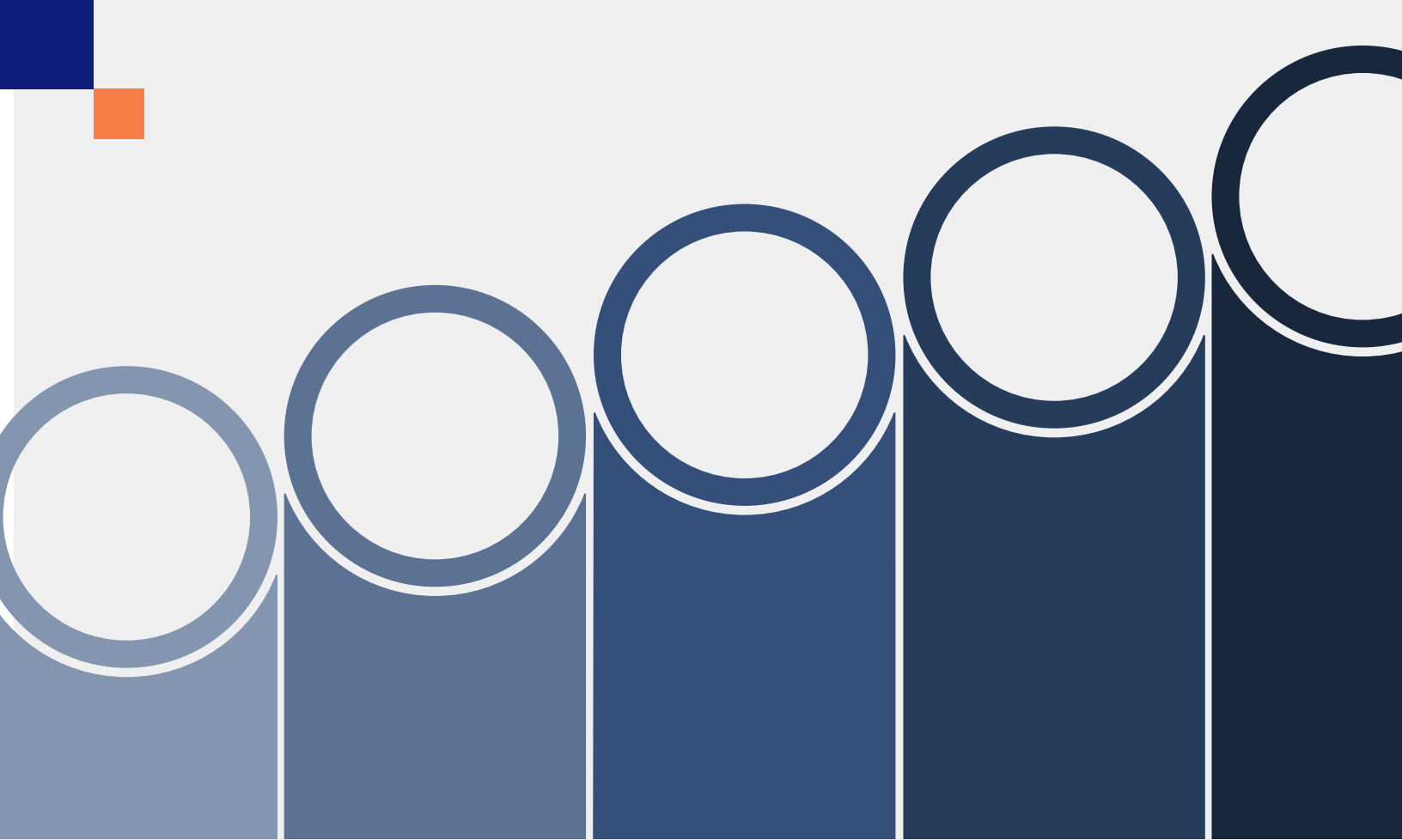




Enterprise Labeling Maturity Model™

A Framework for Labeling Excellence

Introduction

The Maturity Model for Enterprise Labeling provides a framework for improvement in the area of labeling throughout your organization. It highlights your capabilities and processes over five specific stages of maturity, offering a roadmap for improvement and a path towards digital transformation while providing a clear picture of the areas which need to be addressed for continuous progress. Your organization can assess technologies and existing methods through this diagnostic tool, which allows you to measure current effectiveness of your labeling and determine what capabilities are needed to increase labeling efficiencies and enable business transformation.

This model has been developed as a result of working with companies in the labeling space for more than 35 years to identify the most critical areas of development and growth when it comes to supply chain labeling and artwork management. That work, with thousands of leading global companies from across a wide range of key industries, includes decades of research, extensive surveys and feedback from domain experts. This has led to the creation of the Five Stage Maturity Model for Enterprise Labeling. Now, supply chain, logistics and business stakeholders can use this model to create a baseline and define a clear path toward Enterprise Labeling excellence.

