

## Introduction

**AGen Material Requirement Planning (AMRP)** replaces manual excel formula with **technology-driven tools** web design with real-time system integration. The goal is to determine what materials are needed, how much, and when they are needed to meet production schedules, while minimizing excess inventory.

At Factory, **AMRP** helps translate customer orders and production forecasts into detailed material requirements. By using information such as the master production planning, bill of materials, and inventory records, the system ensures that the right materials are available in the correct quantities and at the appropriate time. This structured planning reduces the risk of production stoppages caused by material shortages.

Effective **AMRP** implementation also supports cost control within the factory. Proper planning helps reduce excess inventory, storage costs, and emergency purchasing, which can significantly increase operational expenses. For Factory, efficient material planning contributes to improved cash flow and better utilization of resources.

Moreover, **AMRP** enhances coordination between departments such as purchasing, production, and warehousing. Clear material schedules allow teams to work more cohesively, improving communication and overall operational performance. This coordination is essential for maintaining smooth and consistent manufacturing processes.



## Planning & Setup

### Objective

The objective of planning and setting up for a digitalized factory Material Requirement Planning (MRP) process flow is to ensure the timely availability of the right materials in the right quantities while optimizing inventory, reducing costs, and enabling accurate, data-driven, and agile production planning through integrated digital systems.

### Key activities

- Bill of Materials (BOM) and master data setup, including part numbers, quantities, and lead times
- MRP calculation and net requirement generation using digital planning systems
- Procurement and replenishment planning, triggering purchase requisitions or manufacturing orders
- Capacity and lead-time check, ensuring feasibility of material supply
- Exception handling and re-planning, responding to demand or supply changes

### Digital tools

- ERP / Inventory Management System
- AGen Material Requirement Planning application (computer)
- Central dashboard for control

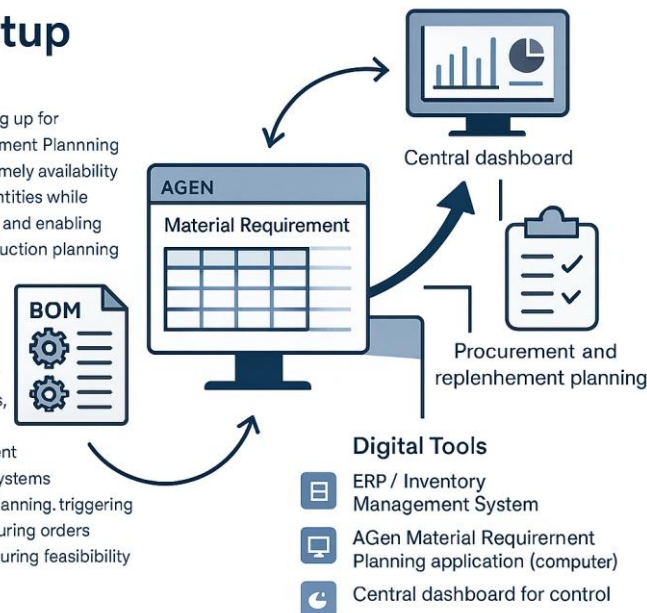
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## Device & User Login

