BarTender™

The Path to Item Level Intelligence

Maturity Model for
Labeling and Traceability

Why It Matters

Modern supply chains are under pressure from every angle: geopolitical risks, rising regulations, labor shortages, and escalating customer expectations. Yet most companies still lack confidence in their data. Inconsistent labeling, fragmented systems, and manual traceability leave critical gaps that slow decisions, create risk, and inflate costs.

BarTender Software, trusted by more than 200,000 companies worldwide, delivers the foundation for item-level data intelligence—so businesses can answer the most fundamental questions with confidence:

• What is this product?
• Where is it right now?
• Is it compliant and ready to move?

It's no longer enough to label. Organizations must connect labeling with traceability to create resilient, data-driven supply chains.

How to use this Maturity Model

A maturity model is a framework used to assess and improve a company's operations in a specific area. It provides a structured approach to evaluate the current state of a supply chain and identify areas for development, guiding the organization towards greater efficiency and effectiveness.

The model typically outlines different stages of maturity, ranging from basic and reactive to advanced and integrated, allowing businesses to benchmark their progress and implement strategies for optimization.

What it is:

- A maturity model is a diagnostic tool that helps companies understand their current supply chain capabilities and identify areas for improvement.
- It provides a roadmap for achieving traceability and traceability excellence by outlining different stages of maturity and the steps required to progress through them.
- The model is specifically developed for the area of traceability and traceability.
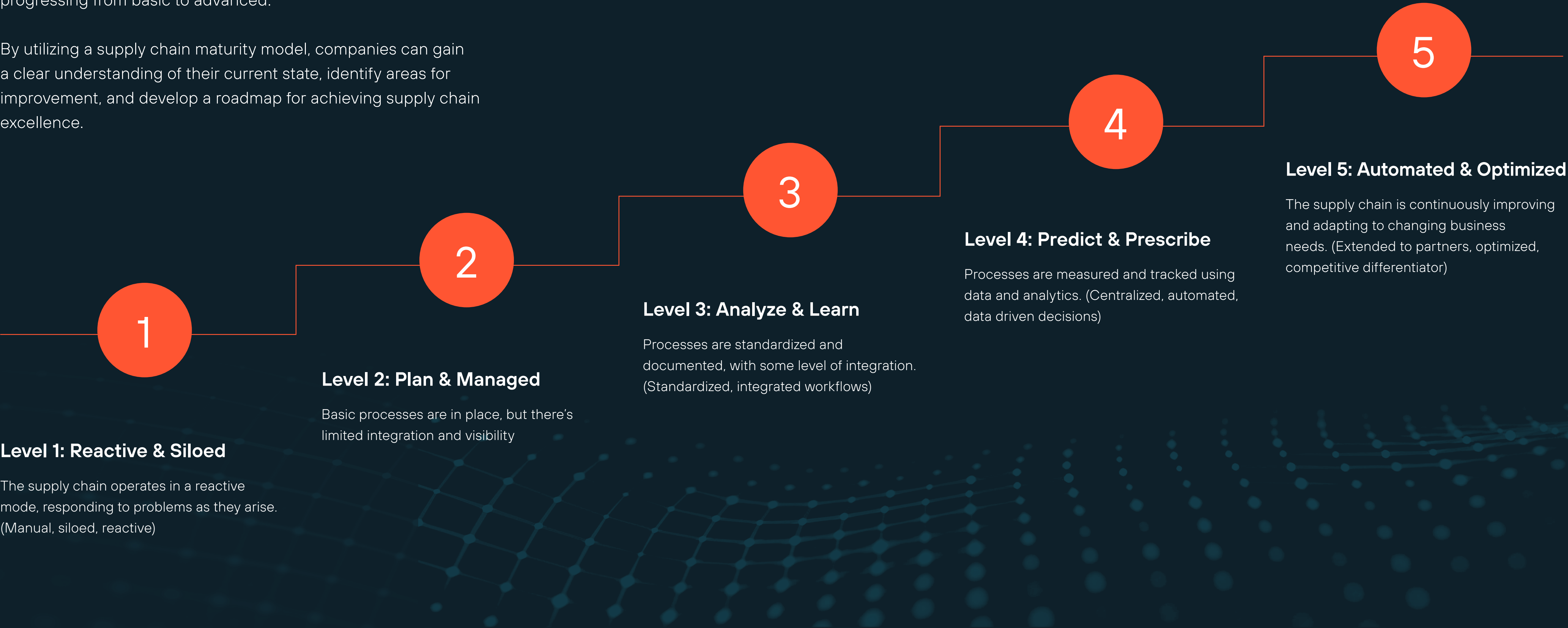
Key benefits:

- **Improved efficiency:** By identifying weaknesses and bottlenecks, the model helps optimize processes and reduce waste.
- **Enhanced visibility:** A more mature supply chain offers better visibility into inventory levels, demand patterns, regulatory compliance and potential disruptions.
- **Increased resilience:** Maturity models help build a more robust and adaptable supply chain capable of withstanding unforeseen challenges.
- **Better collaboration:** As the supply chain matures, it fosters better communication and collaboration among different stakeholders.
- **Cost reduction:** Optimized processes and reduced waste lead to lower operational costs.

Stages of Maturity

Most supply chain maturity models include several stages, often progressing from basic to advanced.

By utilizing a supply chain maturity model, companies can gain a clear understanding of their current state, identify areas for improvement, and develop a roadmap for achieving supply chain excellence.

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Level 5: Automated & Optimized

The supply chain is continuously improving and adapting to changing business needs. (Extended to partners, optimized, competitive differentiator)

Level 4: Predict & Prescribe

Processes are measured and tracked using data and analytics. (Centralized, automated, data driven decisions)

Level 3: Analyze & Learn

Processes are standardized and documented, with some level of integration. (Standardized, integrated workflows)

Level 2: Plan & Managed

Basic processes are in place, but there's limited integration and visibility

Level 1: Reactive & Siloed

The supply chain operates in a reactive mode, responding to problems as they arise. (Manual, siloed, reactive)
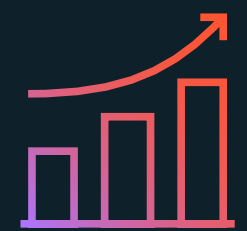
Maturity Model for Labeling and Traceability

Creating a maturity model for labeling and traceability is crucial because it provides a structured framework for companies to assess their current capabilities and identify a clear roadmap for improvement. It moves a company from a reactive, tactical approach to a proactive, strategic one, enabling it to benchmark its progress and implement optimization strategies.

By defining different stages, the model highlights the specific areas that need to be addressed for continuous progress, helping companies avoid potential roadblocks and operational gaps.

Customers can use this model as a diagnostic tool to make significant progress by:

- **Creating a Baseline and Roadmap:** A company can first use the model to evaluate its current labeling and traceability effectiveness and determine what stage of maturity it is in. From there, it can define a clear path toward "Enterprise Labeling excellence" and full end-to-end traceability. The model guides them on the key steps required to progress through each stage.

- **Improving Data Quality and Integration:** A key focus of the model is advancing from disparate, disconnected data to a centralized, integrated system. At higher stages of maturity (e.g., Stage 3 and beyond), companies integrate their labeling with enterprise applications and data sources to ensure accuracy and consistency. This enables them to use real-time data from labeling to inform other functions like supply chain planning, procurement, and logistics.

- **Achieving End-to-End Traceability:** As companies advance, they move from siloed initiatives to an integrated approach that connects labeling and tracking with packaging artwork and external supply chain partners. At the highest maturity level (Stage 5: Automate), the company's platform is standardized and extended to suppliers and partners across the globe allowing further automation end to end. This eliminates the need to relabel inbound goods and provides real-time visibility and oversight across the entire product lifecycle, from product development to the end user. The result is a significant increase in efficiency, compliance, and supply chain agility.

