various steps and products. This visual representation provides a quick and comprehensive overview of production losses, helping to grasp the big picture effortlessly.



Image 11: Batch process: Total Loss Pareto – Step & Product.

Furthermore, a root cause analysis (RCA) can be conducted within the platform for each step/ product loss, establishing connections between events, losses, and the corresponding actions taken.

Integrating real-time loss notifications with loss categorisation establishes a comprehensive approach to batch-process OEE management. Operators can promptly address real-time issues, while the categorisation process aids in identifying trends and implementing preventive measures. It is crucial to note that sustained OEE success relies on continuous feedback and a commitment to fostering a culture of improvement.

5. Is OEE the Right Measure for You?

When continuous processes run at peak capacity, generating exclusively high-quality output, the OEE metric may fail to provide a comprehensive overview and improve operational efficiency. Two other metrics can be applied: the TEEP (Total Effective Equipment Performance) and the OOE (Overall Operations Effectiveness). These definitions are not restricted to continuous processes; they can also be applied to batch processes.

OEE, OOE, and TEEP all take availability, performance and quality into account. The primary differentiator between these three metrics is in how you define Availability. In other words, the only changing variable between these three calculations is the “maximum time” used in each analysis.

These three metrics are a cascading system. TEEP measures the total effective equipment performance, OOE measures your current equipment performance, taking unscheduled time during plant operating time into account, and OEE measures actual. View image 12 below to see the relationship between all of them.

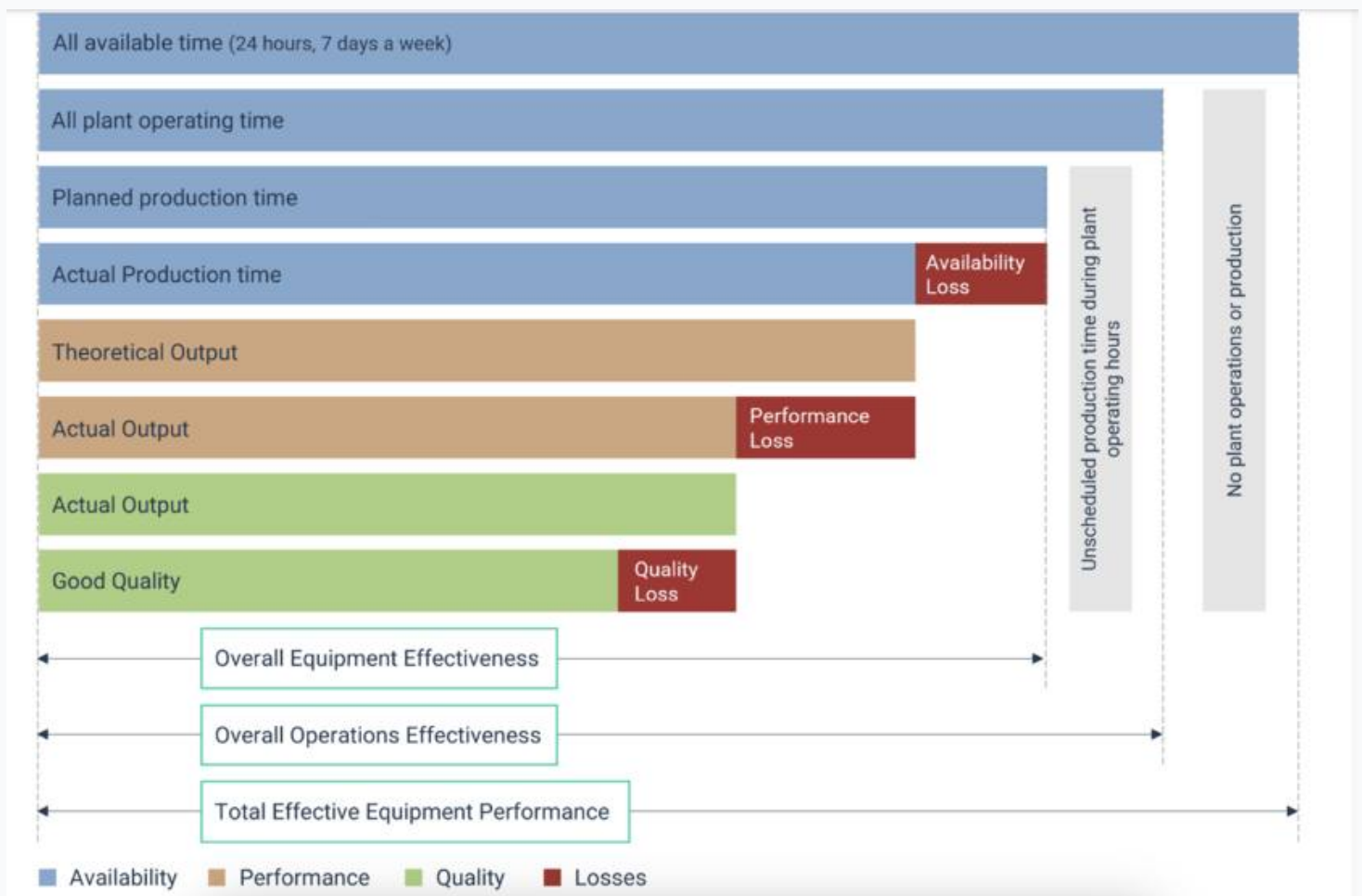


Image 12: OEE, OOE, and TEEP comparison.

