BarTender®
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English

Streamlining the supply chain

How labeling software cuts costs, drives compliance and creates transparency

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Introduction: Why labeling matters in the supply chain

Supply chains have grown increasingly complex with unique business rules, industry guidelines and evolving standards. At times, it's challenging to keep up with the fast pace of enterprise business while meeting customer demands. Supply chain visibility between manufacturers, distributors, suppliers, logistics providers and other stakeholders is crucial to streamlining processes and preventing costly errors.

To increase visibility and drive efficiency and accuracy, a secure, reliable labeling solution is key. Enterprise labeling and barcoding software help organizations quickly respond to rapidly changing, competitive environments by integrating with other business systems. Their automated processes minimize labeling challenges and make for simple barcode and label design, global change management and effective printing. No matter where you operate in the world, labeling software drives compliance.

Choosing the right labeling software is an important aspect of an efficient supply chain. Continue reading to learn more about what barcode and label software is, the future of labeling and how it can benefit your business.

GET STARTED

The cost of inefficient labeling

A complicated labeling system can be costly for organizations trying to manage a complex supply chain. Complexities lead to poor visibility, which fosters inefficiencies. One study found that 77% of firms surveyed felt they had no visibility or a limited view. This lack of visibility results in common disruptions that can lead to higher costs related to poor traceability. Labeling errors, logistics problems, noncompliance or production downtime are all potential disruptors.

Yet, with a comprehensive, reliable labeling solution, supply chain visibility is drastically improved. The right labeling solution ensures important data is visible at all levels of the supply chain. The accurate creation of barcodes and RFID tags helps organizations satisfy compliance standards. It also allows them to remain agile when changes are made or recalls occur. Far less time is wasted trying to identify products, where they're from or where they're going.

A key component of an effective enterprise labeling solution is one that provides total interoperability. The solution should seamlessly integrate with existing business systems and workflows. One of the benefits of automated labeling software is how easy it is to integrate with systems like Oracle SAP, ERP and WMS. You can quickly link data to your labels, simplifying the supply chain to reduce costs.

Streamline the supply chain with labeling software

The complex nature of enterprise labeling isn't changing anytime soon. Global business environments require attention to regional nuances, language requirements, regulatory guidelines, industry standards and respect for unique customer needs — all in addition to your own business goals and processes.

Labeling isn't one-size-fits-all. By combining labeling and barcoding best practices with effective solutions for dynamic, global businesses, you can turn costly inefficiencies into money-saving opportunities. Whether you're in the pharmaceutical, medical device, chemical, food and beverage or transportation industry, you are sure to be met with rigorous labeling requirements. Regardless of the industry, it is imperative to integrate the right data with the right labels. An outdated, manual labeling system simply can't keep up with the demands of today's global supply chain.

80% **of manufacturers who monitor label accuracy will report a problem on their primary production line this year,**
according to Packaging World.

Supply-chain disruption losses equal

42%

of one year's earnings on average over a decade,
according to McKinsey.

Using automated labeling software allows you to easily integrate with existing business systems. Discover how to successfully manage label regulations along with the ever-evolving nature of your supply chain. Save your business time and money while maintaining your competitive edge in today's global market. This guide will help you learn more about what labeling software does and how it can help you streamline your supply chain.

What is barcode and labeling software?

Doing business in a global economy is becoming increasingly complex, introducing new challenges that small businesses and enterprise organizations alike must tackle to remain successful and compliant. That's not always an easy feat, especially with the growing number of new and updated regulations that organizations must adhere to.

Supply chain visibility, or the process of accurately tracking products as they move through the supply chain, is crucial in regulated industries. Each stakeholder, from the manufacturer to the customer, relies on the information on the label and barcode. For the numerous organizations who outsource aspects of their production, it's even more important to maintain consistency as products move through the supply chain.

To effectively do that, enterprise organizations rely on barcode and labeling systems that seamlessly integrate with other processes and software to ensure that requirements are met, and accuracy is maintained, even as a company grows and regulatory standards change.

While the goal of a centralized label design and barcoding process is clear, what exactly does barcoding software do? And how do you know if your software is effective?

In this chapter, we'll break it down to the basics of what barcode and label design software does, how it works and the numerous benefits of choosing a labeling software that works for you and your stakeholders.

What is a data carrier and why are they important?

When people think of barcodes, they may be most familiar with barcodes used on grocery items, but their usefulness extends far beyond the supermarket and has grown over the past few decades.

Numerous organizations from pharmaceutical and medical device companies, to aerospace and retailers rely on barcoding technology to streamline the process of barcode label making, printing and tracking to ensure compliance, safety, security, and efficiency at every point in their supply chain. With present day barcoding software, organizations and their stakeholders can track every single product, device or component down to granular detail.

Furthermore, the advancement of automated barcode and label design software has eliminated the need for manually entering data for each barcode and allows barcoding technology to easily integrate with existing business processes and software, like warehouse management systems (WMS), Oracle and SAP.

Barcodes are one of the technologies that make up automatic identification and data capture (AIDC or Auto-ID), which expedites the process of data collection and communication to improve performance, productivity, efficiency, compliance and consumer safety. A barcode can contain a vast amount of information including:

- Part numbers
- Manufacturer ID
- Transaction codes
- Location codes
- Expiration dates
- Prices
- Personal information
- Product type
- Lot number

Barcode and label design software offers intelligent systems that manage the complexities of creating and automating labels for a variety of industries, including:

- Food and beverage
- Medical device
- Pharmaceutical
- Aerospace
- Retail
- Supply chain

Barcodes for regulated industries

Regulated industries rely heavily on barcodes and label design software to help monitor regulatory compliance by centrally managing traceability and serialization required by industry regulations. It also helps ensure the safe and accurate transmission of products through the supply chain, offering enterprise organizations barcode solutions even when they operate in multiple locations around the world.

A comprehensive barcoding system is able to adapt to changing standards in a variety of industries, delivering information to different users in a safe, efficient and useful way. The following regulations and standards are commonly addressed by barcode and label design software:

- **GS1 Digital Link**: Standard for web-enabled 2D barcodes (data carriers) that deliver quick, accurate information to users.
- **GHS**: Globally Harmonized System of Classification and Labelling of Chemicals to communicate health and safety information on labels.
- **UDI**: Unique Device Identifier to identify and track medical devices sold in the United States to improve safety, device innovation and efficiency. RFID is often used to help track medical devices according to UDI regulations.
- **FDA 21 CFR Part 11/GMP Annex 11**: Both regulate electronic documentation and electronic signatures in medical device and pharmaceutical industries. FDA regulates in the U.S. and GMP in Europe.
- **EU FIC**: Food Information to Consumers, which delivers allergen information to consumers to enhance safety and transparency for consumers.
- **ATA SPEC 2000**: International standard to improve communication and efficacy across the aviation supply chain.

An example of how barcoding and regulatory guidelines coalesce is evident in the way hospitals manage medical devices. Using a barcoding system for inventory like RFID, medical devices are monitored to identify what the item is, where it's located (asset tracking or Real Time Location Strategy), its age, updates needed and more. Integrated barcoding software works with other automated systems, such as an ordering system, to ensure that the hospital has the supplies and devices it needs, which helps eliminate human error and keep hospitals accountable for their equipment.

