Quality Control @ Production

Overview:

Quality control (QC) in production refers to a process where **Infineon actively monitors and inspects products at various stages of manufacturing** to ensure they consistently meet predefined quality standards, identifying and correcting any defects or variations to deliver a high-quality final product.

What is Quality Controls @ Production?

- At Infineon, well established **inspection tools** are installed for product parameters checks **to ensure defects are captured at source,** and **errors on processes are corrected at each process steps**. At end process, **quality gates** are installed to make sure our products meet our targeted quality level. To ensure a holistic management of quality control, key quality systems and tools such as Deviation & Decision Management, Change Management, Audit and Risk Management are required
- As stability is key to achieving our desired Quality performance, **Green Line** and **6-steps Manufacturing Excellence** are 2 key enablers to achieve a stable production environment

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Quality Control @ Production

Key Concepts:

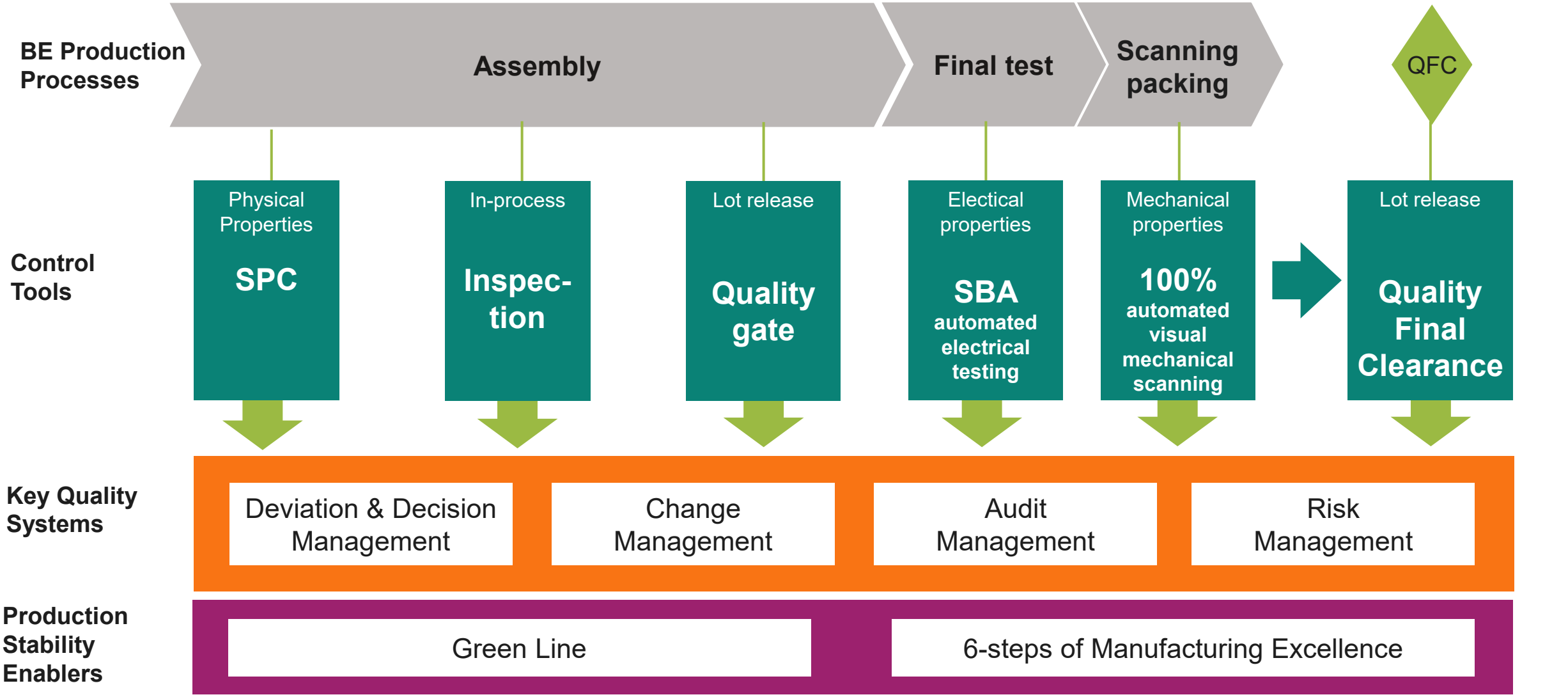
- Key concepts of quality control at production include: setting **clear quality standards**, **regular inspection and testing** at various stages of production, utilizing statistical process control (**SPC**) tools **to monitor variations, identifying and addressing defects** through corrective actions, documenting procedures, and **continuously improving** processes to maintain product quality. **These are to ensure our products consistently meet specified requirements and customer expectations**