- **Fostering Collaboration and Securing Investment:** The model acts as a "vehicle for collaborating with internal teams regarding optimization" and a "blueprint to help support investment and budgetary support" for labeling initiatives. By providing a clear, shared vision for improvement, it helps stakeholders across the organization align on goals and secure the necessary resources to achieve them.

# The 5 stages of Maturity for Labeling and Traceability

1. **Stage 1:** Reactive and Siloed

2. **Stage 2:** Plan and Manage

3. **Stage 3:** Analyze and Learn

4. **Stage 4**: Predict and Prescribe

5. **Stage 5:** Automated and Optimized

Stage 1: Reactive & Siloed

At this initial stage, an organization's approach to labeling and traceability is siloed and reactive to requirements. Companies use disparate, homegrown, or manually driven solutions, with no identified corporate standard for labeling across the enterprise.

Each location has autonomy over its labeling, which, while offering local agility, results in a lack of accuracy and consistency due to no integration with enterprise applications. Traceability is limited, and there is no perceived awareness of the value of an integrated, end-to-end approach. Ownership is local, with IT as the primary stakeholder. At this stage, data is being collected through the connection to the labeling devices and label readers.
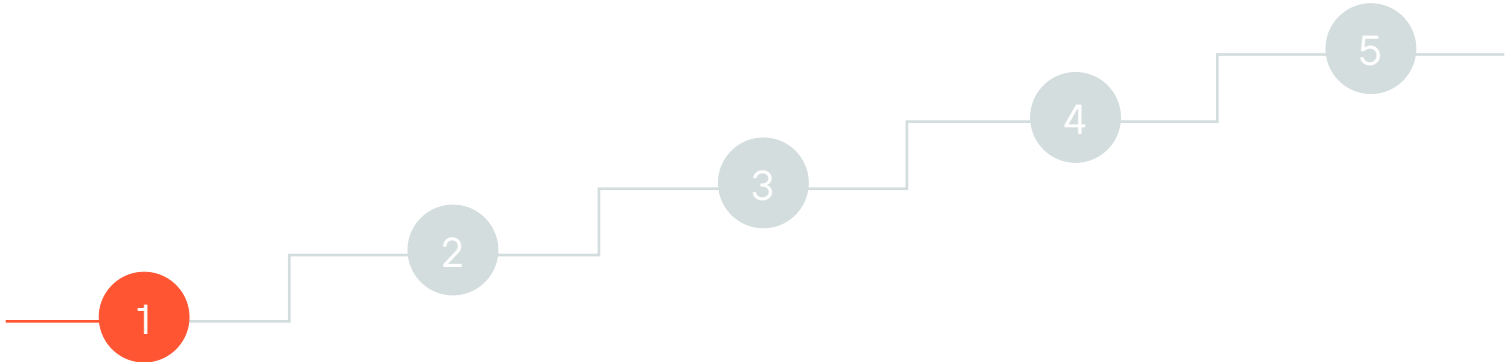
Stage 2: Plan & Manage

In this stage, a company begins to proactively manage and plan its labeling and traceability processes. The organization starts to implement a single solution and formalize processes across primary locations. However, deployments are still localized, with multiple locations operating in silos, limiting control over consistency and standards. Integration is minimal, often relying on file sharing and database lookups with limited dynamic content.