In other industries, barcodes are used to track inventory, assist with accounting, monitor sales trends, provide verification (airplane ticket or ID) or aid with effective advertising campaigns using QR codes.

How barcode and label design software and business processes intersect

These days, barcode and label design are a fully integrated part of many small and large organizations. Barcode and label design software support the creation of digital twins using RFID tags and labels that make an exact, digital replica of all information that is on the object itself, then integrate that with other business processes and software that are required to transmit necessary data. Thus, each system needs to seamlessly integrate with the other to ensure the accurate use of information.

For enterprise businesses that operate on a global scale, the pace of business lends to constant changes. Without the ability to pivot when there are changes in the supply chain, productivity can slow

dramatically, and inaccuracies can occur. Enterprise labeling needs to account for factors like language, location, regulations and product changes, but to do so effectively it also needs to work with existing systems such as:

- Enterprise Resource Planning (ERP)
- Warehouse Management Systems (WMS)
- Operating systems, web browsers and devices
- Various brands of printers in multiple locations
- Databases
- Human resources
- Financial
- Scales

With these integrations, organizations will see improvement in:

- Compliance
- Efficiency
- Safety
- Security
- Supply chain visibility
- Standardization

When organizations try to meet their needs with other solutions like using third parties or developing their own internal processes, they're likely to experience inefficiencies or mistakes that don't allow them to continue growing. While these solutions may seem cost-effective at the beginning, they can end up being expensive later, necessitating a more robust label design software to improve productivity. With barcode and labeling software for enterprise businesses, many of these mistakes can be avoided.

Similarly, barcode and labeling software for small business is just as important as it is for enterprise businesses. Smaller organizations that operate in regulated industries are subject to the same guidelines and need to be prepared.

Additionally, small businesses may not have the time and resources to manage their inventory and warehouses in the same way as a large organization. Tools like barcode inventory software can help streamline processes so that even with fewer resources, small organizations can be successful and grow.

Label design and the global supply chain

The supply chain is a complex network of suppliers, manufacturers, contractors, logistics providers and more. Some of these stakeholders may be a part of your organization, while many may be third parties that are more difficult to manage and regulate, especially on a global scale.

An enterprise labeling software ensures that labeling processes remain consistent no matter who is involved. With the demand for efficiency at an all-time high, virtual modeling of the physical supply chain via a digital twin helps reflect the state of every moving piece. An item can be tracked throughout the supply chain, making the supply chain more efficient and improving velocity and interoperability. This ensures that data is updated in real time for a part of, or a whole supply chain. The benefits of this system include:

- Identifying bottlenecks in the supply chain
- Understanding supply chain efficiency and dynamics
- Developing and updating supply chain
- Inventory management
- Compliance across supply chain
- Accuracy

Of course, with these benefits, organizations can also prevent costly errors that may result in relabeling.

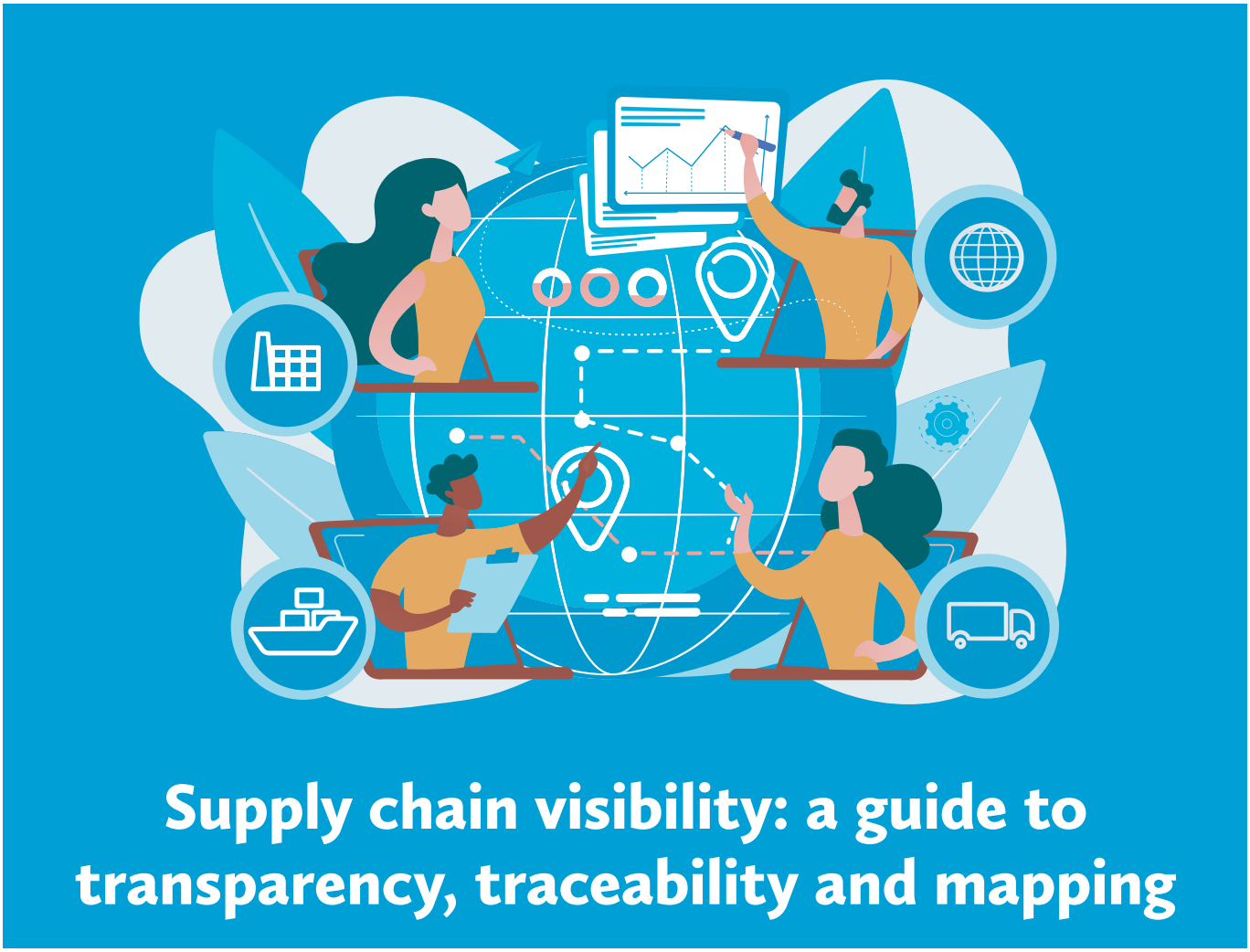
The ability to connect multiple stakeholders allows for all organizations to effectively grow and still meet customer demands or consider entering a new market or geographic location with ease.

