EBOOK

The Future of Process Manufacturing: Strategies to Help You Stay Ahead of the Curve

Bonus Inside
14 Essential Features of a Process
Manufacturer's ERP

FORGESTIK

About SAP

SAP Business One is a powerful yet easy-to-use ERP management system that offers a wide range of features to help small and midsize businesses streamline their operations.

With SAP Business One, businesses can improve their forecasting, inventory management, financials, and customer relations. In addition, SAP Business One offers a wide range of customization options to meet the unique needs of each business.

About Forgestik

Specialist in the implementation of the SAP Business One ERP solution, Forgestik supports small and medium-sized businesses in the deployment, optimization, and evolution of their management solution. For more than 30 years, Forgestik has been the trusted partner of SMEs looking to grow their business.

With offices across Canada and the United States, our team of experts is committed to meet the needs of growing SMEs by providing high-quality implementation services and customized solutions. Forgestik is a top SAP Partner and received the Best Canadian SAP Business One Partner award for 4 consecutive years.

INTRODUCTION

Numerous obstacles, from supply chain management to regulatory compliance, can impede a process manufacturing company's success. These challenges are further compounded by the constantly evolving nature of the industry, with new technologies and innovations emerging regularly.

As such, process manufacturing professionals must stay up-to-date with the latest trends and strategies to remain competitive and succeed in today's market.

This ebook is designed to provide readers with a comprehensive guide to the most pressing challenges facing process manufacturing companies and practical solutions and strategies to help overcome them, including an overview of the top 14 ERP features.

CHALLENGE #1
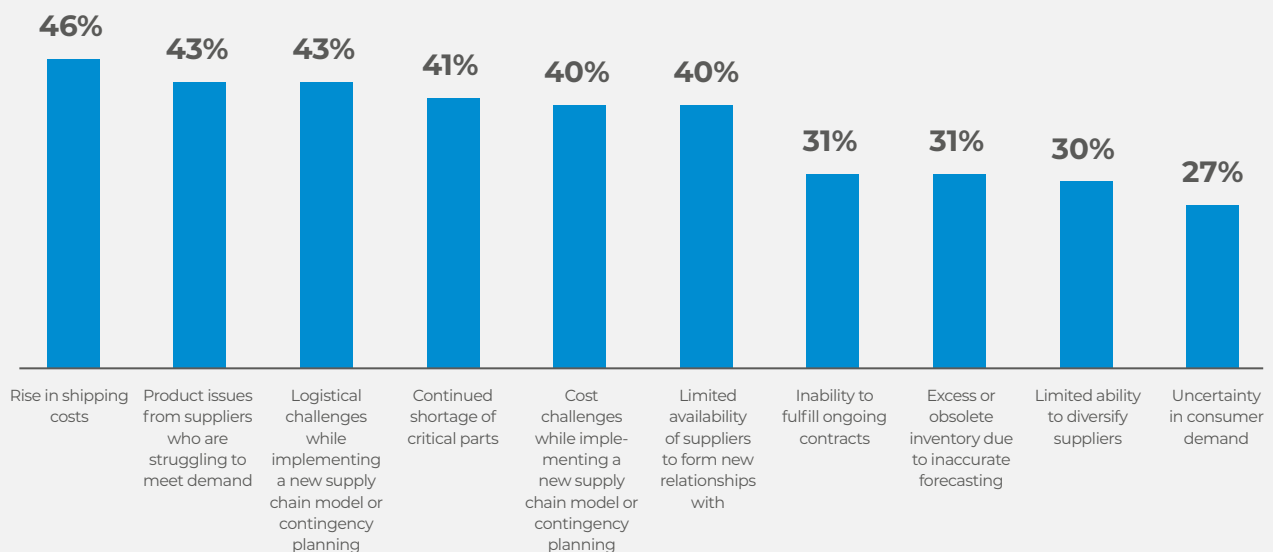
Raw Materials Availability and Price Volatility

Sourcing has become a significant challenge for process manufacturers. As raw materials and ingredients cost is <u>expected to rise in 2023</u>, companies must take preemptive steps to protect their businesses from inflationary pressures.

Inflation of material costs, transportation, logistics fees, and the pressure to meet demand at any expense has created an environment where operational efficiency is paramount.

Challenges of Sourcing Raw Materials in a Volatile Marketplace

The significant fluctuation of raw materials cost is mainly due to geopolitical instability, increased demand for certain materials, and limited availability. Inflation is also an ongoing economic reality that can have far-reaching implications for process manufacturers.

Top operational concerns range from rising costs to logistical issues in inbound supply challenges, affecting manufacturers' ability to fulfill ongoing contracts

46%	43%	43%	41%	40%	40%	31%	31%	30%	27%
Rise in shipping costs	Product issues from suppliers who are struggling to meet demand	Logistical challenges while implementing a new supply chain model or contingency planning	Continued shortage of critical parts	Cost challenges while implementing a new supply chain model or contingency planning	Limited availability of suppliers to form new relationships with	Inability to fulfill ongoing contracts	Excess or obsolete inventory due to inaccurate forecasting	Limited ability to diversify suppliers	Uncertainty in consumer demand

Source: Deloitte analysis of 2022 manufacturing supply chain study data

85.7% *of manufacturers cited increased raw material costs as the 2nd primary business challenge in the first quarter of 2022*

National Association of Manufacturers

Higher costs can impact their bottom line and lead to less competitive products. Buying in bulk when prices decrease may also result in overstocking and increased storage costs.