### Objective

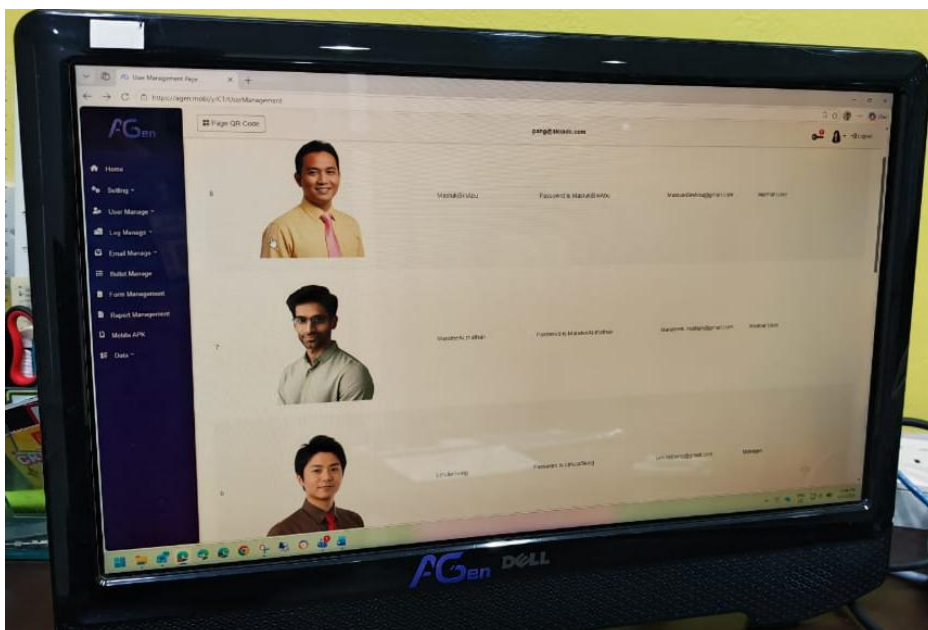
**AGen Digitalized Factory Material Requirement Planning Process** ensures only authorized users only allow access to the page. AGen comes with build-in-remember user login function whereby the user just needs to key in once then the next login will be allowed to bypass. Quick shortcut makes the accessing application can be launched by just clicking the icon on the desktop.

### Key activities

- Staff log in via computer, mobile device or handheld scanner.
- System assigns:
  - Finish product versus raw material
  - Product categories
  - Formula Input
- Devices sync the latest Production data.

### Benefits

- Prevents wrong amount of raw material counting
- Track accountability by user



# Digital Planning (Read, Manage, Arrange)

**Objective:** Digitally capture and display accurate data, intelligently manage material requirements, and arrange execution-ready plans to ensure the right materials are available at the right time for uninterrupted production.

### How it works

- Staff enter formula to the AGen system (Management Page)
- Enter or select final product (Production Page)
- System validates SKU against master data
- System display Build of Material required to produce this final product

### Data captured

- SKU / Item code / EAN13 barcode
- Quantity counted
- Location (Auto display)
- Time stamp (Auto Date and Time Stamp)
- User ID (Auto User ID after login)

### Advantages

- Eliminates manual writing errors
- Formula inserts and formula use are on different page. No mistake of accident keyboard input into formula.
- Faster and easier to use system
- Real-time validation
- Guided systematic stock count



## Real-Time Data Sync & Monitoring

### Objective

Real-Time Data Sync & Monitoring in a digitalized factory Material Requirement Planning (MRP) process ensures that inventory, production, purchasing, and warehouse data are visible instantly across all departments. This allows planners and management to monitor material availability, production progress, stock movement, and purchase orders in real time (Job sheet Capture). By using connected systems, factories can reduce manual errors, prevent material shortages, avoid overstocking, and improve production scheduling accuracy. Real-time monitoring also helps decision-makers respond quickly to production changes, ensuring smooth operations, better inventory control, and timely delivery of finished goods to customers.

### Key activities

- Planned build of Material information from central system.
- Job Build Of Material (BOM) shows:
  - Finish goods to be produced.
  - Raw Material Required
  - Variance vs system stock
- Supervisors can rearrange raw material purchases.

### Digital benefits

- No waiting for paper consolidation
- Immediate visibility of issues.
- Information is more transparent and shared.