Learn more about effective labeling solutions

Enterprise barcode and labeling solutions really are essential for many organizations. They allow for the efficient tracking of numerous products at every point in the supply chain, anywhere in the world. Every supplier and every facility can draw from the same centralized labeling system to ensure data is accurate, up to date and compliant.

When choosing a labeling software, you need a solution that can do it all, and scale with your growing business. With BarTender® software, organizations of all sizes can create, automate and manage labeling to maintain security and safety.

Contact us to learn more about our products and be sure to continue reading our guide on how to streamline your supply chain with simple, effective labeling solutions.



Supply chain visibility: a guide to transparency, traceability and mapping

Establishing supply chain visibility is a requirement for enterprise organizations who seek to establish trust with their partners, consumers, and meet the growing demands of regulatory standards. Achieving a high level of supply chain transparency gives organizations insight into how they can work more efficiently, accurately and improve workflows and processes.

Yet, a lack of visibility is an ongoing challenge, especially as organizations scale and grow. A 2017 supply chain survey showed that just 6 percent of firms surveyed felt they had complete supply chain visibility, while 77 percent said they had no visibility or a limited view. With so little visibility, disruptions may occur or frustrations may develop with partners, leading to inefficiencies that affect stakeholders at every level.

The foundation of proper visibility is supply chain traceability, which involves secure, reliable, real-time data of all products as they travel through the supply chain. Choosing the right barcode and labeling software that creates interoperability allows for a single source of data management that's trustworthy and enhances traceability.

With a need for greater visibility, it's more important than ever for organizations to understand the value that accurate labeling brings to their supply chain. This article takes an in-depth look at components of supply chain visibility, including transparency, traceability and mapping, and the immense benefits of implementing effective labeling solutions.

What is supply chain visibility?

Supply chain visibility is about offering insight into what and where a given product is at any point in the supply chain. This involves transparency across the organizations and its partners including manufacturers, vendors, warehouses, logistics and distribution centers. Ultimately, complete visibility leads to more efficient management of increasingly complex supply chains, credibility with consumers and compliance with changing regulatory guidelines.

Visibility is important for both your organization's internal operations and to better align with your partners. While every stakeholder may have their own digitized systems in place, if they don't connect and integrate, that can lead to costly discrepancies.

There is an immense amount of data to be captured, which is often siloed making it hard to access necessary information. This data often includes:

- Data from warehouse management systems (WMS)
- Database files
- Spreadsheets
- Clocks
- Scales
- Regulatory information
- Status reports
- Delivery details

Creating a standardized labeling system is one way for enterprise organizations to integrate data into one place, making it easier for every stakeholder to understand and track the product, and thus improve supply chain management.

One way to implement an effective labeling system and enhance interoperability is through GS1 standards that create a common language for stakeholders within the supply chain. This language helps "identify, capture and share supply chain data," which ensures accuracy and reliability.

GS1 standards go a step further to enhance visibility with GS1 Digital Link. These GS1 barcodes offer contextual data to end users according to their location, time zone, demographics or campaign. This enhances item-level identification, which can lead to more accurate traceability and fewer errors in the supply chain.

For example, a logistics provider may have their own system of tracking products within their facilities. But once that product enters another facility, it can be difficult to track in another system. This is where interoperability with multiple systems is key. With a GS1 barcode, a logistics provider has total visibility and can get real-time information about a specific product and manage its entire journey, even when it's outside of their facility.

What is supply chain transparency?

Supply chain transparency is focused on the commitment between stakeholders to disclose information that's relevant and useful to their supply chain. Depending on the industry, transparency may include data sharing with consumers, regulatory agencies, prospective clients or other organizations within the supply chain.

While there is crossover between visibility and transparency, the focus of transparency is to create accountability and credibility with stakeholders through disclosure of information. Transparency ensures the manufacturing of quality products, compliance, safety and accuracy because organizations understand their responsibility to provide information.

Over time, this can help enterprise organizations secure and maintain valuable partnerships and increase consumer confidence. In a study by MIT Sloan School of Management, they found that consumers may be willing to pay 2% to 10% more for products when there is more supply chain transparency.

Examples of supply chain transparency may include everything about a product as it moves from the manufacture to its point-of-use, including:

- Ingredients a product contains
- Temperatures a product is subjected to
- Who has handled the product
- How long it's been in transition from one point to another
- Work conditions
- Product/component origins
- Labor practices

Transparency is so important that many regulatory agencies have enacted guidelines to encourage the consistent, reliable sharing of information and proper conduct.

An example is in the food and beverage sector where the US FDA established the Food Safety Modernization Act (FSMA). The FSMA is aimed at preventing foodborne illness by creating a set of standards to be followed at each point in the global supply chain while requiring more disclosure about food handling practices, production, transport and sources. In essence, the FSMA is creating a framework for more transparency, which ultimately benefits every stakeholder.

What is supply chain traceability?

Supply chain traceability is the accurate, real-time tracking of parts, components and products as they travel from the manufacturer to end user, in addition to each product's origin and final destination. Each step of the production and distribution process is traced and monitored to provide better supply chain visibility, improve quality control and prevent risks to consumers.

As more enterprise organizations go global, the complexities of traceability increase, making it even more essential to implement enterprise business labeling software that can accurately trace products at every point. Traceability is especially important in regulated industries, like food and pharmaceuticals, where complete accuracy is required to meet standards and provide safe products.

Traceability plays an integral role in sustainability as well, helping regulatory agencies decipher products that are sourced sustainably from those that are not.

For example the seafood supply chain is rife with unauthorized fishing practices that are leading to overexploitation in some parts of the world like Indonesia, who supplies 27% of U.S. frozen tuna. By tracing the tuna from the boat in Indonesia to the store in the U.S., regulatory agencies can encourage more sustainable practices that also promote safer products. Labeling compliance and regulations can improve traceability and ultimately supply chain visibility.

What is supply chain mapping?

Mapping is how organizations track and visualize how their products move through the supply chain, which ultimately leads to better visibility. By mapping and analyzing ahead of time, organizations can avoid unnecessary confusion and delays while achieving desired outcomes because they know every site, product and supplier in their supply chain. Thorough mapping may include information about:

- Manufacturing
- Origin sourcing
- Compliance
- Transportation/logistics
- Critical business functions

Benefits of supply chain visibility

Supply chain optimization can lead to cost-effective solutions for your organization and help you prevent problems, but if you can't first visualize your supply chain, you won't be able to reap those benefits, and the many others that stem from more visibility, such as:

- Balance supply and demand
- Promptly respond to disruptions in supply chain
- Improve organization workflows and processes
- Establish good working relationships with partners
- Manage suppliers
- Improve customer satisfaction
- Enhance safety
- Make real-time adjustments
- Ensure compliance across entire supply chain

Part of improving visibility is implementing a strategic and comprehensive labeling system that allows you to accurately track products at every point, which is especially important for labeling compliance. It's key to choose barcode and labeling software that has the ability to scale with your business and evolving international regulations. Adding in this layer of compliance creates:

- Interoperability with trading partners for compliance across supply chain
- Efficient global labeling system
- Reduced redundancies in labeling
- Increased inventory visibility through smart labeling
- Seamless change management as business grows
- Compliance with GS1, EPCglobal's Gen 2 standard (ISO 18000-6C), and more
- Serialization management that creates more supply chain transparency

What does a visible supply chain look like?