In order to build a clear roadmap towards Enterprise Labeling maturity, this model includes five separate maturity levels, based upon key criteria referred to as 'dimensions.' Once you measure how well you're managing labeling within key dimensions, you can chart a course for your optimal labeling end state. With this assessment, you can identify any potential roadblocks, operational gaps or other areas of concern so you can prioritize accordingly. Working with the Enterprise labeling Maturity Model™ will give you a:

- Mechanism to evaluate the current effectiveness of your labeling capabilities
- Guide for the key steps required to progress through each stage to higher levels of competency in labeling and supply chain optimization
- Vehicle for collaborating with internal teams regarding optimization and next steps for labeling
- Blueprint to help support investment and budgetary support for labeling

If you're interested in getting a personalized report outlining your stage of labeling maturity or would like to find out more about the Enterprise Labeling Maturity Model™ please go to www.loftware.com/maturityassessment.

The 5 Stages of Enterprise Labeling Maturity

Not all businesses have the same labeling demands or progress at the same pace across the Enterprise Labeling continuum. Additionally, not all companies have the same global requirements, need to scale labeling or increase capabilities to support evolving business demands. However, all businesses need to ensure that their labeling requirements are optimized for business and supply chain efficiency as well as future growth. And the first step is to understand your level of labeling maturity and chart a course for the highest level that makes sense for your business. Below is a brief description of each maturity level.

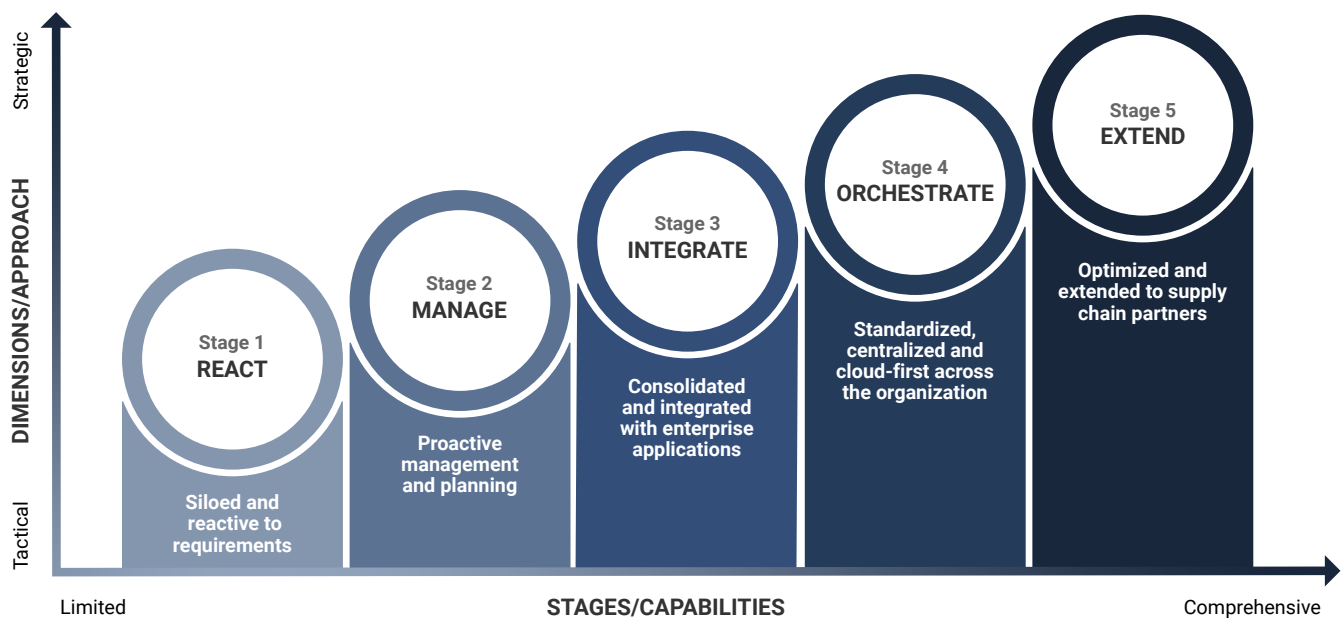


Figure 1. Five Stages of Enterprise Labeling Maturity

Stage 1- React to Requirements

Companies at this stage tend to have manually driven processes and largely siloed initiatives which cause them to be reactionary in meeting their labeling demands. Generally, each location has autonomy over its own labeling, resulting in a variety of different solutions for labeling used across an organization. Having this control enables them to be agile and responsive, albeit only at the local level. At this stage there is no integration or reliance on data exports from enterprise applications resulting in lack of accuracy and consistency. This approach involves more time and people to execute labeling.

Stage 2 - Proactively Manage and Plan

In stage 2, companies are working toward standardizing their labeling on one solution beginning to add some level of automation and are starting to embrace the benefits of the cloud. Although the labeling function is being managed more proactively, it is still highly localized with silo deployments and individual

facilities maintaining control. Labeling at this level takes more time and energy and maintenance to execute due to a lack of automation and standardization. Variable and dynamic content, as well as access to labeling, remain a challenge.