Best Practice Strategies to Proactively Tackle Raw Material Sourcing

To proactively tackle raw material sourcing, companies can adopt the following **best practice strategies:**

1. DIVERSIFY THE SUPPLIER BASE

88% *of process manufacturers plan to add new suppliers to their portfolio over the next 12 months.*

Appean

Relying on a single supplier can be risky, leaving companies vulnerable. By diversifying their supplier base, companies can spread risk and ensure quality materials. Identifying multiple suppliers to negotiate better prices and terms is key, as well as investing in nearshore sources to reduce reliance on foreign countries. Companies with regional diversity fared better during supply chain disruptions than those with suppliers in one region. However, dual sourcing may increase costs, as 43% of respondents noted it to be a top constraint *(source: Deloitte, Sept 2022)*.

%

*Nine out of 10 survey respondents have multiple suppliers, but only **44%** have regional diversification of suppliers.*

Deloitte, Sept 2022

2. DEVELOP STRONG SUPPLIER RELATIONSHIPS

Manufacturers must build strong, trust-based supplier relationships for successful raw material sourcing. Regular communication and collaboration can help identify cost savings and process improvement opportunities.

Key risk mitigation strategies companies are implementing over the next year

Top strategies

Strengthening existing relationships — **83%**

Pursuing multiple and regionally diverse suppliers — **81%**

Relying on digital supply chain tools for increased visibility into their supply chain — **76%**

Moving away from just in time (JIT) methodology back to just in case (JIC) — **65%**

Source: Deloitte analysis of 2022 manufacturing supply chain study data

3. EMBRACE TECHNOLOGY AND DATA ANALYTICS

Leveraging technology including tools such as supplier/procurement management, MRP, and analytics dashboards can help optimize raw material sourcing strategy, providing real-time visibility into supply chain performance.

CHALLENGE #2

Increasing Regulations and Compliance

Process manufacturers are subject to a wide range of regulations and compliance requirements designed to ensure the safety and quality of products, protect consumers, and promote environmental sustainability.

The regulatory environment has become more complex and stringent due to environmental and safety concerns, globalization, and growing sustainability awareness.

Increasing Regulations and Compliance Requirements for Process Manufacturers

To stay compliant with regulations and maintain a competitive edge, manufacturers must take proactive steps to improve their compliance processes.

Here are some of the most common compliance challenges companies face:

✓ KEEPING UP WITH CHANGING REGULATIONS

Process manufacturers must comply with evolving environmental, health, safety, and product safety regulations. These may be contradictory or unclear, making compliance a challenge. Non-compliance can lead to serious repercussions, including fines, legal action, and reputational damage.

✓ MANAGING DATA

Compliance entails analyzing vast amounts of data, which can be daunting without a dedicated department. Adopting an ERP system with robust reporting and analytics capabilities can streamline data collection, analysis, and reporting to improve compliance processes.

%

*A report by Deloitte found that **82%** of chemical companies surveyed believe that digital transformation is critical to their success.*

✓ ENSURING COMPLIANCE ACROSS THE ENTIRE SUPPLY CHAIN

Manufacturing companies often rely on suppliers for raw materials, equipment, and other inputs. If a supplier fails to comply with regulations, it can have serious consequences.

✓ MANAGING DATA AND DOCUMENTATION

Complying with regulations requires manufacturers to collect and maintain extensive data and documentation on product composition, manufacturing, environmental impact, quality control, testing, and inspections. Managing this data can be costly, time-consuming, and prone to errors.

✓ MANAGING COSTS

Strict regulations may require substantial investments in equipment, personnel training, and documentation processes. Regulatory fines and legal costs can be significant. Manufacturers must balance compliance costs with being responsible corporate citizens and meeting stakeholders' expectations.

Best Practices for Complying With Regulations

To comply effectively with regulations, process manufacturers can adopt these best practices:

✓ UNDERSTAND THE REGULATORY LANDSCAPE

They must understand the regulatory landscape to comply effectively, including relevant regulations and standards, compliance requirements, and regulatory developments. Establishing a monitoring process and subscribing to newsletters can keep manufacturers updated on regulation changes.

✓ CONDUCT REGULAR RISK ASSESSMENTS

Regular risk assessments help companies identify and prioritize compliance risks by assessing their likelihood and impact. This involves reviewing policies, analyzing data, and conducting internal audits to focus compliance efforts on high-risk areas.

✓ ASSIGN RESPONSIBILITY FOR COMPLIANCE

Assigning responsibility to specific individuals or teams with clear accountability and regular reporting to management is recommended to ensure effective compliance. This can involve designating a compliance officer or team to oversee compliance efforts and report to management.

✓ INVEST IN COMPLIANCE TECHNOLOGY

Investing in an ERP system with compliance features can reduce risk and improve data management. Technology solutions such as document management systems, data analytics tools, and automated reporting can streamline processes and free up resources for other initiatives.