Visibility may look slightly different depending on the industry and the intricacies of a particular supply chain. Yet, the concept of low and high visibility is relevant to all industries. Low visibility can be costly, while high visibility benefits stakeholders.

Sudden disturbances like weather, power outages or natural disasters are instances when high end-to-end supply chain visibility is critical. Otherwise, it's like trying to navigate roads without a map.

Supply chain logistics is a perfect example of how visibility can impact the functionality of the entire supply chain. Logistics refers to the flow of goods, services and information, including transportation, storage and inventory.

In 2011, when Japan experienced an 8.9-magnitude earthquake, many companies around the world were severely impacted. Japan was the supplier of 60 percent of critical auto parts and many other goods, but when the earthquake hit, those sources were suddenly in jeopardy.

Organizations with high supply chain visibility are still impacted but understand where their products come from and have mapped out how they get to their destination. As a result, they are more capable of pivoting to other sources. They can create backup plans before disasters strike so that they aren't 100 percent reliant on that one Japanese company. This speeds the recovery time and ultimately benefits consumers who would have to absorb the extra cost of poor visibility.

In contrast, an organization with poor supply chain visibility is left scrambling. They may have product from Japan that typically travels through numerous suppliers but may not have much visibility into who those suppliers are. They likely haven't established alternatives when their suppliers go down. This leads to a slower recovery time and may even result in an auto parts plant in the U.S. having to suspend operations.

Tips for achieving supply chain transparency

Improving and achieving a high level of transparency is key for good visibility and accountability with partners. To create better transparency, consider the following tips:

1) **Assess risk:** Look at where risks are in the supply chain, how likely they are to occur, at what point and methods for detecting risks or disruptions. Mapping can be especially useful in visualizing how products move and where potential gaps exist.
2) **Get feedback:** Keep lines of communication open with suppliers and other parties in the supply chain to get feedback on where information and service gaps exist. Having good visibility into your partners' supply chains can help you obtain data to create a better plan for your own organization.
3) **Manage compliance:** Compliance is crucial for many organizations in regulated industries. Creating a plan for transparency involves implementing appropriate tools to manage changes to global regulations and assess where compliance risks may exist at every point in the supply chain.
4) **Implement improved technology:** One of the simplest ways to create more transparency is through technology that digitizes elements of supply chain management like labeling. With labeling software you can integrate other parts of the supply chain, like WMS or ERP, into label and barcode creation. RFID tags and other smart labels allow you to identify and track products in real-time while ensuring that users have the information they need within the label. This leads to more transparency by avoiding siloed data that can slow down the supply chain and lead to frustrations.

Transparency is certainly a multi-faceted process that requires stakeholders to recognize the benefits and value that investing in tools has for their organization. Ultimately, more transparency will build brand trust, drive efficiency, improve collaboration with partners and reduce potential risk for all parties.

Improve supply chain visibility with BarTender

Whether you're in aerospace, retail, pharmaceuticals, medical device or food and beverage, you're reliant upon a complex supply chain that requires tools and technology to meet the growing challenges of compliance and efficiency. Implementing enterprise or small business labeling software like BarTender® makes supply chain visibility simpler with secure, reliable tools that easily integrate with existing processes.

With BarTender, you can print labels from any device in your supply chain, centrally manage traceability and serialization and ensure compliance, enhancing visibility for you and your partners. To learn more, contact us or try out a 30-day trial of BarTender's complete label management system today to improve your visibility.

7 labeling challenges facing the supply chain

Every industry encounters unique barcode issues and labeling challenges, particularly as they relate to meeting global compliance regulations and practices unique to the organization. When enterprise organizations need to meet these evolving standards, it's crucial they have the right technology to maintain supply chain traceability and transparency and efficiency.

Unfortunately, if an organization relies on a complicated labeling system, it may experience inefficiencies that incur unnecessary costs related to inconsistent branding, labeling compliance and the inability to properly scale and grow. When organizations have labeling issues like product recalls or errors, they can experience expensive chargebacks and penalties.

The consulting firm Deloitte estimates that in the US, product recalls cost companies an average of $10 million dollars per incident. And approximately 80 percent of small to mid-sized businesses fail within three years of a product recall — you can attribute this to the loss of sales, reputation and brand value.

But understanding these challenges, and how an effective labeling deployment plan meets these challenges, can help organizations increase supply chain visibility and avoid unnecessary costs.

Read on to learn about seven common labeling challenges and how to solve them with a compliant, effective labeling solution.

1. Evolving labeling regulations and standards

One of the biggest challenges that enterprise organizations face with global labeling is compliance. The frequency with which regulations change can make it difficult to keep up with and manage the immense variability in labeling for a global supply chain.

Labeling regulations, practices and standards can be introduced and established in several ways, including:

1) By governing bodies and regulatory agencies
2) Industry associations who want to get ahead of regulatory agencies by implementing responsible member policies. Members of these associations show their commitment to quality and performance, and thus, regulators respect their industry-specific guidelines. Examples include Responsible Distribution for the National Association of Chemical Distributors and the Produce Traceability Initiative (PTI), which implemented "a standardized industry approach to enhance the speed and efficiency of traceability systems" in the food industry.
3) Large retailers like Walmart, Costco and Amazon require vendors to follow certain labeling rules that they establish. For example, when the PTI came out, it was not widely considered until Walmart stated they would only accept produce with the PTI label (enabled by GS1 — 128 barcode). That labeling requirement is now known as the Walmart produce label and is the industry standard seen at both large and small grocers.

For industries such as aerospace, medical device, pharmaceutical and food and beverage, the challenges of managing labeling regulations are amplified by the stringent requirements from various governing bodies, including:

- EU Food Allergy Labeling (FIC)
- FDA 21 CFR 11
- GHS
- UDI
- GS1 Digital Link
- EU MDR
- FSMA
- DSCSA
- EU FMD

As standards change, an agile labeling solution can quickly be modified to meet updated labeling compliance standards to avoid potential violations or barcode issues that could be costly. Managing, securing and controlling label printing for a global supply chain is made possible by labeling software that easily integrates with multiple devices and other systems and processes.

2. Labeling and barcode issues

Labeling errors affect more than just the end user but can disrupt the entire supply chain by providing incorrect information to each stakeholder along the way. Additionally, labeling errors can lead to product recalls and supply chain inefficiencies, which can result in extra costs for relabeling and stall further innovation planned by the organization.

Errors can include:

- Incorrect data: Errors with symbology, date, ingredients, component or order or information can affect labels and lead to recall.
- Misplaced barcode: If a barcode is on a curve or doesn't have proper light areas around the barcode, it may not be readable.
- Color issues: High contrast increases readability, and low contrast decreases readability. GS1 US standards have standard color and size codes to help organizations maintain compliance and readability.
- Poor print quality: Barcode scanning can be ineffective if barcode lines aren't properly spaced or additional ink spots are detected.
- Barcode disruptions: Labels that are covered, peeling, torn or folded may be rendered unreadable.