Stage 3 - Consolidate and Integrate

At stage 3 the labeling function becomes integrated with data sources for increased accuracy and consistency, while beginning to embrace a formal strategy for cloud deployment. Centralization becomes more of a focus while business logic begins to play an increasing role while more variable content is used. The move to integrate with sources of truth and transform labeling to the cloud offers great benefits and increases efficiencies in labeling overall, offering improved access and a path to optimized labeling company-wide. However, executive level awareness of labeling and its importance is limited as is overall labeling visibility.

Stage 4 - Orchestrate Across the Organization

At stage 4, labeling goes beyond integration and is standardized and centralized while a cloud-first approach to labeling has been adopted. At the same time, fully automated workflows and data-driven labeling capabilities are orchestrated across the full enterprise. Executive awareness of labeling increases along with increased visibility through business intelligence. This stage brings increased efficiencies across the enterprise and facilitates global scaling. Companies at this stage begin integrating and sharing content, processes, and workflows between Enterprise Labeling and Artwork Management.

Stage 5 - Optimize and Extend Beyond the Organization

At this final stage, companies begin extending their labeling and labeling processes beyond their organization. Labeling is highly automated and integrated to ensure accuracy and consistency while optimizing efficiency and resource costs. This stage, which includes both internal and external stakeholders, highlights the importance of labeling to the overall supply chain and enables companies to use cloud-based labeling as a competitive advantage. Companies use this platform to create, manage and print complex labeling and artwork globally, including extending controlled access to suppliers and partners.

The Dimensions of Enterprise Labeling Maturity

Organizations can succeed in creating fully optimized labeling as part of their supply chain strategy by advancing maturity in each of the following nine dimensions outlined below. When considering the nine dimensions included in the Enterprise Maturity Model, three distinct categories emerge as logical groupings for these areas of labeling maturity. They include Foundational, Operational and Governance as explained in detail below.

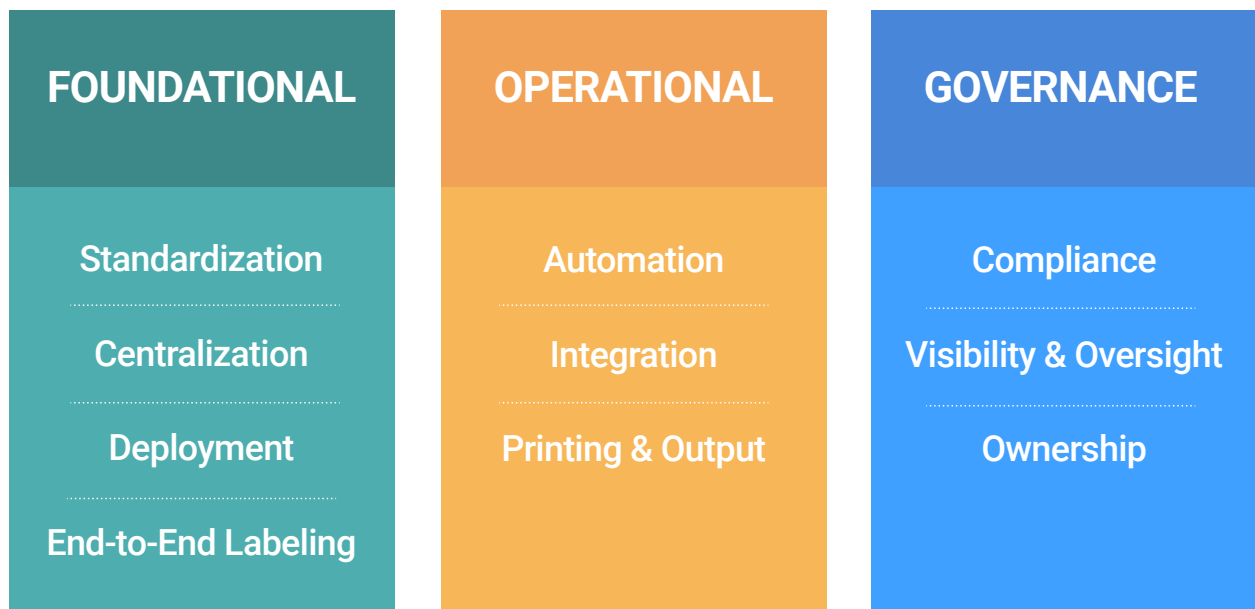
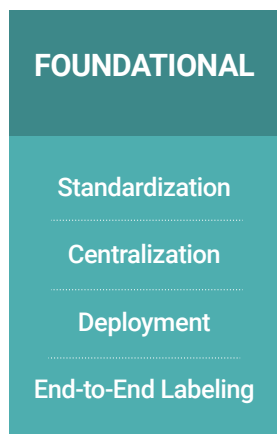


Figure 2. Categories of Enterprise Labeling Maturity



Foundational Dimensions

The first category examines the Foundational capabilities involved in implementing an optimized approach to Enterprise Labeling. These core capabilities, including standardization and centralization, create the blueprint for how your labeling should be deployed and accessed enterprise-wide. Dimensions in the Foundational category help define the scope of labeling across your organization as well as architecture - showcasing the necessity of collaboration between packaging and labeling along the product lifecycle, from product development all the way through the supply chain to the end user.