While some use of native printer drivers helps to reduce network traffic and maximize print speeds, the overall process remains labor-intensive. Visibility is limited to certain locations, and ownership is still localized, though it now includes both IT and business stakeholders.
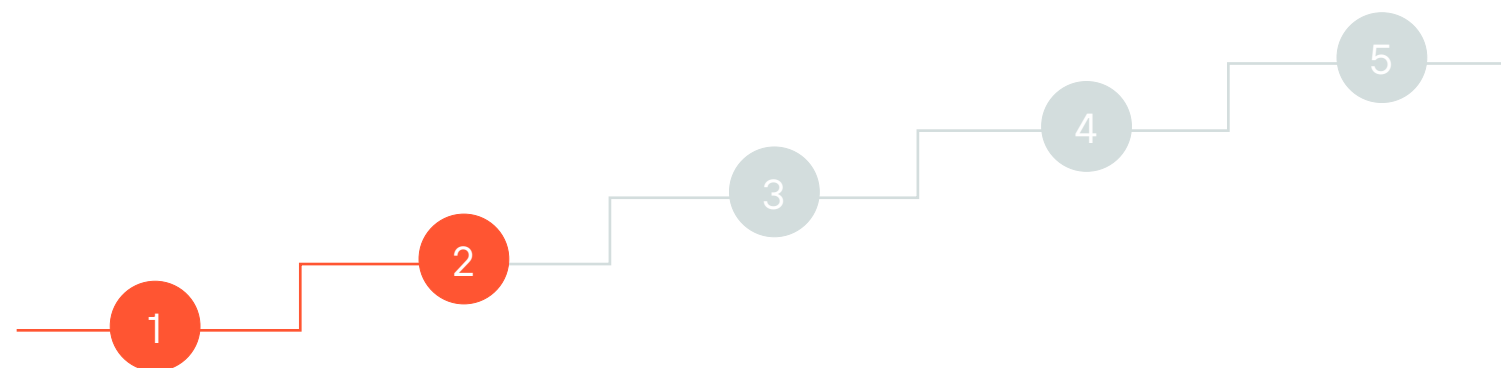
Stage 3: Analyze & Learn

At Stage 3, labeling and traceability become consolidated and integrated with enterprise applications. The company adopts a single standard and begins to embrace a formal strategy for cloud deployment as part of a digital transformation initiative.

Integration with key data sources becomes a focus, leveraging business logic and automated workflows to increase accuracy and consistency. Visibility is applied to portions of the organization, with limited awareness at the executive level.

A single approach to visibility is adopted, and ownership is shared across multiple departments and stakeholders. Analytics becomes vital at this stage to start turning data into insights.
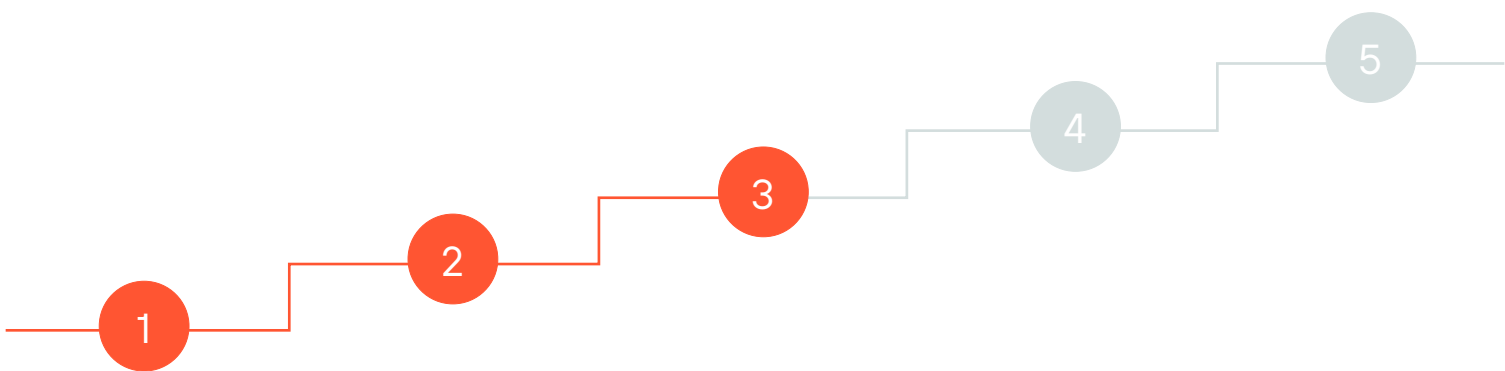
Stage 4: Predict & Prescribe