Recalls can be extremely costly for enterprise organizations. A 2017 McKinsey Report found that medical device companies can spend up to $600 million in costs associated with a recall. While product recalls can be related to more than just labels, it's crucial for organizations to print and use accurate labels to avoid such costs.

A comprehensive labeling solution will enhance accuracy, reliability and security by integrating with other systems like warehouse management systems (WMS), enterprise resource planning (ERP) and other supply chain management (SCM) processes. Sourcing data from these other systems can help avoid duplication, streamline the process of label creation and ensure traceability in the event of a product recall.

3. Supporting multiple languages

Global organizations who operate in multiple countries are tasked with the additional challenge of localization or creating labels unique to a specific geographic region and language. This challenge also comes into play if an organization is looking to expand into a new market.

Products from food to medical devices are often transported and sold in many countries, and thus, must meet language requirements in addition to country-specific labeling regulations. Without proper translation support on labels, organizations could be left with recalls or brand distrust.

To ensure the utmost safety for end users, it's important for organizations to rely on labeling software with the capability to develop accurate labels in every language needed. Features like auto translation and the ability to accommodate modern writing systems can replace outdated, manual processes that can be costly and time consuming.

4. Fragmented labeling processes

The labeling process is an intricate one that involves numerous stakeholders in the supply chain. It's also a process that encounters ongoing changes in regulations, scaling or downsizing, mergers, economic fluctuations, expanding into new markets, new products and rebranding. With so many considerations, it's easy for the labeling process to get confusing.

When labeling processes get siloed, and supply chain visibility is limited, redundancies and inefficiencies are common. This can lead to increased costs due to poor processes and errors that necessitate relabeling.

Consider a medical device company that is entering a new market in another country. This company will face global labeling challenges as they work to meet the demands of localization and regulations for that specific location across their supply chain. Without proper visibility, the chance for errors and miscommunications is higher.

Integrating enterprise labeling software with other systems in the supply chain helps stakeholders effectively collaborate by centralizing data collection to remain compliant and deliver consistent labels no matter where they're being printed. Additionally, dynamic labeling offers the flexibility to pivot when there are changes in standards, formats, colors, products and language.

5. Customer requirements

Factors related to the consumer or end user can affect label data, layout, language and placement, even impacting what colors are used. Customers are also more demanding about the level of transparency in labeling, wanting to know as much information as possible about the product they're using or consuming.

Without a dynamic labeling system in place, labeling and barcode issues can impact production. It's difficult for enterprise organizations to make the changes necessary to meet every end-user if they don't have a centralized system for collecting data and making changes.

Automated labeling software enables the rapid changes required to meet customer demand and visibility across the supply chain, avoiding errors and confusion. This not only saves time and money for an organization but helps support brand credibility and improves customer satisfaction.

6. Industry-specific nuances

Many industries rely on labeling to communicate information effectively and accurately, but each industry has different standards that require in-depth understanding of how to appropriately meet labeling regulations.

Even if an organization is using labeling software, if it's not up to date with the correct industry information or regulatory standards for that industry, it can be a challenge for organizations to remain consistent and accurate.

An example of industry-specific regulations is Unique Device Identification (UDI), which is a regulatory requirement to enhance the safety of medical devices by improving visibility, traceability and security using a globally unique device identifier on every device. Without this standard, it would be challenging for medical device manufacturers to keep data consistent.

Choosing an effective labeling software for enterprise businesses can provide compliant labels and industry-specific knowledge and sensitivity to ensure labeling accuracy. Using the UDI example, the right labeling solution will offer:

- Global change management
- Centralized, configurable role-based access for modification, setup and printing
- Audit trails to fulfill regulatory standards

7. Global expansion

When organizations expand into new geographies, creating systems to meet compliance with local labeling regulations can be a roadblock.

These challenges are exponential for industries such as medical device or automotive manufacturing who engage in component manufacturing. First- and second-tier suppliers to these organizations can be located around the world. Standardizing processes can be difficult without a good labeling solution.

When organizations are ready to scale and grow into new markets, implementing enterprise labeling software solutions will allow systems to integrate across the supply chain. So, a warehouse management system (WMS) operated in the U.S., for example, can seamlessly integrate labeling with a manufacturer in Japan. As products are transported and packaged, labeling never gets compromised.

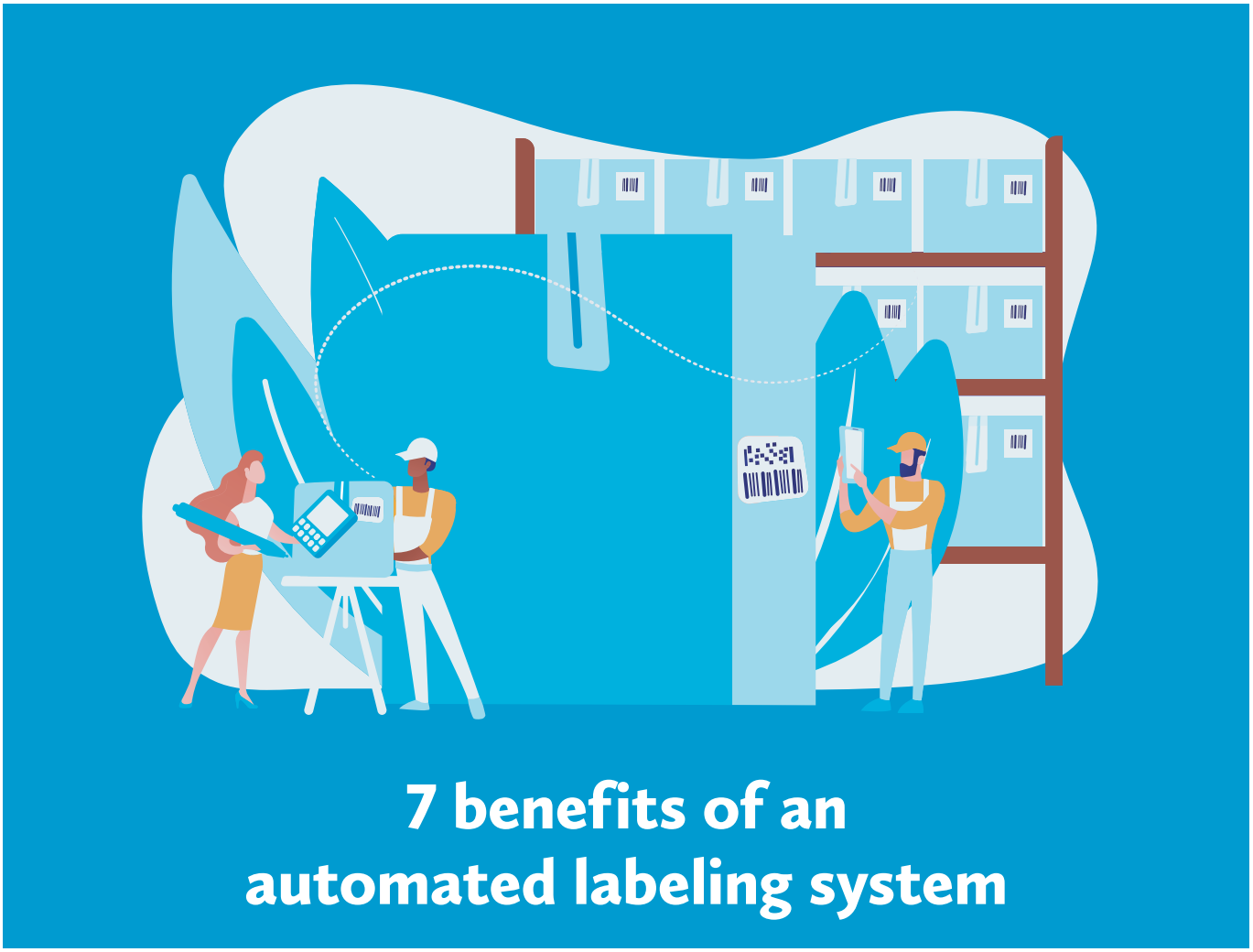
The ability to integrate with Enterprise Resource Planning (ERP) systems is an important consideration when choosing the right barcode software. ERPs like Oracle, SAP, Infor, IBM, Sage, HighJump, Microsoft Dynamics, WebSphere and Epicor can be integrated with labeling software so there's never a gap between label development and printing. But very few barcode and labeling solutions can integrate data from any source.