Benefits of Quality Control @ Production:

- For customers, quality control in manufacturing provide significant benefits like consistent product quality, increased reliability, reduced risk of defects, improved safety, better customer service, enhanced brand trust, and the assurance that the product will perform as expected, ultimately leading to higher customer satisfaction and loyalty.

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Effective and Efficient Quality Control in Backend Production ensures our Products conforms to strict Quality Requirement



Note : SPC : Statistical Process Control SBA : Statistical Bin Analysis

Green Line

Overview:

The Green Line defines the 4Ms (Man, Machine, Method & Material) **to achieve predictable performance** that **brings stability** in Manufacturing, thus achieving the combined targets of Quality, Productivity and Speed to meet Operation Excellence

What is Green Line?

- **Stability in Backend manufacturing** ensures a stable line performance which is critical to meeting customer delivery and quality requirements all the time at the optimum cost
- Green Line itself **aims to create a production line that is always stable and well-controlled**. In practical terms, it means;
  - All machine tower lights are “green” with no stoppages.
  - Well centered production processes in “the green area”.
  - All stability relevant KPI’s are “green”.

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Green Line

How Infineon is Involved:

The Green Line project **began in Batam plant in March 2012**, initiated by the Backend Board to drive for high performance. Since then, the Green Line has achieved significant success in improving our product quality, machine downtime and competency of our line people. Now **Green Line is seen as a basic foundation and operationalize in all the Backend sites**

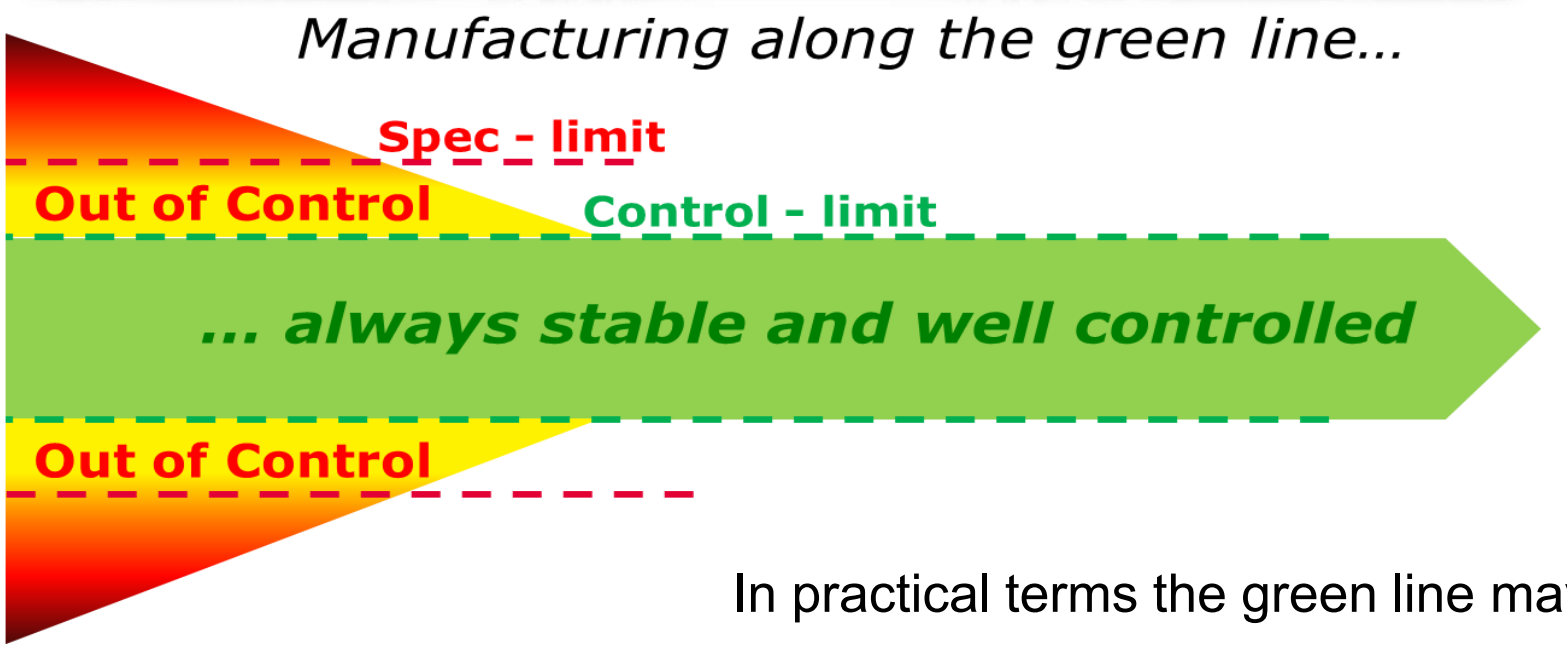
Key Concepts:

- The 4Ms (Man, Machine, Method and Material) entails:
  - Competent **People** in a structured organization to achieve clearly defined targets effectively.
  - Well maintained and highly efficient **Machine** to carry out processes with stable yield and quality
  - Effective **Method** that define procedures and a system to ensure stability
  - Well controlled **Material** that underlines consistent quality and efficient flow

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The goal of Green Line is to have our production lines always stable and well controlled





In practical terms the green line may be explained as:

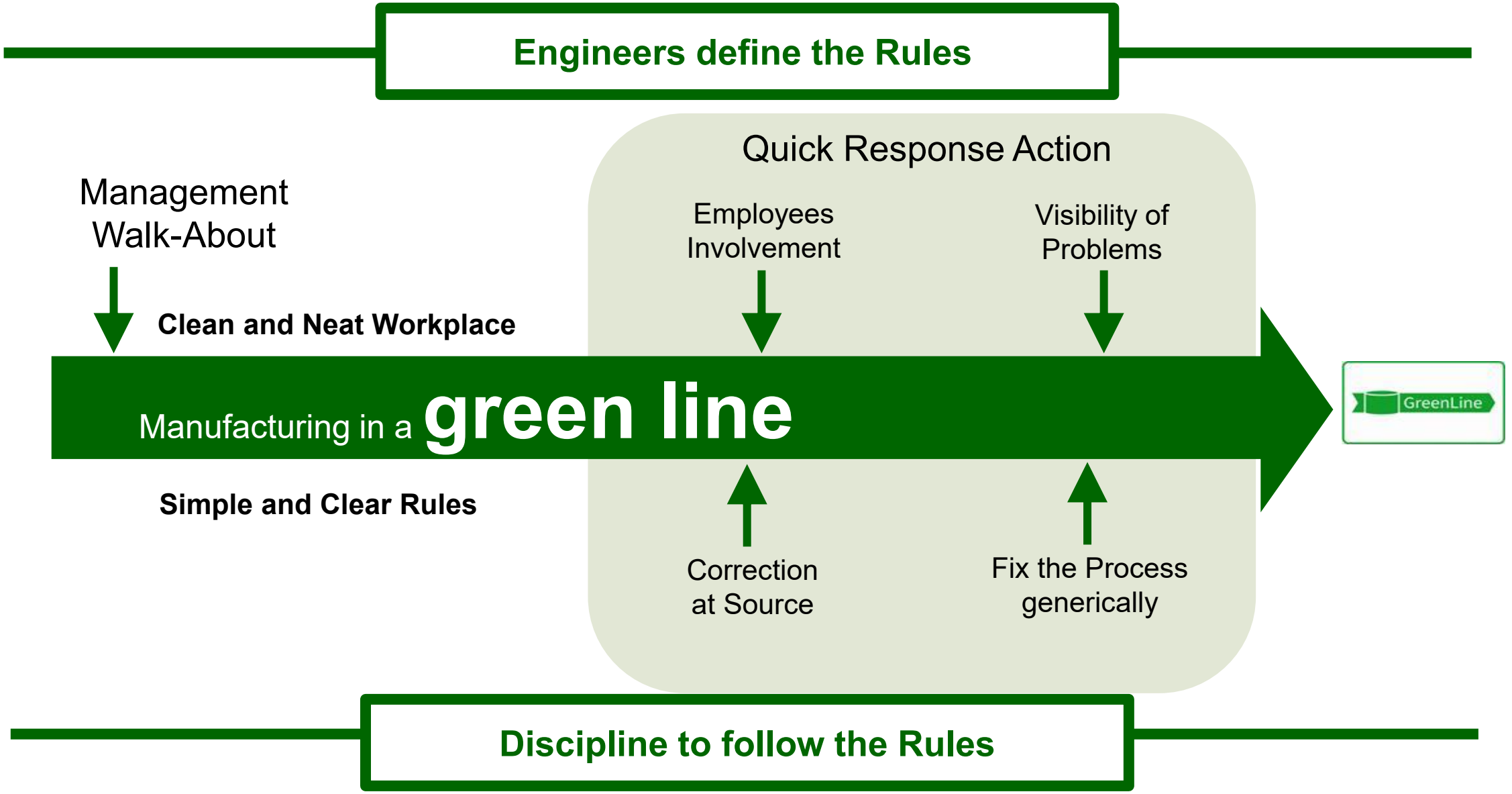
… having a production line with only **green tower lights**

… having well centered processes always in the **green area**

… having all stability relevant targets on **green traffic lights**

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Key elements to achieve stable and well controlled production lines



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6-steps Manufacturing Excellence @Backend

Overview:

6-steps Manufacturing Excellence @Backend serve as the **backbone to achieve high performance** that drive towards holistic of Quality, Productivity, and Speed with sustainable stability through the statistical process control application.

It is a data driven approach towards Manufacturing Excellence, inclusive of leveraging big data through Advanced Data Analytics & Artificial Intelligent solutions.

What is 6-steps Manufacturing Excellence @Backend

6-steps Manufacturing Excellence @Backend is a framework and thought process to drive, consolidate, and integrate all stability initiative in Backend to guarantee sustainable stability. The 6-steps are: Characterize, Right Controls, Stabilize, Auto Trigger, Auto Pilot and Harvest.

With a high-performance mindset, the **goal is to exceed all three operational excellence in Quality, Productivity and Speed.**

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6-steps Manufacturing Excellence @Backend

Key Concepts:

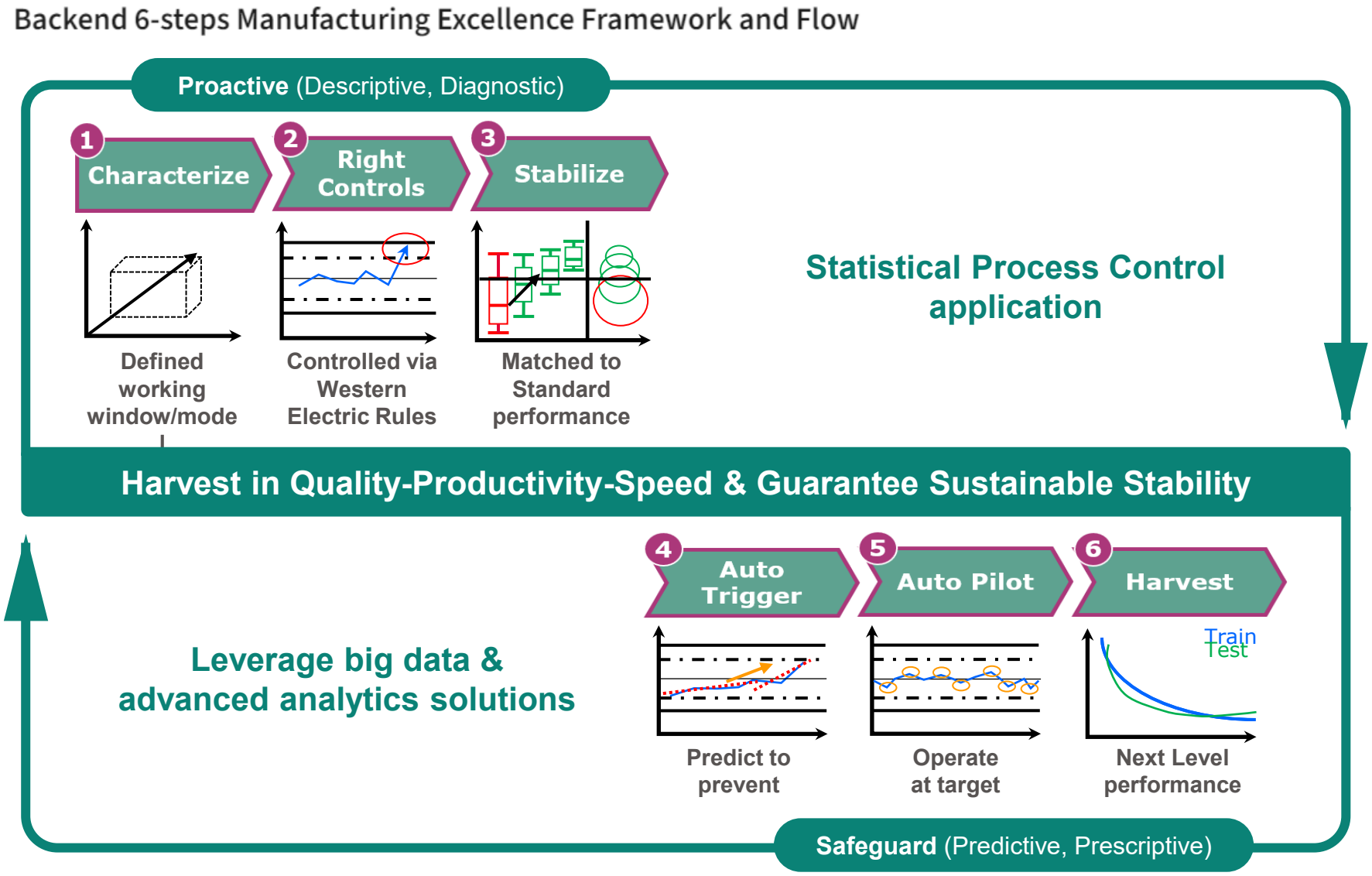
- **Step 1 Characterize:** Understanding the input-process-output parameters of Machine, Method, Material, and Environment by defining the working model and windows. Outcome of Step 1 is to clearly identify all Critical Parameters & Setting that influence performance.
- **Step 2 Right Controls:** Monitor and regulate all critical parameters so that deviation from standards is minimized. Outcome of Step 2 is to conclude the effectiveness of statistical application & control measures.
- **Step 3 Stabilize:** Achieve sustainable stability through statistical performance matching with consistency. Outcome of Step 3 is to uncover the missing/ unknown critical parameters towards holistic performance matching.
- **Step 4 Auto Trigger, Step 5 Auto Pilot and Step 6 Harvest:** Safeguard the future through big data and Advanced Analytics to strives for the next level of performance through Best-in-Class matching, standardization, and living up to advanced industrial standards using predictive and prescriptive analytics.