## Variance Analysis

### Objective

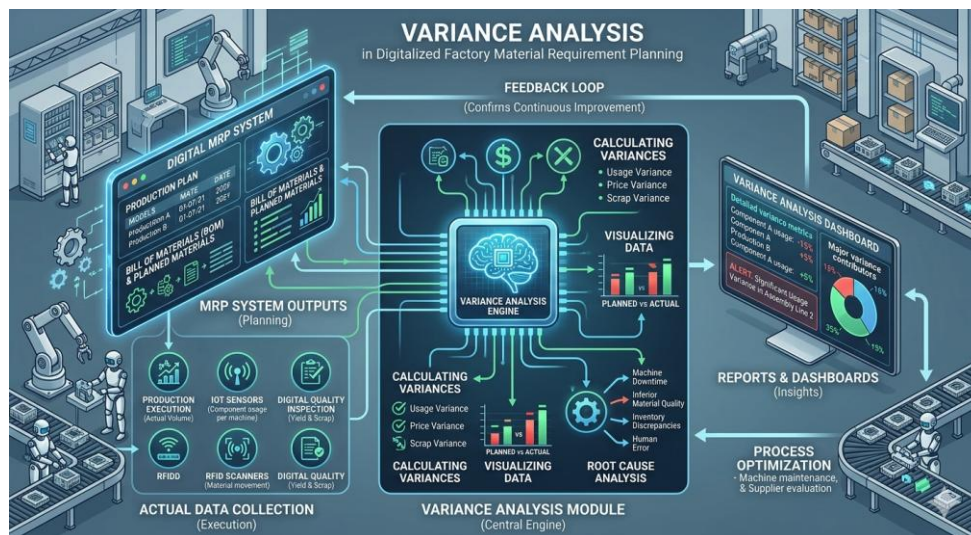
The objective of variance analysis in a digitalized factory MRP process is to identify, quantify, and explain deviations between planned material requirements and actual outcomes, so the organization can improve planning accuracy, operational efficiency, and decision-making.

### Core Objectives

- Ensure Planning Accuracy
- Improve Inventory Optimization
- Enhance Production Stability
- Increase Cost Control & Financial Accuracy
- Enable Faster, Data-Driven Decisions
- Strengthening Supplier & Procurement Performance
- Support Continuous Improvement & Digital Maturity

### Analysis includes

- Finish goods versus raw materials formula
- Receiving history (From AGen Receiving)



## Exception Handling & Replanning

### Objective

Exception Handling & Replanning in a digitalized factory Material Requirement Planning (MRP) process aims to quickly identify and respond to unexpected issues such as material shortages, delayed deliveries, machine breakdowns, or sudden changes in customer demand. The objective is to automatically alert relevant departments, recalculate material requirements, and adjust production or purchasing plans in real time. This helps factories minimize downtime, avoid production delays, reduce waste, and maintain smooth operations. By enabling faster decision-making and coordinated responses, digitalized replanning improves production flexibility, inventory accuracy, and on-time delivery performance.

### Key activities

- Classify exception type – Categorize (e.g., demand change, supply delay, quality issue).
- Trigger replanning – Automatically initiate MRP rerun with updated constraints.
- Adjust parameters – Modify safety stock, lead times, or order quantities digitally.
- Simulate alternatives – Test “what-if” scenarios (e.g., substitute supplier, rush order).
- Notify stakeholders – Send alerts to planners, procurement, and logistics.

### Outcome

- **Minimized production disruption** – Maintains continuity despite material or capacity deviations.
- **Optimized inventory levels** – Avoids overstock or critical shortages through dynamic adjustment.
- **Rescheduled procurement & production** – Purchase orders expedited, delayed, or canceled; shop floor orders shifted.
- **Alternative sourcing triggered** – Automatic or semi-automatic switch to backup suppliers or routes.

## Inventory Adjustment & System Update

### Objective

The objective of **Inventory Adjustment & System Update** in a digitalized factory's AMRP process flow is to **maintain data integrity and synchronization** between physical stock and the digital system. This ensures that all material records reflect real-time consumption, receipts, returns, or scrap. A continuously updated inventory foundation allows replanning logic to trigger reliable purchase or production orders, ultimately enhancing operational efficiency and reducing manual data correction efforts.