Overcome labeling challenges with BarTender

When it comes to label compliance, global labeling and brand consistency, you need a time-saving, cost-effective labeling solution that will help your organization succeed.

BarTender® is designed to drive business growth with powerful labeling solutions for virtually any industry, including aerospace, pharmaceutical, medical device, chemical and food and beverage. Whether you need labeling software for a small business or a centralized system for a global organization, BarTender has the ability to meet global regulations with efficiency and growth in mind.

Learn more by reading about how to choose labeling software or contact us to speak with a representative about our comprehensive labeling solutions.



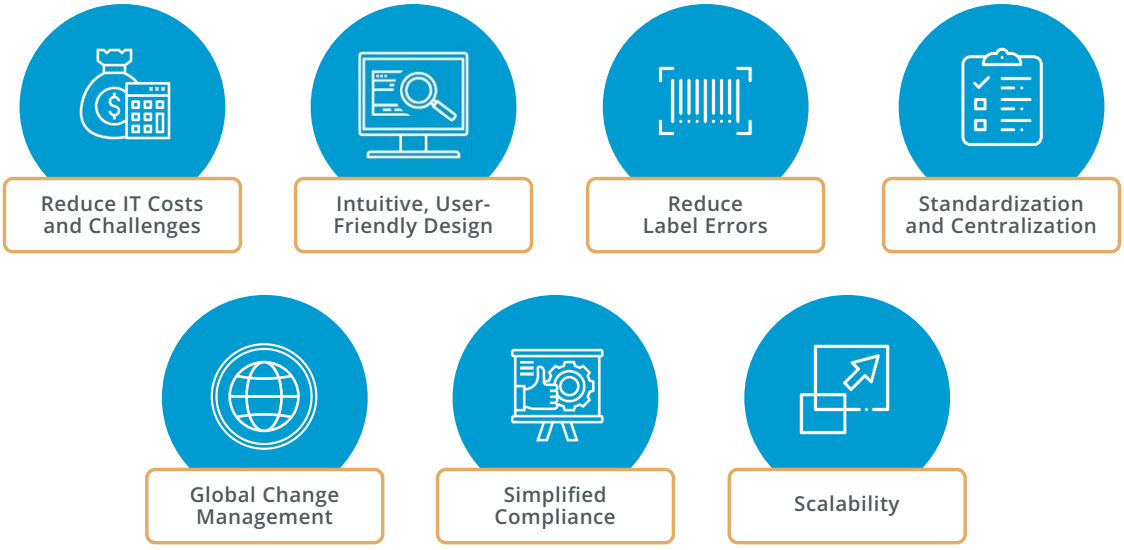
7 benefits of an automated labeling system

As an enterprise organization, your supply chain is probably quite complex, including a vast network of suppliers, manufacturers, logistics and compliance requirements that present labeling challenges at every point. And with so many stakeholders and processes, you can't afford to rely on manual labeling, data entry and barcode systems to manage your supply chain.

In today's global economy, the demands from customers, regulatory bodies and industry leaders are setting the trajectory for research and development, marketing, transportation and usage. But if your labeling system isn't agile enough to keep up, your organization may suffer costly consequences.

While enterprise barcode and labeling challenges exist, implementing an automated, compliant labeling and barcode system can be a game changer, offering solutions that streamline processes, reduce human error and ultimately, offer cost-savings that positively impact your organization's bottom line.

If you're considering an automated labeling system or are ready to update to a more robust system, it's time to take a look at the numerous benefits so you can make a smart, strategic choice when it comes to labeling software for enterprise businesses.



Reduce IT costs and challenges

Modernizing legacy labeling systems may seem like a daunting task but continuing to use outdated systems, or manual systems, could result in operational disruptions, labeling errors and compliance violations — all of which equate to more costs for your organization.

Added costs associated with ineffective labeling may include:

- Additional labor
- IT resources for troubleshooting
- Relabeling
- Labeling regulation violations
- Cybersecurity issues
- Reliance on too many software programs

One of the biggest challenges enterprise organizations face is labeling compliance and regulations. If a label or barcode isn't compliant with international regulations and industry standards, it can trigger extensive recalls that require relabeling, redevelopment and reprinting. Not to mention the immense cost of pulling products out of the supply chain and retail market.

With the advent of automated labeling software, change management, compliance issues and operational bottlenecks can be avoided. The following features ensure that correct information is going on the corresponding label, thus avoiding unnecessary costs:

- Version control
- Secure databases
- Label templates
- Integrated data (ERPs such as Oracle WMS or SAP WMS)
- Centralized data
- Custom serialization

Intuitive, user-friendly design

One of the biggest issues facing outdated labeling and barcode systems is lack of intuitive design. Clunky software can take far more time to navigate, leading to slower production and labeling processes that end up costing organizations money.

Using a modern, automated labeling system, that can also scale with your organization as it expands into new markets, offers a number of benefits, including:

- Easier training
- Simple navigation based on Windows interface
- Drag and drop features that enable quick changes
- Compatibility with multiple printer makes and models
- Quickly link data to Oracle databases, SAP systems and other ERPs and WMSs
- Efficient labeling design that can leverage content from numerous sources
- Manages DSCSA and FMD compliance

Consider this example of an apparel retailer who wanted to streamline its labeling process. A combination of issues including suppliers producing their own labels, poor supply chain visibility and inefficient legacy systems were costing the retailer money in relabeling and added training.

By implementing a new standard labeling system for their entire global supplier base, the organization improved interoperability with printers and operating systems, standardized their labeling process and simplified training. With such a large supplier base, it was key that the retailer be able to quickly and efficiently onboard vendors. By creating predefined templates in the software, the retailer was able to quickly begin production and ensure accuracy at every step of the way.