At this stage, a company has standardized, centralized, and adopted a platform approach to labeling and traceability. The solution is highly automated, with business logic and workflows orchestrated across the entire enterprise. Bi-directional integration with one or more enterprise applications is in place, enabling complete data-driven labeling and providing visibility within the ERP. Advanced Analytics is used to increase visibility throughout the organization, and executive awareness of labeling's importance increases.

At this stage data is not just used to create insights, but to create predictions and prescriptions which can help the organization be more pro-active, more responsive to both disruptions as well as to changing customer needs and expectations as well as adopt to growing regulations.
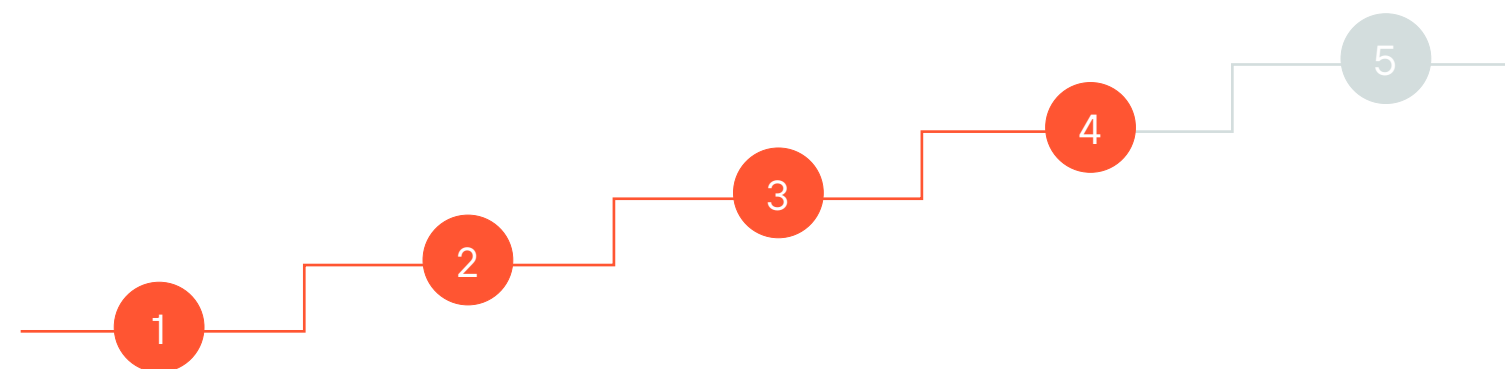
Stage 5: Automated & Optimized