### Actions

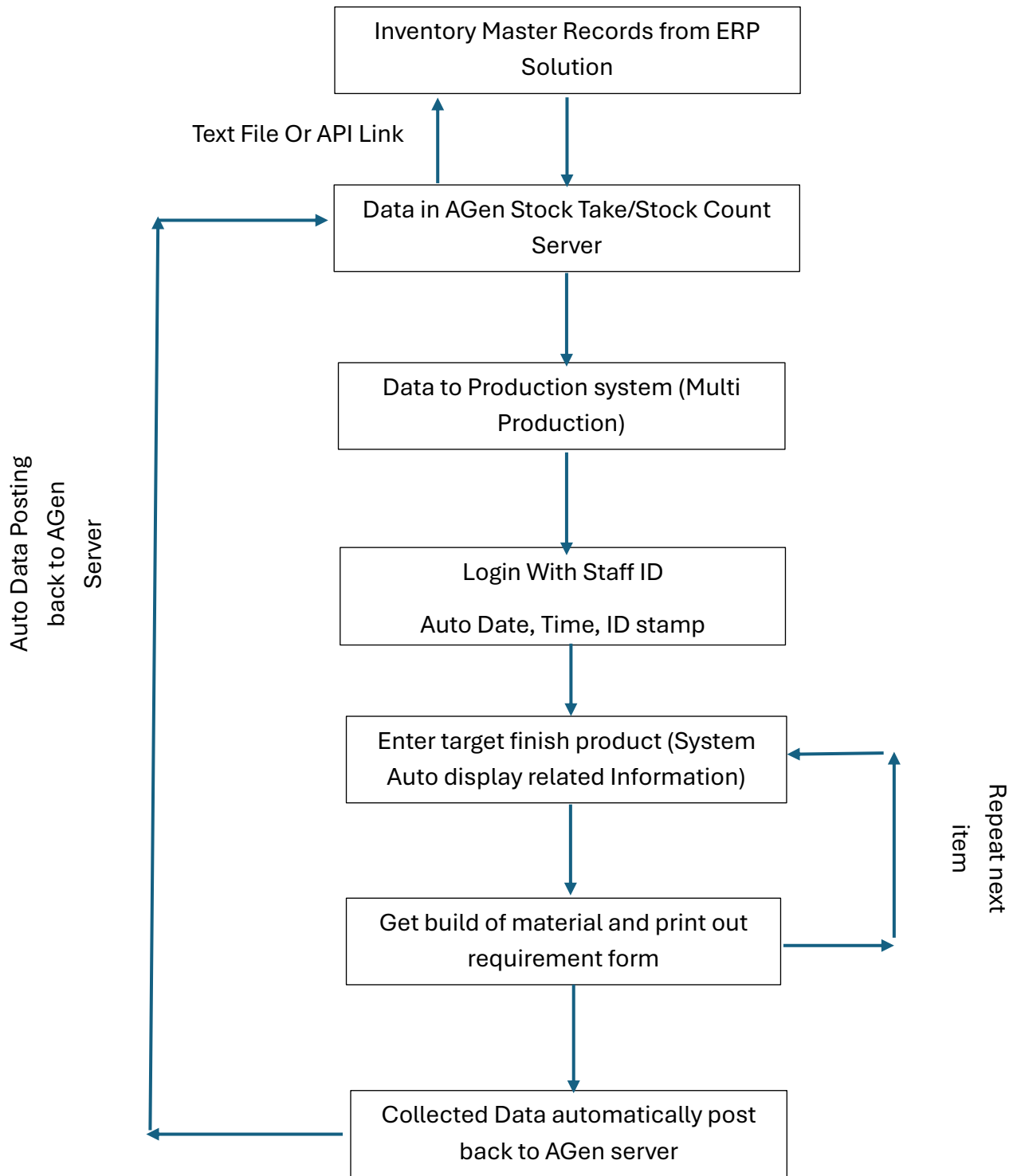
- Capture physical inventory changes
- Inventory level updated in material master
- Update MRP tables from time to time

### Integration

- Enterprise Resource Planning (ERP)
- Warehouse Management System (WMS)
- Finance Purchase Order module



## Process Flow for Material Requirements Planning



## Device Accessing to AMRP

### Objective

AGen device management solution is offering our customers the centralised access from different devices to AGen. The system administrator can easily detect which user or department device is trying to access online. It makes the server information to be displayed and share among the staff.

### Actions

- All users connected to AGen server
- Device Login Requirement

### Outcome

- Device basic information
- Information updating



## Build In Free Barcode scanner

### Objective

AGen comes with free build in barcode scanner for the objective of making sure the barcode reading operation performed by AGen application does not affect even the primary barcode scanner customer use is defect during the operation. We understand how important reading barcode data is for our customers. We hope staff have no excuse to blame the devices, so they do not need to work on their task.

### Actions

- Enable or disable the barcode scanner from the AGen software.
- Device basic barcode scanning can still be performed with device camera.
- Use the build in free barcode scanner to capture barcode.