Reduce label errors

Unfortunately, there is significant waste when organizations use manual labeling systems. They may purchase pre-printed label media with their variable data and store it in "label rooms," but if there's a change to branding, numbering, ingredients or regulations, that media needs to be discarded. Pre-printed labeling is rife with the opportunity for error.

Additionally, if labeling regulations are violated, it can trigger a long process of recalling products, reprinting and relabeling that can cost organizations millions of dollars to rectify.

Global supply chains rely on labeling accuracy to make sure the right products are getting to the right people with the right information. If that supply chain breaks down due to poor labeling, all stakeholders can be affected.

To avoid costly errors that can affect everything from printing to shipping, an enterprise labeling solution should offer the following features:

- Manage, secure and control data across printing locations
- Proper integration with Oracle systems, SAP systems, other ERP, WMS and more
- Labeling that meets global serialization requirements
- Complies with relevant international and industry regulations such as cGMP, UDI, GS1 Digital Link, allergen labeling requirements such as EU Food Allergen Labeling (FIC), FSMA section 204 and AIAG
- Complete audit trails for compliance and transparency

Reducing label errors is important in a number of industries like medical devices, food and beverage and pharmaceuticals, where it's crucial that labels maintain compliance to ensure consumer safety.

An example of how automated labeling software can reduce errors in the pharmaceutical industry is present in the case study of Vetter Pharma. They chose BarTender to solve labeling challenges that had the potential to cause errors, including:

- Integration with existing SAP data
- Converting 500 existing label layouts
- GMP-compliant data content for labeling and version creation
- Flexible printer incorporation
- Integration of different numbering and serialization systems
- Integration with Vetter`s bespoke SAP printing program

After implementing BarTender's labeling and barcode systems, the manager responsible for SAP key user production at Vetter Pharma said:

> **Our new system has realized an enormous increase in quality. The BarTender® solution ensures correct GMP version creation for automated label printing processes, with a transparent audit trail captured along the entire processing chain.**
>
> **- VETTER PHARMA**

With that level of accuracy, quality and compliance, organizations like Vetter Pharma can confidently manage their labeling process, meet regulatory requirements such as the Drug Supply Chain Security Act (DSCSA), and foster greater supply chain visibility that decreases errors and provides value for their growing organization.

Standardization and centralization

A lack of standardization and centralization can create several problems during the labeling process, but with centralization, labeling systems can ensure consistent, accurate data is coming from sources of truth before the printing occurs. Such sources include ERPs, WMS, Oracle and SAP databases and Microsoft Dynamics. other proprietary systems.

With proper data management, label changes can be made in a matter of seconds, products can be quickly produced, meet compliance, ship on time and the entire supply chain can be streamlined.

Labeling software like BarTender allows organizations to create and manage standard label formats and serialization schema so that it's accessible to printers around the world, enabling a lean, "single-source-of-label" strategy.

A unique feature of BarTender is its graphical workflows that help manage production, content and approvals, and offer revision control and greater visibility into the labeling process. Features include:

- Drag-and-drop interface to design custom workflows
- Create workflows for specific file types
- Control access to files at every point in the file's lifecycle
- Automatic email notifications to specified recipients when a file is moved, edited, printed or altered
- Automated approval requests and notifications

This level of standardization and serialization allows for compliant audit trails and traceability that helps organizations avoid errors and disruptions, and ultimately benefits each stakeholder, including the consumer.

Global change management

Due to the evolving nature of labeling regulations and product information, making changes to a label can be a challenge for enterprise organizations, particularly when dealing with the complexities of a large supply chain.

It's essential that labeling systems respond quickly to enable accuracy that reliability. If a labeling and barcode system can't pivot as quickly as changes happen, errors can occur that not only affect costs, but brand credibility and customer satisfaction.

One of the keys to effective change management is making sure that changes are made to the database, not just one part of a system. If your organization uses an SAP database, Oracle database or other ERP, a centralized labeling system offers the ability to make changes, design, and cascade immediately throughout the entire system.

Features like BarTender's Intelligent Templates™ allow changes to be made to data, format or design and update immediately to the entire system. The label is ready to print immediately, from anywhere in the world. Templates also ensure compliance across all systems, which reduces label maintenance and results in cost savings for large organizations.

Simplified compliance

One of the significant challenges associated with maintaining a global supply chain is remaining compliant even as standards change — and they change often. Additionally, as organizations expand into new markets, they will encounter new labeling regulations and customer demand that may require significant changes to labeling.

With such intricate supply chains that consist of suppliers and manufacturers throughout the world, how do you remain compliant?

The answer lies in an effective labeling solution that offers secure deployment, configurable technology and total accuracy. It also needs to offer immediate changes that comply with various standards and regulations.

Scalability

Some enterprise organizations encounter opportunities to grow, particularly as they develop new products, expand their supply chain and move into new markets. As this growth occurs, labeling management can be tricky, especially if an organization relies on outdated labeling systems or even manual entry.

Manual labeling or barcode systems can be inefficient, inaccurate, costly and even dangerous if a label is incorrectly printed. For example, if a food product contains an allergen but it isn't listed on the label, not only is it out of compliance, but can lead to a customer having a severe allergic reaction.

To avoid issues associated with poor labeling practices, it's crucial to choose a dynamic, compliant labeling system that grows with your organization. Features like BarTender's Intelligent Templates™ automatically manage data that changes from label to label making it simple to scale your label printing.

Additionally, you can easily configure complex printing scenarios by telling templates, layers and even individual objects when to print based on specific web triggers, a single data source or database field or even using multiple conditions. There is no need for coding, which simplifies the process and allows you to scale with ease.

Choosing labeling software that has design and printing capabilities that can integrate with virtually any business system, WMS or ERP will also lend to a streamlined process when you do scale. BarTender integrates with the following:

- Oracle software
- SAP software
- IBM WebSphere
- Sage
- Infor
- HighJump
- Epicor
- Microsoft Dynamics
- "Homegrown" systems

Software like BarTender gives you the flexibility to pivot and change, grow and drive business based on your unique labeling needs, no matter where you're operating. BarTender integrates with virtually any business system, including labeling software for small businesses to address the unique labeling challenges that come with managing a smaller operation that still needs to adhere to compliance.

Learn more about how labeling software can support supply chain-based businesses

Whether you need a labeling and barcode system for your small organization or a global one, we're ready to help. Learn more by continuing reading our guide on streamlining supply chain efficiencies, or contact us to speak with a representative about our comprehensive labeling solutions.

How the right labeling software helps maintain compliance and meet regulatory demands across industries

Industries of all types face ever-evolving labeling regulations and standard practices. With that, it can be challenging for organizations to keep up with changing regulations while also developing products, entering new markets and meeting customer demand.

End-to-end labeling compliance — the process of making labels that meet regulatory requirements — is vital to an organization's ability to maintain credibility, produce and distribute safe products, operate efficiently and avoid costly errors or penalties associated with mislabeling.