In this final stage, the company optimizes and extends its labeling and traceability processes beyond its organization to supply chain partners and suppliers and uses the data to automate certain processes. The platform enables the creation, management, and printing of complex labels and packaging artwork globally. This highly automated and integrated platform ensures accuracy and consistency while optimizing efficiency and resource costs. By leveraging the platform to extend labeling to partners, companies can eliminate the need to re-label inbound goods, greatly reducing maintenance and increasing supply chain agility.
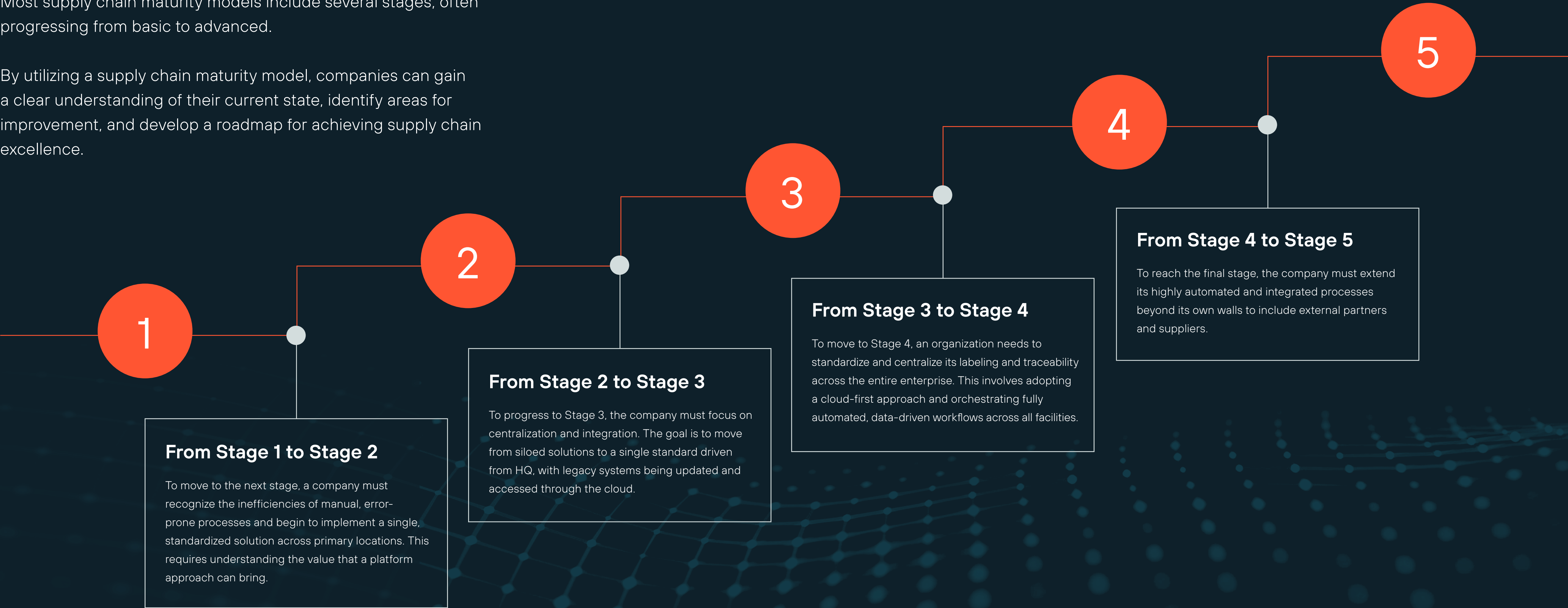
Analytics with real-time visibility is extended to partners and suppliers, offering a complete view of all user activity and advanced insights to drive process improvements with an impact on the bottom line. At this stage, global requirements across the entire supply chain are met, including customers, partners, and suppliers, using the platform as a competitive differentiator. The platform has evolved from purely prescribing and suggesting actions to helping to execute decisions through automation.
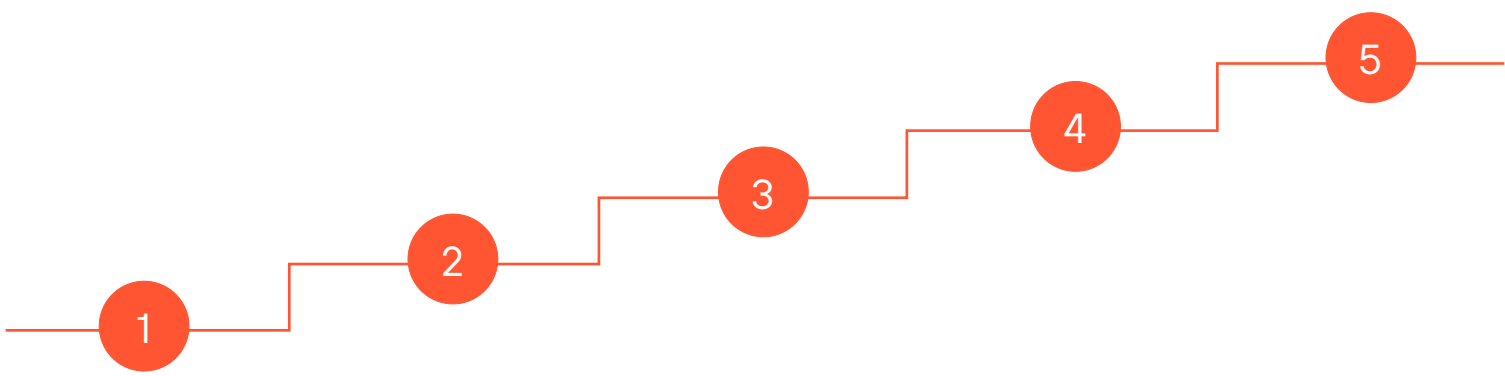
The Progression to Higher Maturity