✓ PROVIDE ONGOING COMPLIANCE TRAINING

Ongoing and comprehensive employee training on compliance policies, procedures, and regulations is essential to ensure they know their compliance obligations and are equipped to meet them.

CHALLENGE #3

Quality Assurance

You can have warehouses full of components and materials, built-up delivery channels, links to all the correct business players, and an entire lineup of eager clients. However, all these become worthless without quality assurance.

> **%**
>
> *According to the American Society for Quality, most companies will maintain quality-related costs equal between **15%** and **20%** of total revenue from sales.*

Quality is crucial for maintaining a manufacturer's reputation and customer loyalty. Poor quality can result in lost contracts, customers, and revenue streams. Successful manufacturers invest in a quality system to avoid these costs and ensure success.

> **%**
>
> *Among the respondents, **89%** said they cared the most about the quality of a product when choosing a product to buy, with price coming in at **84%**.*

Common Challenges SMB Process Manufacturers Face in Maintaining Quality Control

Process manufacturing businesses face numerous challenges in maintaining quality control.

Let's examine them:

Issue #1 **LACK OF STANDARDIZED SOPS**

Standard Operating Procedures (SOPs) are critical for achieving quality objectives and performance. SOPs must be standardized and established in all areas, including production, supply chain, equipment, training, and raw material consumption.

Issue #2 **SILOED APPROACH TO QUALITY ASSURANCE**

Legacy systems and siloed departments can create barriers and prevent businesses from consolidating quality control data. This lack of integration results in conflicting quality metrics and processes, making synchronizing people, processes, and systems challenging.

Issue #3 **INEFFICIENT SUPPLIER QUALITY MANAGEMENT**

To ensure compliance and quality standards, manufacturers must pay close attention to supplier quality. Insufficient insight into supplier performance can lead to high non-compliance costs and poor product quality.

Issue #4 **IMPROPER EQUIPMENT MANAGEMENT**

Equipment-intensive industries need a high Return on Invested Capital (ROIC) to meet regulations, customer demands, and internal specifications. Poor equipment management, like maintenance and calibration, can be expensive, prolong time-to-market, and cause defects.

Issue #5 **HIGH COST OF QUALITY (COQ)**

The Cost of Quality (CoQ) measures the resources used by a company for prevention activities and maintaining product quality. A high Cost of Quality is often associated with poor quality, scrap costs, and customer complaints.

How to Develop a Robust Quality Assurance Program

Here are the steps that SMB process manufacturers can take to develop a robust quality control program.

Step #1   **DEFINE YOUR QUALITY OBJECTIVES**

Quality objectives are specific, measurable goals that your organization wants to achieve. These objectives should be based on your customers' needs and business goals. For example, setting a goal to reduce customer complaints by 25% next year or aiming to improve customer satisfaction ratings.

Step #2   **IDENTIFY YOUR CRITICAL CONTROL POINTS (CCPS)**

CCPs are points in the manufacturing process where product quality can be affected. They can be identified through hazard analysis and critical control points (HACCP), a systematic approach to identifying, evaluating, and controlling hazards.

Step #3   **DEVELOP STANDARD OPERATING PROCEDURES (SOPS)**

You should develop standard, concise, easy-to-follow operating procedures (SOPs) for each CCP. SOPs are detailed instructions on how to perform a specific task, and they ensure consistency in your business processes.

Step #4   **IMPLEMENT QUALITY ASSURANCE MEASURES**

An effective quality control program means implementing quality assurance measures to meet your quality objectives. These measures can include regular testing of products, an inspection of raw materials, and regular audits of your manufacturing processes.

Step #5   **TRAIN YOUR EMPLOYEES**

Your employees need proper training on the importance of quality control, performing tasks correctly, and identifying potential quality issues. Regular training sessions should be conducted to ensure all are up to date.

Step #6   **MONITOR YOUR PROGRAM**

Monitoring involves regularly reviewing your quality objectives, CCPs, SOPs, quality assurance measures, and employee training. Monitoring ensures that your quality control program is effective and identifies improvement areas.

CHALLENGE #4

Managing Complex Production Environments

A complex production environment encompasses multiple processes, operations, and resources, making planning, scheduling, and execution more complicated. Without appropriate systems to manage production operations, process manufacturers may face inefficiencies and difficulties when attempting to control costs, schedule tasks, track inventory levels, and analyze data.

The complexity of managing multiple Bills of Materials (BOMs) is a major challenge for SMB process manufacturers. A BOM serves as the blueprint for production and contains all the information required to construct a product, including parts, components, materials, tools, and processes. Managing multiple BOMs can be time-consuming and costly if manufacturers use manual processes.

Managing engineering BOMs and manufacturing BOMs (mBOMs and eBOMs) further increase complexity, as they sometimes need different levels of detail, and the data must be kept up-to-date.

%

*According to a study by McKinsey & Company, the average manufacturing company is operating at only **80%** of its full potential.*

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*Based on Supply Chain Dive, nearly **75%** of manufacturing and distribution executives said they primarily use Microsoft Excel in their sales and operations planning process.*

Let's explore how you can handle these challenges:

Implementing Production Planning and Scheduling

Proper production planning and scheduling are essential components of an effective production environment. It ensures optimal utilization of resources, minimizes lead times and enhances productivity.