Benefits of 6-steps Manufacturing Excellence @Backend:

- Backend 6-steps Manufacturing Excellence is a framework to guarantee sustainable stability across Backend sites.
- It harvest in Quality, Productivity, and Speed through statistical process control applications.
- Accelerate engineering competency through data driven critical parameters learnings.

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6-steps Manufacturing Excellence @Backend serve as the backbone to achieve high performance with sustainable stability



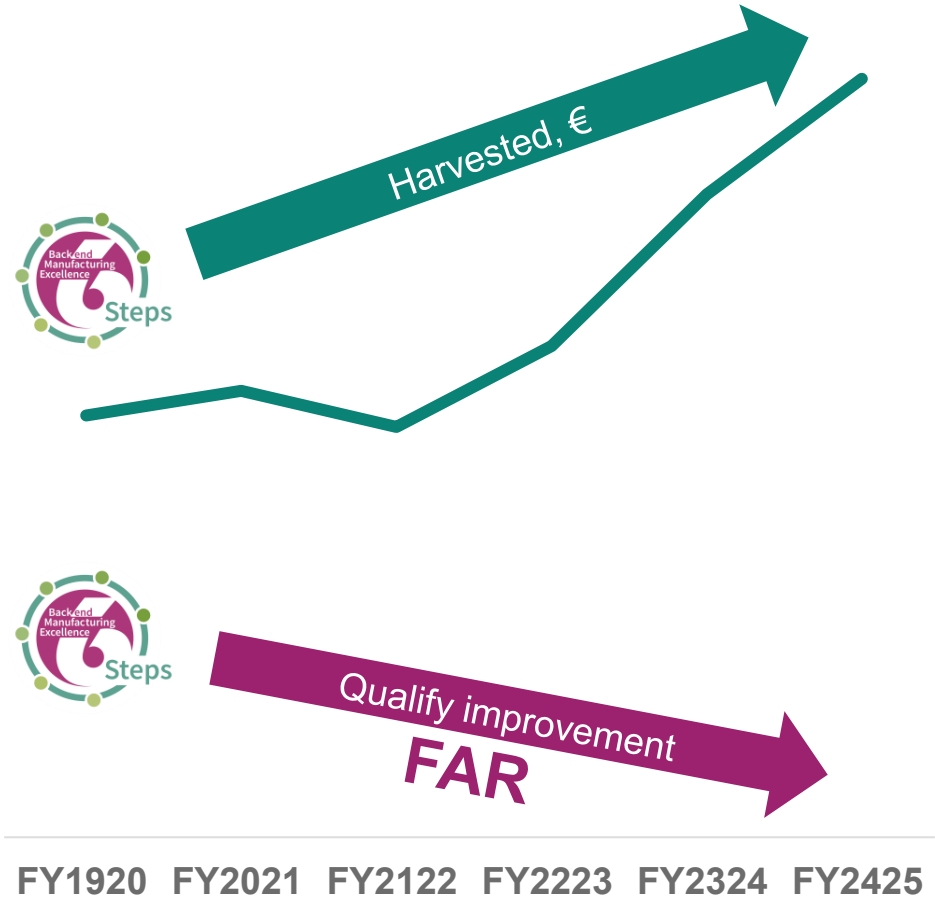
6-steps Manufacturing Excellence @Backend is a framework and thought process to drive, consolidate, and integrate all stability initiative in Backend to guarantee sustainable stability.

The 6-steps are: Characterize, Right Controls, Stabilize, Auto Trigger, Auto Pilot and Harvest.

With a high-performance mindset, the goal is to exceed all three operational excellence in Quality, Productivity, and Speed.

Gaining momentum to operationalize 6-steps into daily works of engineers towards sustainable stability





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