Standardization

Deploying a single labeling solution across your business enables labeling consistency and dramatically improves oversight. Rather than managing multiple systems, a standardized approach enables companies to support enterprise-wide labeling changes while streamlining maintenance. In addition to reducing cost and improving efficiency, having a single, scalable solution for labeling facilitates expansion to new global locations. Also, by taking a standardized approach, companies can ensure that a common set of labels, content, applications and data sources are used across the supply chain.

Centralization

Centralizing labeling across multiple locations and geographies ensures label consistency across your supply chain. A centralized labeling model provides access to labeling at a primary location, supports adherence to corporate standards and enables rapid and universal label changes throughout your organization. This type of centralized approach, which offers failover to individual locations with continuous uptime, is also essential in supporting business continuity in the face of any potential supply chain disruption.

Deployment

There is a range of deployment options from on premise to cloud-based applications. Historically, on premise has been the focus, however, this approach creates many challenges - especially with labeling. Even when deploying solutions in a distributed fashion, it's important to maintain the ability to leverage common data sources, components and configurations across sites. This is essential to handle the rigors of global infrastructures, allowing users to manage outages and connectivity issues, while providing high availability, failover and disaster recovery capabilities. The advent of multi-tier architectures and cloud-based applications offers even more flexibility to enable centralized and decentralized deployment options. With its quick deployment times, lower upfront costs, easy access, ability to scale and automatic updates, cloud-first strategy has become the best way to manage all business applications including labeling.

End-to-End Labeling

This dimension addresses the combined needs for labeling and packaging across the entire product lifecycle. Stakeholders involved in both supply chain labeling and product packaging frequently use much of the same content, images, warnings, translations and phrases for both purposes. Optimizing this dimension requires you to have the most up to date content for both, which is why it is important to have a common approach to review and approve any data and images. Ultimately, an end-to-end approach offers new levels of control, visibility and efficiency for managing labels and packaging artwork, enabling companies to eliminate bottlenecks, reduce time to market and ensure compliance.

		Stage 1 REACT	Stage 2 MANAGE	Stage 3 INTEGRATE	Stage 4 ORCHESTRATE	Stage 5 EXTEND
FOUNDATIONAL DIMENSIONS	Standardization	Disparate or homegrown solutions with no identified corporate standard or processes for labeling across the enterprise.	Beginning to implement a single solution, along with processes across primary locations.	Single standard has been adopted and legacy systems are being updated and accessed through the cloud to meet new labeling standards.	Adoption of one standard for labeling including processes, templates and data has been implemented across the organization.	Adoption of one standard for all labeling and labeling processes, driven from HQ, that includes external partners and suppliers across the globe resulting in increased efficiencies and greatly reduced maintenance.
	Centralization	Single location – with local oversight and limited adherence to corporate standards.	Multiple locations with silo deployments resulting in limited control over consistency and standards across business units.	Centralized in HQ with multiple linked locations responsible for enforcing consistency at the local level only.	Centralized in HQ with failover or ability for locations to run independently - enforcing consistency across organization, adherence to standards and universal changes throughout organization.	Centralized in HQ with failover or ability for locations and partners to run independently – enforcing consistency across organization, adherence to standards and universal changes both internally and externally with partners.
	Deployment	Using disparate, disconnected on-premise solutions which limit access to standardized templates and data sources - creating lack of consistency and extensive time and attention from IT.	Beginning to embrace cloud applications and understanding the value cloud-first labeling can bring.	Embracing the power of the cloud by implementing cloud labeling as part of digital transformation initiative.	Optimizing cloud-first labeling strategies which offer significant benefits including access to labeling and label content across global enterprise.	Leveraging the cloud to extend labeling to partners and suppliers, eliminating the need to relabel inbound goods and increase supply chain agility.
	End-to-End Labeling	No perceived awareness of value of integrated Enterprise Labeling and Artwork Management.	Looking to address the overlap of shared content and processes between supply chain and packaging artwork.	Limited integration between Enterprise Labeling and Artwork Management for some processes.	Full integration, including shared content management, workflow and approvals, across Enterprise Labeling and Artwork Management.	Standardized on a single, cloud-based platform that enables businesses to create, manage and print complex labeling and packaging artwork and scale across their global enterprise, including suppliers and partners.

Figure 3. Foundational Dimensions

OPERATIONAL

Automation

Integration

Printing & Output

Operational Dimensions

This Operational category of the Enterprise Labeling Maturity Model™ focuses on the physical execution of labeling within an organization. It highlights how labeling actually works and interoperates within your broader ecosystem measuring how well your labeling solution works with existing business systems, databases and applications, including devices used for printing and output. Here the model examines how labeling content is accessed and delivered through cloud-based solutions and integration with key data sources, and ultimately how it culminates with printing and output of your labels.

Automation

Replacing manual processes with automated processes driven by digital solutions offers new levels of control and consistency over labeling. Automation of labeling can be achieved by supporting transactional initiated labeling, along with configurable business logic which is essential in supporting variations and volume. Empowering business users to create and update labels without relying on IT services and leveraging automated approval workflows enables proactive label management, eliminates bottlenecks, and ensures consistency and compliance.