Here are some best practices that manufacturers can implement to improve production planning and scheduling:

✓ IMPLEMENT MATERIAL REQUIREMENTS PLANNING (MRP)

MRP is a planning tool that helps to ensure that the necessary materials are available for production at the right time. MRP calculates the materials needed for production based on the MPS and inventory levels, helping to prevent stock-outs and overstocking.

✓ OPTIMIZE PRODUCTION SEQUENCING

Production sequencing is scheduling production runs in an optimal order. You can use an adequate tool to reduce lead times to make the best use of resources considering multiple factors such as production time, changeover time, inventory levels, and customer demand.

✓ USE FINITE CAPACITY SCHEDULING

Finite capacity scheduling is a tool that helps ensure production is scheduled based on available resources. This helps to prevent the overloading of resources and ensures that production runs are scheduled in a way that maximizes productivity.

✓ IMPLEMENT LEAN MANUFACTURING PRINCIPLES

Lean manufacturing is a philosophy that focuses on eliminating waste and improving efficiency. Process manufacturers can implement lean principles such as just-in-time (JIT) manufacturing, continuous improvement, and value stream mapping to optimize production processes and enhance productivity.

✓ USE REAL-TIME PRODUCTION DATA, METRICS AND ANALYTICS

Real-time data on production performance can help identify bottlenecks, optimize processes, and improve efficiency. Together with performance metrics such as on-time delivery, customer satisfaction, and inventory turns which can help track performance and pinpoint gaps in the process.

✓ USE A MASTER PRODUCTION SCHEDULE (MPS)

An MPS is a planning tool that helps ensure production is aligned with customer demand. The MPS specifies what products will be made, in what quantity, and when they will be produced. This helps to optimize production processes, minimize lead times, and ensure customer satisfaction.

> *Embedding better analytics in the business enables better judgment. It's a key component of value-based planning—making it possible to create up to* **20%** *more flexibility in the budget even after previous cost transformation exercises.*
>
> *(PWC)*

CHALLENGE #5

Adapting to Rapidly Changing Markets & Consumer Demands

The world we live in today is marked by rapidly changing markets and shifting consumer demands, with technology and innovation driving these changes faster than ever before. Identifying changes in market conditions and consumer preferences requires a deep understanding of the market and customers, which is time-consuming and challenging for process manufacturing companies.

Challenges in Adapting to Changes in Market Conditions and Consumer Preferences

Here are some of the common challenges:

⊘ SPEED OF CHANGE

Technology advances quickly, and new competitors arise, so companies must be agile and adapt quickly to changing market conditions. This can be particularly difficult for companies that have invested heavily in existing production processes and infrastructure and may not have the flexibility to quickly pivot to new products or production methods.

⊘ SUPPLY CHAIN DISRUPTION

Shipping delays, parts shortages, and transportation issues greatly impacted manufacturing companies in the past year. Production and profits were affected negatively, with up to a 13% decline in profits reported by survey respondents.

Shipping delays had the biggest impact on manufacturers' supply chain in the last 12-18 months

Shipping delays	Part shortages	Transportation delays	Talent shortage	Restricted supplier network	Cyber risk failure	Supplier bankruptcy	Excess inventory
59%	56%	56%	53%	50%	46%	41%	41%
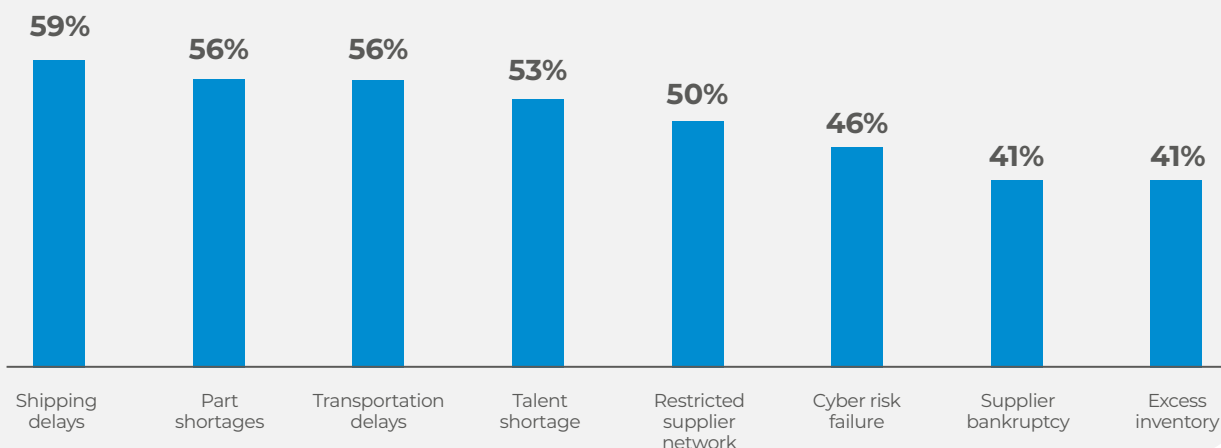
Source: Deloitte analysis of 2022 manufacturing supply chain study data

*According to a study by Accenture, **62%** of chemical industry executives believe that supply chain disruptions are a significant challenge for their businesses.*

✓ THE COMPLEXITY OF THE INDUSTRY

The process manufacturing industry involves many stakeholders, including suppliers, distributors, and customers. This can make it difficult to get a clear picture of market conditions or consumer preferences, as many factors may drive changes in the market.