### Advanced insights

- Build in free barcode scanner in AGen give you backup if your barcode scanner is failed in your device.
- This barcode scanner also helps mini warehouses who do not want to invest in barcode scanners.
- It makes sure the planner, and operator is scanning and able to scan the barcode generated to represent identity of the raw materials



## Reporting & Insights

### Objective

Learn and improve future operations. From AGen user configurable reporting tools, back-end users can anytime configure their own daily report. Users will not be constrained by the software reporting capability.

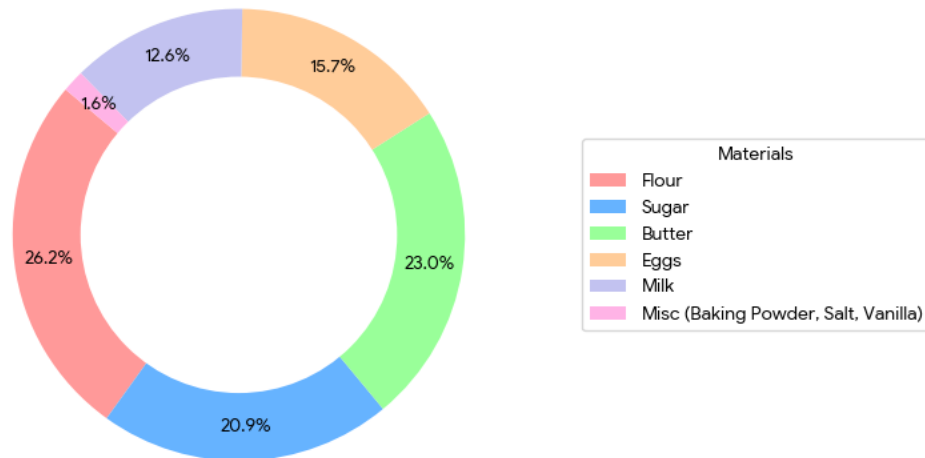
### Standard reports

- Build Of material reporting
- Formula Report
- Daily Planning Report

### Advanced insights

- Trend analysis over multiple products.
- Chart based on formula

Raw Material Distribution for 100 Cupcakes (by Weight)



## Daily Email Alert for Data Transfer Summary

### Objective

Automatic alert administrators on daily data collected by different product planned automatically. System administrators in surface need to make sure all the production planning done is moving smooth daily in every branch so they can complete their administrative task on the devices and data planning process.

### Actions

- Enable or disable the auto email alert from AGen software.
- Configure the information required to appear on the email.
- Daily data transfer activity review from AGen summary page.

### Advanced insights

- Building an email alert system makes device administrator life easier.
- Let the software automatically work and report to you without any clicking.



Date	Week	Barcode	Online	Posted	Total	Status	Remark
23/04/2026	Thursday	2102	13/13	2102/2102	3734	Success	No
22/04/2026	Wednesday	2262	13/13	2481/2262	3734	Success	Post yesterday fail posting date
21/04/2026	Tuesday	2744	13/13	2525/2744	3734	Need Attention	Data posting fail
20/04/2026	Monday	3904	13/13	4422/3904	3734	Success	Post yesterday fail posting date
19/04/2026	Sunday	2635	13/13	2635/2635	3734	Success	No
18/04/2026	Saturday	3010	13/13	3011/3010	3734	Success	Post yesterday fail posting date
17/04/2026	Friday	4269	13/13	4269/4269	3734	Success	No
16/04/2026	Thursday	3916	13/13	3915/3916	3734	Need Attention	Data posting fail
15/04/2026	Wednesday	3631	13/13	3631/3631	3734	Success	No
14/04/2026	Tuesday	3618	13/13	3618/3618	3734	Success	No
13/04/2026	Monday	3384	13/13	3384/3384	3734	Success	No
12/04/2026	Sunday	2407	13/13	2407/2407	3734	Success	No
11/04/2026	Saturday	2759	13/13	2759/2759	3734	Success	No
10/04/2026	Friday	3693	13/13	3693/3693	3734	Success	No
09/04/2026	Thursday	3444	13/13	31288/3444	3734	Success	Post yesterday fail posting date
08/04/2026	Wednesday	2350	13/13	13819/2350	3734	Success	Post yesterday fail posting date