Integration

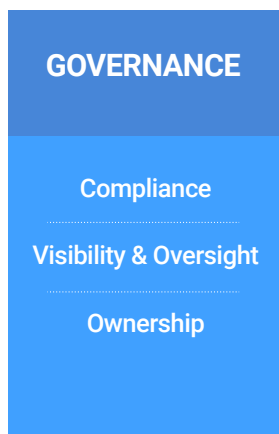
Integrating labeling with existing business applications offers a range of strategic advantages. Labeling that leverages existing business processes and vital data sources supports greater levels of label accuracy and consistency, while eliminating duplicate data and the need to retrain users. Initiating labeling transactions from enterprise applications and using data from a source of truth supports labeling complexity while vastly reducing the number of label templates. Integration is vital in ensuring accuracy, improving customer response times, and meeting regulatory requirements.

Printing & Output

The ability to output labels and documents across a diverse set of print devices in the time required to meet shipping and production requirements is vital. Independent of print make or model, supporting the rigors of global label printing requires that you optimize speed and network efficiency to print labels quickly and efficiently. Native print drivers, designed for specific printers and printer languages, allow for optimum print performance at both headquarters and remote locations. As digital technologies evolve and as the need for more label data spikes, companies are using e-labeling as a means to improve customer experience, meet requirements and reduce the cost of printed labels and documents.

		Stage 1 REACT	Stage 2 MANAGE	Stage 3 INTEGRATE	Stage 4 ORCHESTRATE	Stage 5 EXTEND
OPERATIONAL DIMENSIONS	Automation	All labeling is manual, resulting in time consuming, error-prone processes.	Scanning and user entry triggers labeling, along with limited use of labeling related workflows.	Labels triggered from enterprise applications and on-demand labeling applications, with some automated workflow processes.	Use of business logic from enterprise applications or on-demand business logic to guide labeling, along fully automated workflows throughout organization.	Extending automation with logic and labeling related workflows to supply chain partners, designers, customers, and suppliers. Business users can easily access and update labels via the cloud.
	Integration	No integration or reliance on exports from enterprise applications that may result in lack of accuracy and consistency.	File sharing, data base lookup integration with minimal use of dynamic content.	Integration with one application to accommodate for some variable content on labels.	Bi-directional integration with one or more applications to accommodate complete data-driven labeling triggered on either end - visibility within ERP.	Bi-directional, centralized, with multiple integration points at local production and external partner sites, offering full dynamic labeling across supply chain.
	Printing & Output	Manually driven label printing, uses Windows drivers that may limit the ability to meet high volume requirements.	Some use of native printer drivers to reduce traffic and maximize print speeds.	Primarily uses native drivers but with limited ability to print to non-network connected printers. Printing may include labels and related documents.	Manage high volume printing and print queues with full ability to print to cloud-connected printers. Document printing becomes more important and e-labeling capabilities become a focus for a portion of the business.	Optimized, high-volume printing with the option of extending printing to remote sites and supply chain partners, while maintaining the same level of performance and quality as networked devices. Document printing and e-labeling capabilities are extended to the entire business.

Figure 4. Operational Dimensions



Governance Dimensions

The final category of the Enterprise Labeling Maturity Model™ is Governance, which involves oversight, management, and control of labeling. Governance measures the ability to create new efficiencies and drive process improvements throughout an organization which can impact the bottom line. It also includes compliance with customer and regulatory requirements while offering expanded visibility into labeling processes. Governance also spotlights the role that ownership and key stakeholders play in labeling as part of an overall supply chain strategy.

Compliance

This dimension covers evolving customer demands, industry standards and regulations that define how your products are developed, marketed, shipped and disposed. Labeling requirements are more demanding than ever and organizations must make sure their labeling can keep up. Compliance examines the ability to manage complex, variable data and label formats to meet current regulatory, regional and customer demands. Ensuring compliance with formatting requirements, barcodes, logos, languages, warnings and product information allows companies to avoid hefty fines and business disruption while supporting the ability to enter new markets.

Visibility & Oversight

Core to governance is having visibility into areas where labeling is both working as planned as well as areas where problems exist and change is required. Employing advanced analytics and real-time reporting to offer visibility into label creation, use and output provides a platform for auditing, assessment and continuous improvement. With access to advanced analytics and real-time reporting, users are able to gain visibility into constantly changing yet vital information including labels, printers, print jobs, users and audit data. These insights drive improvements to labeling processes as well as driving future supply chain and labeling investments.

Ownership

As companies extend their global operations, labeling has become more prominent involving multiple departments and stakeholders and requiring new levels of attention. This includes an expanded focus by executives who view labeling as a strategic differentiator. This differentiation is driven by the positive bottom line results that can be achieved by reducing maintenance costs, avoiding fines due to non-compliance and preventing supply chain disruption.