✓ THE GLOBAL NATURE OF THE INDUSTRY

Companies face regulatory and cultural differences across regions, making it hard to create effective products or marketing for multiple markets. Businesses need to gather market data and consumer insights proactively. This can include investing in research or collaborating with suppliers and distributors to identify trends.

✓ ADDITIONAL TECHNOLOGICAL OR PRODUCTION INVESTMENT

Companies may need to be willing to take risks and invest in new technologies or production methods to help them stay competitive in the market. This may involve investing in research and development or partnering with startups or other innovative companies.

Leverage Forecast Tools to Predict Future Scenarios

One way to stay ahead of the curve is to leverage forecast tools.

⊘ WHAT ARE FORECAST TOOLS?

Forecast tools use historical data and statistical models to predict future events, such as product demand, supply chain disruptions, and market changes. Forecast models range from flat scenarios to complex algorithms and can be customized to generate short-term or long-term predictions.

Forecast tools enable companies to better manage their inventory, production planning, and supply chain and increase sales and revenue. They can optimize inventory levels, adjust production schedules, and anticipate supply chain changes to meet customer demand.

⊘ HOW CAN YOU REDUCE YOUR TIME TO MARKET?

Time-to-market is an important metric for any business. It reflects how quickly a company can get its products to market and how many resources it needs. Leveraging forecast tools can help reduce time-to-market by providing better visibility into future scenarios, enabling manufacturers to plan ahead and react quickly when necessary.

The ability to anticipate customer demand also helps reduce time-to-market by allowing manufacturers to adjust production schedules and optimize inventory levels.

How to Leverage Forecast Tools to Predict Future Scenarios

Here is a step-by-step process for SMB process manufacturers to leverage forecast tools:

Step #1   COLLECT AND ANALYZE HISTORICAL DATA

This data should include information on sales, inventory levels, production schedules, and other relevant metrics. By analyzing this data, companies can identify patterns and trends that can help inform their forecasts.

Step #2   CHOOSE THE RIGHT FORECASTING MODEL

The choice of model will depend on the nature of the business and the data being analyzed. Simple models like moving averages may be sufficient for some businesses, while more complex models may be necessary for others.

Step #3   SET REALISTIC FORECASTING GOALS

Setting realistic goals will help ensure that forecast tools are used effectively and that the business can benefit from the insights provided by the forecast tools.

Step #4   MONITOR AND EVALUATE FORECASTS

Process manufacturers should regularly monitor and evaluate their forecasts by comparing actual sales and inventory with forecasted values. If discrepancies arise, adjustments must be made to the forecasting model.

CHALLENGE #6

Traceability and End-to-End Visibility

Process manufacturers face various challenges when it comes to traceability and visibility. Larger manufacturers often have dedicated teams and technology, while SMBs may find themselves limited in resources.

%

80% *of manufacturers have insufficient supply chain visibility.*

Gartner

Traceability and visibility are critical components for quality control, supply chain management, and operational efficiency, making it essential that SMBs overcome these challenges.

How Process Manufacturers Can Implement Full Traceability

Traceability is the ability to track and trace products throughout their lifecycle, from their origin to their final destination, including all the processes they undergo. Implementing full traceability can be a complex process, but it is necessary.

Companies can take these steps to achieve full traceability:

⊘ IDENTIFY KEY TRACEABILITY DATA

To achieve complete traceability, manufacturers must pinpoint essential data points for each product, such as raw materials, production processes, packaging, labeling, and quality results. They should also identify the processes that demand the greatest traceability.

⊘ CHOOSE A TRACEABILITY SYSTEM

Manufacturers have multiple traceability options, such as manual tracking, barcode, and RFID. The selected system must capture, store, and report essential data while offering real-time supply chain visibility.

✓ STANDARDIZE PROCESSES

To ensure accurate and consistent traceability data capture, standardizing processes is crucial. Manufacturers must create SOPs for each process, including traceability data collection and recording, and review them regularly to maintain their relevance and effectiveness.

✓ TRAIN STAFF

To ensure that traceability data is captured accurately, companies should train their staff on the importance of traceability and how to capture and record traceability data. This training should cover the chosen traceability system, the SOPs for each process, and any relevant regulatory requirements.

✓ MONITOR AND ANALYZE DATA

Process manufacturers must monitor and analyze the traceability data that is collected. This data can be used to identify trends, patterns, and potential issues that may impact product quality or regulatory compliance.

✓ COLLABORATE WITH SUPPLIERS AND CUSTOMERS

Companies should work with their suppliers to ensure they provide the necessary traceability data for the raw materials they supply. They should also work with their customers to understand their requirements and ensure their products meet them.

Benefits and Opportunities of Supply Chain Visibility

Implementing a technological solution can help SMB process manufacturers overcome these challenges and achieve various benefits.

Benefits of Supply Chain Visibility

✓ IMPROVED QUALITY CONTROL

Complete traceability detects quality issues for SMBs to adjust production or recall shipped products.

✓ INCREASED EFFICIENCY

Supply chain visibility identifies bottlenecks and inefficiencies, reducing costs and optimizing operations.