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By utilizing a supply chain maturity model, companies can gain a clear understanding of their current state, identify areas for improvement, and develop a roadmap for achieving supply chain excellence.

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From Stage 1 to Stage 2

To move to the next stage, a company must recognize the inefficiencies of manual, error-prone processes and begin to implement a single, standardized solution across primary locations. This requires understanding the value that a platform approach can bring.

From Stage 2 to Stage 3

To progress to Stage 3, the company must focus on centralization and integration. The goal is to move from siloed solutions to a single standard driven from HQ, with legacy systems being updated and accessed through the cloud.

From Stage 3 to Stage 4

To move to Stage 4, an organization needs to standardize and centralize its labeling and traceability across the entire enterprise. This involves adopting a cloud-first approach and orchestrating fully automated, data-driven workflows across all facilities.

From Stage 4 to Stage 5

To reach the final stage, the company must extend its highly automated and integrated processes beyond its own walls to include external partners and suppliers.

How to Advance Your Supply Chain Intelligence

From Labels to Intelligence
The supply chain is only as strong as the data it runs on. Without accurate, real-time, item-level information, organizations face blind spots that slow decisions, increase risk, and drive up costs. With BarTender, companies can move beyond fragmented processes and reactive firefighting to achieve item-level data intelligence—the foundation of a faster, more resilient supply chain.

The path is clear:
- Label every product to establish a trusted digital identity.
- Trace every movement for visibility across the product lifecycle.
- Transform that data into intelligence to reduce risk, cut costs, and deliver with confidence.

This isn't a distant vision. It's a practical, actionable journey that organizations can begin today—one that delivers measurable value at every step. For existing BarTender customers, it means unlocking the next level of efficiency and compliance by adding Track & Trace. For new customers, it means setting up for long-term success with a proven, partner-ready platform trusted by 200,000+ companies worldwide.

The future of supply chain intelligence starts at the item level. With BarTender, it starts now.