		Stage 1 REACT	Stage 2 MANAGE	Stage 3 INTEGRATE	Stage 4 ORCHESTRATE	Stage 5 EXTEND
GOVERNANCE DIMENSIONS	Compliance	Not able to comply with customer and/or regulatory labeling requirements if needed.	Able to comply with some requirements but entails significant time and manual intervention.	Able to comply with most requirements by leveraging some business logic and automated processes.	Able to easily comply with any existing customer and regulatory requirements, as well as multiple languages and regions, through automated processes and business logic.	Able to easily comply with any customer and regulatory requirements, as well as multiple languages and regions, through automated processes and business logic – while also being able to easily adapt to any new requirements.
	Visibility & Oversight	Lack of visibility into label printing and process, limiting opportunity for process improvements.	Limited visibility at certain locations, and across the enterprise - could entail multiple solutions.	Single approach to visibility, applied to portions of the organization with limited awareness at the executive level.	Adoption of business intelligence (BI) for increased visibility throughout organization. Including visibility to audit data and flexibility to create custom reports for increased awareness at the executive level.	BI with real time visibility internally and externally (partners and suppliers), offering complete view of all user activity with advanced insight into labeling to drive process improvements with impact on the bottom line - resulting in oversight at the executive level.
	Ownership	Labeling is owned at the location level with IT as the main stakeholder.	Labeling is owned at the location level with representation from both IT and business stakeholders.	Labeling has multiple departments and stakeholders that share responsibility.	Labeling is a defined group or organization that offers a strategic service to parts of the organization and enforces standards.	The labeling organization has ownership and meets global requirements across the organization, as well as supply chain partners, suppliers and customers.

Figure 5. Governance Dimensions

Prioritizing Dimensions towards Enterprise Labeling Maturity

The degree of focus that a business places on developing the nine dimensions varies based on the level of maturity desired, as well as the structure and scope of the business. Below you will find the most common levels of priority for each dimension at each stage. This helps to assess efforts as you advance your Enterprise Labeling initiatives (see Figure 6).

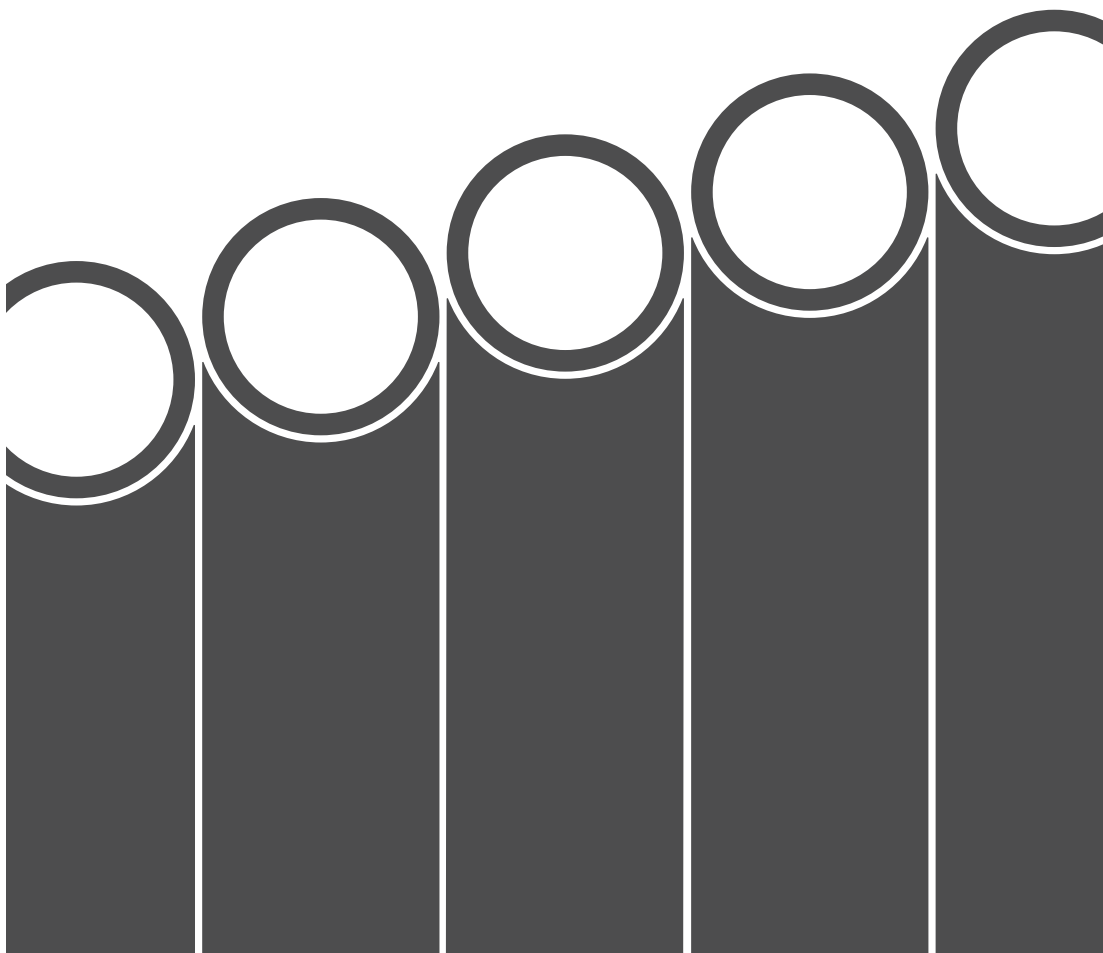
		Stage 1 REACT	Stage 2 MANAGE	Stage 3 INTEGRATE	Stage 4 ORCHESTRATE	Stage 5 EXTEND
FOUNDATIONAL	Standardization	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
	Centralization	LOW	LOW	MEDIUM	HIGH	HIGH
	Deployment	LOW	MEDIUM	HIGH	HIGH	HIGH
	End-to-End Labeling	LOW	LOW	MEDIUM	MEDIUM	HIGH
OPERATIONAL	Automation	LOW	MEDIUM	HIGH	HIGH	HIGH
	Integration	LOW	MEDIUM	HIGH	HIGH	HIGH
	Printing & Output	HIGH	HIGH	HIGH	HIGH	HIGH
GOVERNANCE	Compliance	HIGH	HIGH	HIGH	HIGH	HIGH
	Visibility & Oversight	LOW	LOW	MEDIUM	HIGH	HIGH
	Ownership	LOW	LOW	MEDIUM	HIGH	HIGH