✓ ENHANCED CUSTOMER SERVICE

Full traceability provides real-time information about orders and shipments, improving customer communication.

✓ IMPROVED REGULATORY COMPLIANCE

Full traceability throughout the supply chain helps manufacturers comply with regulations and avoid costly fines and reputational damage.
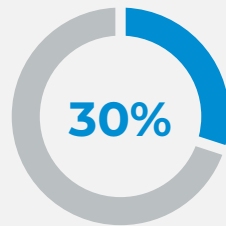
Opportunities

Implementing a supply chain visibility solution can provide companies various opportunities to improve their business operations.
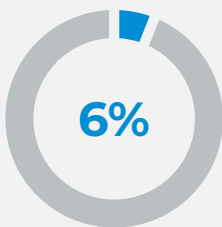
Primary growth strategy of surveyed manufacturers for smart manufacturing initiatives in the coming years
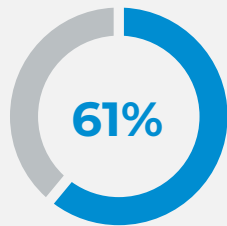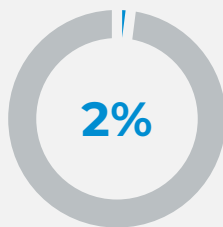
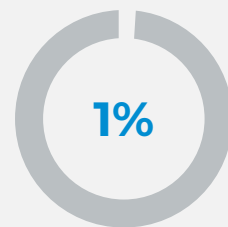**61%**
Partnering specialized technology companies

30%
In-house development efforts

6%
Acquiring competitors or peers

2%
Partnering with academia (schools, universities) industry consortia, or national R&D laboratories

1%
Others

Here are a few examples:

⊘ GREATER COLLABORATION WITH SUPPLIERS

Real-time inventory, production, and delivery data enhance collaboration between manufacturers and suppliers.

⊘ INCREASED ACCESS TO NEW MARKETS

Visibility into product movement across borders helps manufacturers expand into new markets, comply with regulations, and avoid customs delays or issues.

⊘ IMPROVED SUSTAINABILITY

Supply chain visibility provides data on environmental impact, helping manufacturers reduce their carbon footprint and identify areas for improvement.

CHALLENGE #7

Meeting Environmental Regulations & Sustainability Standards

SMBs in the process manufacturing sector often lack the resources and infrastructure needed to comply with environmental regulations and sustainability standards. This can be especially difficult for industries such as chemical manufacturing, where compliance is necessary to protect public safety and the environment.

What are the Challenges of Adopting a Sustainable Approach?

⊘ COST OF COMPLIANCE

Sustainability standards require infrastructure investments, like pollution control or sustainable manufacturing practices. This can financially burden SMBs with tight budgets and difficulty securing funding.

⊘ LACK OF EXPERTISE AND KNOWLEDGE

Environmental regulations are complex and constantly evolving, making it difficult for SMBs to keep up with the latest requirements and best practices. As a result, many may be unaware of the latest regulations and standards or lack the expertise required to implement them effectively.

⊘ COMPLEX SUPPLY CHAIN

Many businesses in this sector rely on complex supply chains that span multiple countries and involve numerous suppliers and partners. This makes it difficult to ensure that all suppliers comply with environmental regulations and sustainability standards and that products are manufactured in an environmentally responsible manner.

⊘ CUSTOMER DEMAND

While many consumers are increasingly concerned about environmental sustainability and may prefer to do business with companies that prioritize sustainability, companies may struggle to meet these expectations without significant investments in infrastructure and expertise.

*Over the past five years, there has been a **71%** rise in online searches for sustainable goods globally, according to The Economist Intelligence Unit.*

*According to a <u>survey from McKinsey & Co</u>., **66%** of all respondents and **75%** of millennial respondents say that they consider sustainability when they make a purchase.*

Practical Strategies for Achieving Environmental and Sustainability Goals

Achieving environmental compliance can be a challenging task for SMBs, but there are practical strategies that they can adapt to meet these expectations.

Here are some strategies you can adopt to achieve environmental compliance:

✓ CONDUCT AN ENVIRONMENTAL AUDIT

Before conducting an environmental audit, it is essential to identify areas of non-compliance with environmental regulations and assess the potential environmental impact of hazardous materials used in production. The audit should cover all aspects of operations, including production processes, waste management, and energy usage.

✓ DEVELOP AN ENVIRONMENTAL MANAGEMENT PLAN

The company should develop an environmental management plan (EMP) outlining its steps to achieve compliance and setting targets and timelines for implementing these steps. It should cover all areas of operations, including procurement, production, packaging, transportation, and waste management.

✓ INVEST IN ENERGY-EFFICIENT TECHNOLOGIES

Investing in energy-efficient technologies is one of the most effective ways to achieve environmental compliance. Process manufacturing is energy-intensive, and reducing consumption can significantly impact the environment. Invest in LED lighting, high-efficiency motors, and variable frequency drives to reduce energy consumption and carbon footprint.

✓ ADOPT SUSTAINABLE PRODUCTION PRACTICES

Sustainable production practices include reducing waste, recycling materials, and using renewable energy sources. Companies can reduce waste by implementing lean production techniques and recycling materials such as water and packaging. They can also use renewable energy sources like solar and wind power.