5.1. Total Effective Equipment Performance (TEEP)

TEEP goes beyond the typical losses covered by OEE and OOE, offering a holistic perspective on equipment effectiveness across diverse operational scenarios. Unlike its counterparts, TEEP sheds light on idle equipment, addressing the question: "How much could we potentially produce if scheduling wasn't a constraint?"

For batch processes, calculating TEEP helps make informed decisions like adding new shifts, running operations during holidays, or extending production to weekends. For instance, running a machine 24/7 for a week with uninterrupted production of on-spec products yields a TEEP of 100%. Contrastingly, if the same machine operates 16 hours a day, reaching 85% of maximum speed and delivering on-spec products, the TEEP drops to 56%.

5.2. Overall Operations Effectiveness (OOE)

OOE factors in losses related to unscheduled time, considering Total Operations Time as the maximum benchmark. It's the ratio between the produced good products and the theoretical maximum output during all scheduled shift-time, including unscheduled ones.

5.3. Summary of OEE, TEEP, and OOE

Whether you're using OEE, TEEP, or OOE, the paramount focus should be on the ultimate objective: identifying areas on-site that demand action to boost availability, production rate, and product quality. Tailor your measurements to align with the plant's operational needs and engage in cross-departmental discussions involving production, maintenance, quality, process, and continuous improvement.

The goal is to cultivate a collaborative atmosphere among teams, avoiding setting arbitrary targets or assigning blame. Consider how leveraging OEE can assist each team in setting priorities and streamlining tasks. Keeping these questions in mind empowers you to effectively identify and mitigate losses while fostering a culture of continuous improvement.

6. Solutions for Manufacturers

Unleashing the complete capabilities of OEE becomes effortlessly achievable with advanced digital platforms such as Cyzag. Tailored specifically for continuous and batch processes within the process industry, Cyzag is a technological ally. This solution empowers organisations to achieve operational excellence and elevate efficiency levels consistently.

Cyzag achieves this by automating the identification and classification of losses and conducting root-cause analyses. This automation streamlines the problem-solving process, paving the way for impactful improvements and revealing the hidden costs associated with OEE.



Here's how Cyzag makes it possible:

- **Automate OEE Calculation:** Transforming OEE calculations into a real-time, accessible process from any location.
- **Visualise OEE and Build Trends:** Providing a dynamic and visual representation of OEE parameters while allowing trend analysis.
- **Automate Production Loss Generation and Classification:** Automatically generate and classify production losses using visual aids like Pareto charts or other preferred charts.
- **Root-Cause Problem-Solving:** Identifying, documenting, resolving and communicating root causes behind production losses making use of graphical 5Whys and Ishikawa.
- **Register and Manage Actions:** Facilitating the registration and management of actions to eliminate losses.
- **Data Storage and Auditing:** Ensuring all data is securely stored and readily auditable for future reference.

7. Summary

Optimising productivity through OEE proves to be a potent tool, traditionally associated with discrete manufacturing but profoundly adaptable to the nuances of manufacturing processes. However, realising its potential hinges on a nuanced approach tailored to the specifics of continuous and batch processes, acknowledging that OEE isn't a one-size-fits-all solution.

The core philosophy and loss accounting methodologies must align seamlessly with each unique process, respecting their inherent differences. While striving for a high OEE score is a natural goal, an excessive focus solely on calculating and reporting these metrics risks diverting attention from broader operational objectives.

Adopting a digital application tailored to this context becomes indispensable for informed and targeted decision-making, enabling the teams to focus on improving instead of measuring OEE. Cyzag's platform, designed for the process industry, brings visibility, transparency, and actionable insights to the OEE application, enabling teams to collaboratively increase production capacity while navigating the realities and constraints of the entire operation.

Last but certainly not least, it's crucial to recognise that OEE is not a standalone program but a metric. Effectively incorporating it into operations depends on leveraging existing systems and processes while maintaining established workflows. Initiatives that authentically save time and money should be valued, whether they are directly connected with OEE. The critical factor is the pragmatic integration of OEE activities into the existing operational framework.

Book a personalised demo and witness how Cyzag can optimise your operations and boost OEE [here](#).

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