Figure 6. Priority by Stage and Dimension

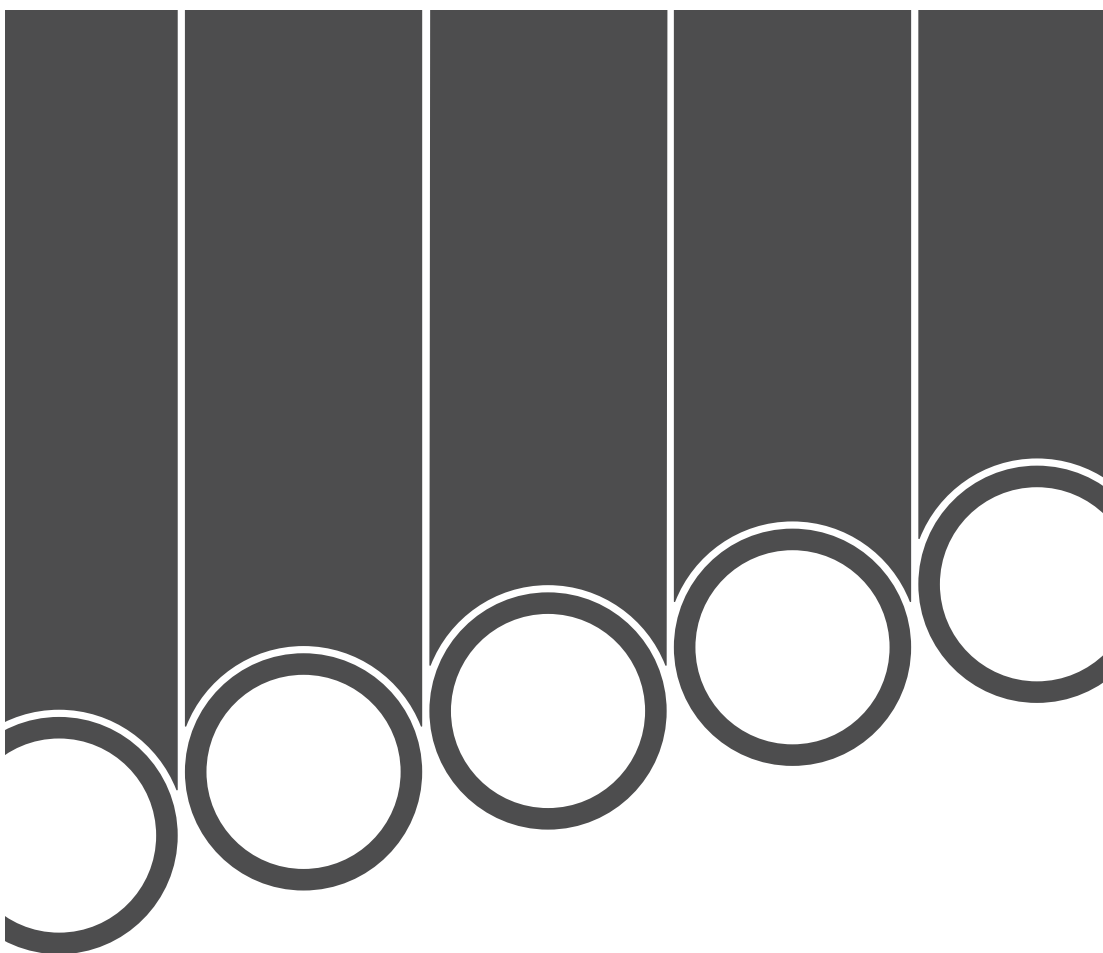
Determining your Stage of Enterprise Labeling maturity

Software's Maturity Model is intended to offer guidance on how to move your current labeling forward by providing a stage-based evaluation of your maturation path for achieving efficiency in Enterprise Labeling. This self-assessment tool enables you to map out your current state and offers respective improvement measures which can be taken to manage continuous improvement for your labeling. You can measure the effectiveness of your labeling and determine what capabilities are needed to increase labeling efficiencies and enable business transformation.