✓ MONITOR AND MEASURE ENVIRONMENTAL PERFORMANCE

Companies should set up a system for monitoring and measuring their environmental performance, including energy consumption, waste production, and greenhouse gas emissions. Review regularly and adjust operations as needed.

How ERP Solutions Can Help Manage Environmental Compliance

ERP systems are essential for process manufacturing companies to manage their operations, optimize processes, and gain a competitive advantage in the market. An ERP can also assist in achieving their environmental and sustainability goals.

How an ERP can help achieve environmental and sustainability goals:

⊘ RESOURCE OPTIMIZATION

An ERP system can help companies identify areas of wastage and inefficiency by providing real-time data on resource usage. For example, a company may use an ERP system to track the usage of raw materials and identify areas where material waste can be reduced.

⊘ IMPROVED ENERGY EFFICIENCY

An ERP system can provide real-time data on energy consumption in production processes, which can be used to identify areas where energy usage can be reduced. By optimizing energy usage, companies can not only reduce their environmental impact but also reduce their energy bills.

⊘ ENVIRONMENTAL COMPLIANCE

By tracking environmental data and reporting it in real time, an ERP system can help companies ensure that they meet regulatory requirements. For example, an ERP system can provide real-time data on emissions, which can be used to ensure compliance with environmental regulations.

⊘ SUSTAINABLE SUPPLY CHAIN MANAGEMENT

By tracking suppliers' environmental performance and sustainability practices, companies can make informed decisions about whom they do business with.

14 Essential Features of a Process Manufacturer's ERP

Process manufacturing is a complex industry that requires specialized Enterprise Resource Planning (ERP) solutions to handle its unique needs. Let's explore the essential features it must have:

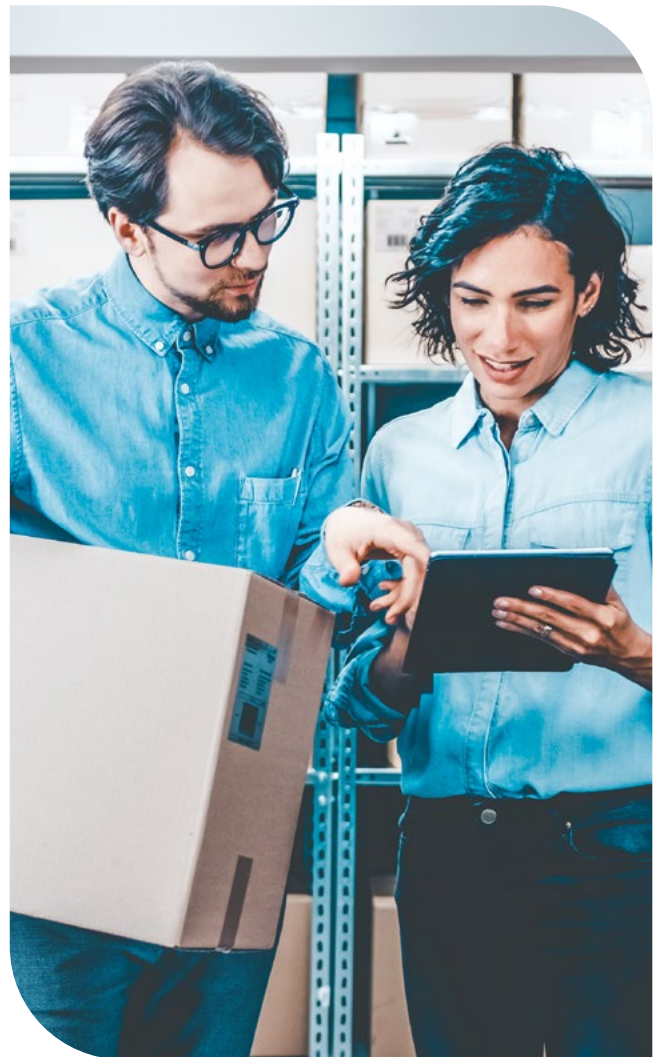## 1. Support for Different Measurement Units

Manufacturers need to be able to manage multiple measurement units like weight, volume, or length. An ERP system should have the capability of handling various measurements while converting them as needed for seamless collaboration throughout the organization. This prevents confusion when dealing with different units.

2. Lot Tracking & Tracing Capabilities

Lot tracking and tracing are essential for process manufacturers to comply with regulations and ensure product quality. An ERP should be able to track the raw material origin, production processes, and finished product movement throughout the supply chain. This enables manufacturers to quickly identify and address issues or recalls.

3. Cost Tracking

Manufacturers need to track costs accurately to ensure that they are profitable. Companies should be able to track all costs associated with the production process, including raw materials, labor, and overhead. This allows manufacturers to monitor costs, identify areas for improvement, and make data-driven decisions to improve profitability.

4. Adaptability and Customization for New Formulas/Recipes

Manufacturers in the process industry must often adjust their formulas or recipes to meet changing market needs or adhere to regulations. An ERP should offer enough flexibility to quickly and easily modify formulas or recipes so they can react promptly and cost-effectively to any changes in the market or regulatory requirements.