Next Step: Keep an eye on your inbox in December—you'll receive an email invitation to our new online self-assessment tool, launching next month. Quickly and easily benchmark your organization's progress—or connect with BarTender now to map your journey to item-level intelligence.
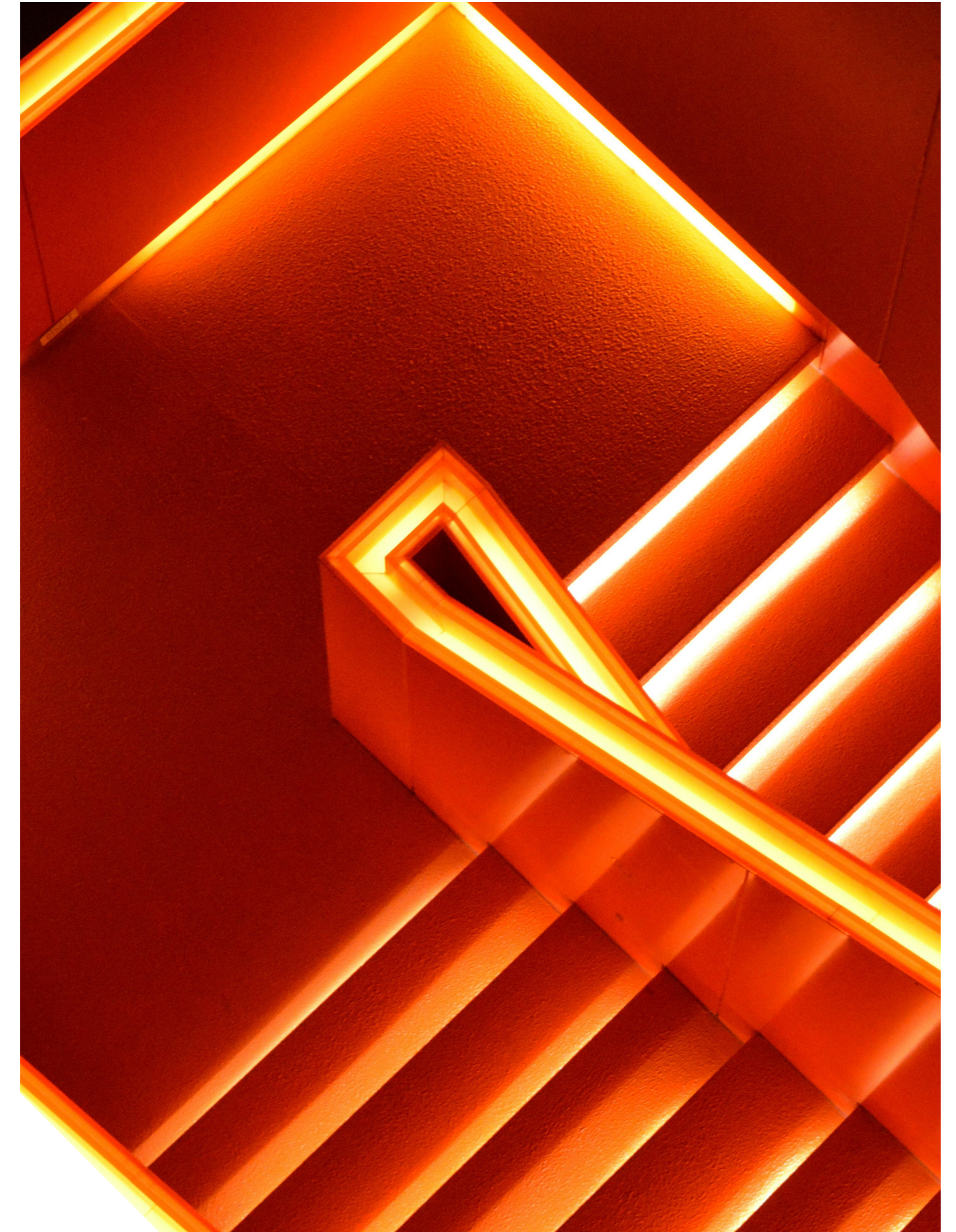
About BarTender

BarTender is a brand of Seagull Software, a global leader in real-time, item-level visibility and label management solutions, dedicated to powering the world's most complex supply chains with innovative tools for traceability, authentication, and automated inventory management.

BarTender software enables businesses across all industries to design, manage, print, and automate the production of labels, barcodes, and RFID tags, ensuring seamless tracking and compliance for over 100 billion unique identifiers each year. Leveraging the Mojix high-security, scalable SaaS traceability platform, Seagull delivers end-to-end intelligence, harmonizing data to drive operational efficiency, enhance customer experiences, and reduce risk.

Headquartered in Redmond, Washington, with offices across the United States, Europe, Latin America, and Asia, Seagull empowers businesses worldwide to keep their products moving, traceable, and safe.

BarTender™

bartendersoftware.com