Key labeling stakeholders can complete the survey on their own and get a customized report outlining your results and recommended next steps. Contact us to begin an evaluation of your Enterprise Labeling at www.loftware.com/maturityassessment and chart a course for your optimal labeling environment today.



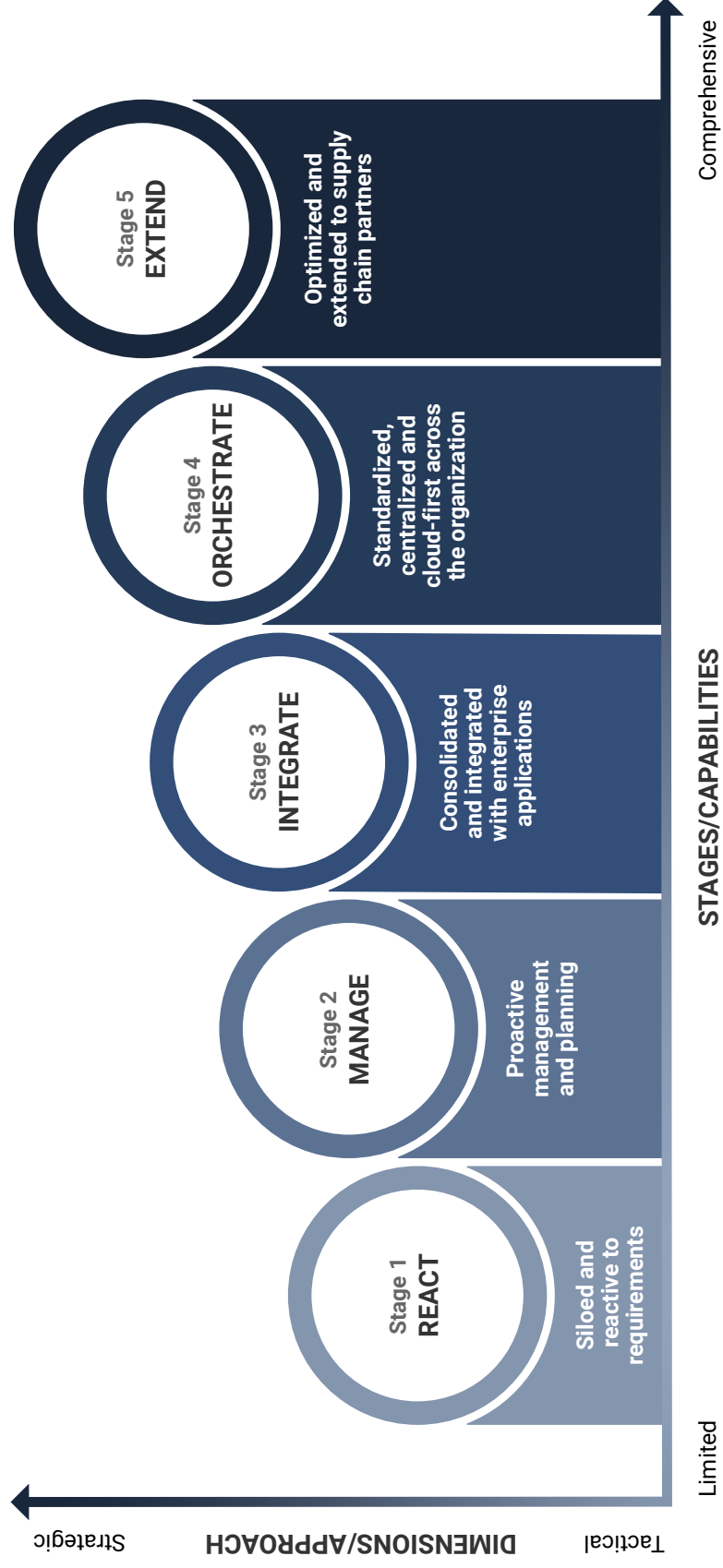
Enterprise Labeling Maturity Model™ - Resources



Enterprise Labeling Maturity Model™ Matrix

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Five Stages of Enterprise Labeling Maturity





Loftware is the world's largest cloud-based Enterprise Labeling and Artwork Management provider, offering an end-to-end labeling solution platform for companies of all sizes. Maintaining a global presence with offices in the US, UK, Germany, Slovenia, China, and Singapore, Loftware boasts over 35 years of expertise in solving labeling challenges. We help companies improve accuracy, traceability and compliance while improving the quality, speed, and efficiency of their labeling. As the leading global provider of Enterprise Labeling and Artwork Management, along with Clinical Trials Labeling and Content Management, Loftware enables supply chain agility, supports evolving regulations, and optimizes business operations for a wide range of industries. These include automotive, chemicals, consumer products, electronics, food & beverage, manufacturing, medical device, pharmaceuticals, retail, and apparel.



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