5. Management of Co-Products & By-Products

Co-products and by-products produced by process manufacturers must be effectively managed with an ERP system. This includes tracking production and inventory, maximizing the value of these products, and ensuring that any waste is minimized.

6. Advanced Production Scheduling

Process manufacturing involves complex production processes that require advanced scheduling capabilities. An ERP system can optimize production processes, reduce downtime, and enhance productivity by creating and managing production schedules based on production capacity, materials availability, and lead times.

7. Shelf Life and Expiration Dates Tracking

Manufacturers in the process industry must adhere to strict shelf life regulations and expiration dates. An ERP system should be able to track these critical dates for each product, ensuring that all products are labeled with the correct information. This helps manufacturers meet government regulations and avoids costly recalls due to outdated or mislabeled products.

8. Quality Management

An ERP system for process manufacturing should be able to manage quality control processes, including monitoring production processes, conducting inspections, and managing non-conformance. It should also ensure compliance with regulatory requirements and industry standards like GMP.

9. Equipment and Asset Management

An ERP system for the manufacturing industry should incorporate equipment and asset management capabilities that allow for proactive maintenance scheduling, tracking of equipment performance, and monitoring of asset life cycles. It not only prolongs the life of the equipment but also enhances overall productivity and operational efficiency.

## 10. Material Requirement Planning (MRP)

ERP systems create and manage comprehensive BOMs, including lead times, costs, availability, and other relevant factors. Material requirement planning is crucial to ensure that necessary materials are available when needed.

11. Capacity Planning

Effective capacity planning is key to ensuring optimum utilization of resources and meeting customer demand. An ERP system should provide manufacturers with the tools to assess their production capacity in terms of manpower, machines, and materials and align it with the forecasted demand. The system should enable them to simulate various production scenarios and make adjustments in real time based on the changing demand and supply conditions, hence improving productivity, reducing costs and enhancing customer satisfaction.

12. Demand Forecasting

Accurate demand forecasting is crucial for manufacturing companies to maintain inventory levels, plan production schedules, and manage resources effectively. Advanced forecasting tools that analyze historical sales data, market trends, and other relevant factors to predict future demand for products can help manufacturers plan better.
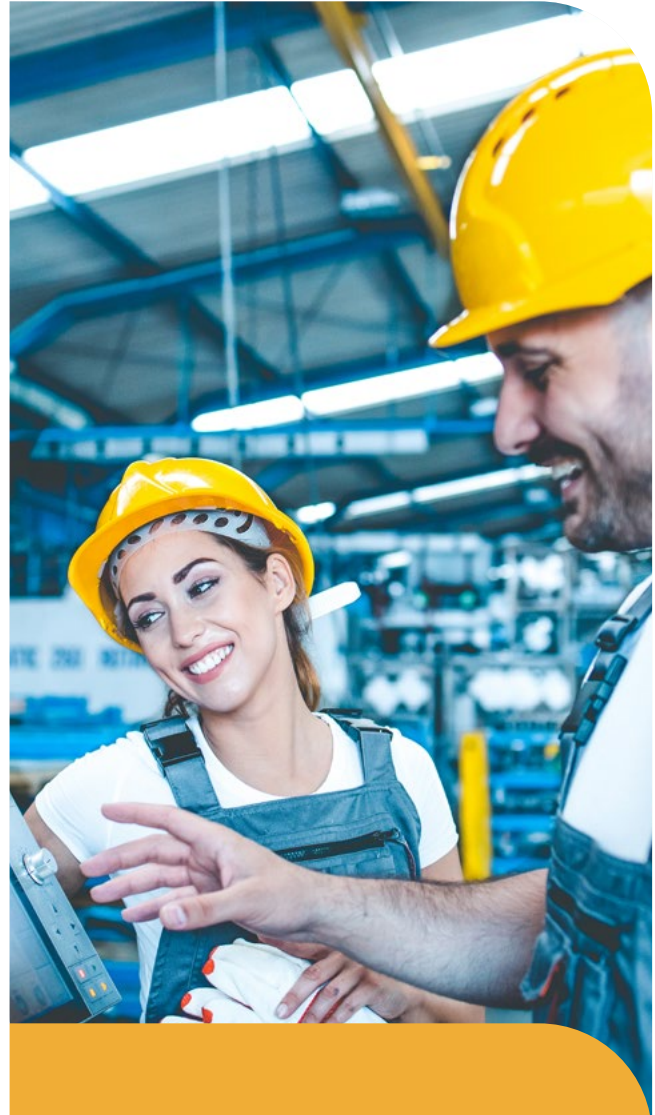
By selecting an ERP system with these essential features, SMB process manufacturers can optimize their operations, increase efficiency, and reduce costs. With so many ERP solutions available, conducting thorough research, evaluating different options, and selecting a system that meets your organization's specific needs is important.

13. Integration with Third-Party Systems

Process manufacturers must integrate ERP systems with third-party systems, such as suppliers, customers, or government agencies. A well-designed ERP system should enable data exchange, enhance operational efficiency and ensure a smooth transition.

14. Change and Revision Management

Process manufacturers often have to go through frequent changes in their production processes and product specifications. Change management tools help them manage the revisions, track changes, and maintain traceability throughout the entire process. Revision control enables manufacturers to quickly identify which version of a product is currently in production.

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