Yet, with a vast global supply chain (manufacturers, suppliers, logistics), many organizations still struggle to manage labeling regulations. And these regulations affect nearly every industry from food and beverage to chemical and aerospace.

A 2018 Recall Index study found that 14.3% of pharmaceutical recalls were attributed to mislabeling. In the medical device industry, mislabeling was the second highest cause of product recalls behind software problems. And in the food and beverage industry, undeclared allergens lead to the most food recalls, which may be a function of not meeting food labeling requirements.

Considering the staggering number of recalls directly related to labeling, it's all the more important that organizations in highly regulated industries find comprehensive, proven labeling solutions.

This chapter will walk you through the primary challenges facing specific industries and offer insight for choosing the right labeling software for your organization.

Different industries face different label regulations

Labeling is subject to a vast set of regulatory requirements in various industries across the globe, which often makes managing compliance a challenge for organizations and their compliance departments. They are tasked with carefully considering how various aspects of their supply chain are affected by each regulatory standard.

While each industry faces different labeling challenges and regulatory requirements, some industries are more regulated than others. According to the 2014 McLaughlin-Sherouse List, petroleum and coal were the most regulated industries in the US, followed by motor vehicle manufacturing, credit, air transportation, fishing and pharmaceuticals.

On a global scale, many industries are heavily regulated due to their distribution in so many different countries. Since each market maintains different regulations, creating a streamlined, accurate process for meeting each regulation to maintain labeling compliance is crucial.

Medical device industry

Elements like medical device labels are highly regulated to ensure accuracy and consistency, which ultimately protects the consumer. Medical device companies are subject to several standards set forth by regulatory bodies like the US Food and Drug Administration (FDA), European Commission (EC), such as the FDA's unique device identification (UDI) system.

Localization is also an important component of medical device labeling, which includes printing labels with proper regional translations, colors and dialect, and correctly placing the labels on packaging. But this gets complicated when medical devices are being manufactured, sold and distributed in countries around the world.

According to a survey from 2015-2016, 58% of World Health Organization (WHO) member states (194 total member states at the time of the study) maintain regulations for medical devices. If a medical device manufacturer operates in each of those member states, they are subject to each set of regulations, increasing the potential for costly, or dangerous labeling errors.

Furthermore, medical device barcode labels need to be accurately preserved to drive FDA 21 CFR Part 11 labeling compliance. This standard calls for medical device and pharmaceutical manufacturers to capture and record activity of any electronic systems used to identify and track their products.

Considering this diverse set of medical device regulations, companies need to find a labeling solution that is fully scalable and able to meet the ever-evolving demands of the regulatory industry, including medical device labels.

Chemical industry

The chemical industry is known for its complex supply chains that are subject to several industry regulations set by regulatory bodies like the Environmental Protection Agency (EPA), including requirements like the Globally Harmonized System (GHS label requirements). Chemical manufacturers also have to manage variable data that includes branding elements, transport and hazard information.

But when these manufacturers are managing data for various organizations in the chemical industry, like lubricants, cleaners, and sanitizers, chemical labeling becomes an even bigger challenge.

BarTender®, a labeling software for enterprise business, worked with a specialty chemical manufacturer who had recently acquired nine different chemical companies that each had their own labeling requirements, printers and processes. The companies they acquired each had their own set of labeling software and processes, which needed to be integrated into one, consistent company-wide system.

The company had previously implemented enterprise labeling solutions but found it to be inefficient and unable to comply with OSHA's GHS mandate. Simplifying the labeling process was paramount to ensuring label compliance across each of the companies, regardless of where they operated and which industry they were in.

The company's print methodology was complex. For every single product and SKU, there was a file, with over 9,000 label files in the system. Due to how label formats and product data were stored, print operators had to access multiple software systems just to print labels for a single product, making for a terribly inefficient and potentially inaccurate labeling process.

A BarTender partner created a labeling system that relied on Intelligent Templates™ to manage variable data by integrating images, regulatory and product information that was stored in several different systems across their supply chain. Using a new labeling system with BarTender's features, the company has reduced the number of label formats it requires from more than 9,000 — that's before integrating newly acquired companies into its system — to 24 across all of its current facilities.

In addition to the drastic reduction in label formats, the new labeling system was created to be scalable and agile to quickly align with changing business needs, regulations and standards. As a result, the company increased the accuracy of their labels, reduced waste and implemented efficient processes.

Food and beverage industry

Food and beverage companies face a complex set of regulations and standards related to food labeling and traceability that span across the global food supply chain, which includes producers, processors, logistics providers and manufacturers.

Data can be located in numerous places for various markets and information must be correct for consumer safety, particularly food

allergen labeling. But what happens when there's a new vendor, a new warehouse management system (WMS), new pricing, third-party logistics provider (3PL) or processing facility?

Instant global change management becomes essential. This can be done with labeling software like BarTender, which implements new label data, pricing, format and regulatory changes across the supply chain using Intelligent Templates. This helps avoid errors and ensures accuracy and label compliance.

An example of how labeling software can help manage label compliance and efficiency was an organic dairy farm who implemented a BarTender-driven system to enable compliance with the data capture and retrieval conditions of FSMA.

This organic dairy farm manually marked and tracked thousands of batches each year, but this process was time-consuming and created a high potential for human error.

With BarTender, a labeling system was developed to print a complete set of product labels for each batch, which includes barcodes for automated data management and capture. This ensured consistency, accuracy and ultimately, safety for consumers. It also dramatically reduced the hours spent manually processing and recording data saving the dairy farm money, time and stress of meeting FDA labeling requirements and other standards.

Emerging markets present additional regulatory challenges

Expansion into new markets around the world is a key component of enterprise organization growth. Whether they are acquiring new companies or introducing a product in a new location, they will need to adhere to label compliance in each market they enter.

Growth may also necessitate the introduction of new supply chain partners who will need to comply with label regulations, making it important to streamline the labeling and printing process.

As growth occurs, labeling compliance can become more complex, especially if an organization relies on outdated labeling software or even manual processes that increase the chance for human error. For example, if a food product contains an allergen but it isn't listed on the label (per food labeling requirements in that market), it's not only in violation of regulations, but could present safety risks to consumers.

Additional challenges when entering new markets include:

- Lack of centralized traceability and serialization, which can lead to regulatory violations
- Noncompliant with global security standards for electronic signature, data logging and audit trail, like those associated with FDA 21 CFR Part 11
- Lack of supply chain visibility
- Slow response to changing standards, new products and localization (language, symbology, color label placement, etc.)
- Siloed systems that don't integrate with WMS, enterprise resource planning (ERP) and other systems

Choosing a dynamic, compliant labeling system that can grow with your organization and each new market it enters will help avoid these challenges and potential consequences. Labeling software that centralizes data can help with global change management, so you're never left wondering if labels are correct.

Additionally, with a system like BarTender, you can easily configure complex printing scenarios by telling templates, layers and individual objects when to print based on specific web triggers, a single data source or database field or even using multiple conditions. You don't need to worry about coding, which helps simplify the labeling process so that your organization can scale with ease.

Risks of non-compliance

There are numerous risks that companies face with poor barcoding standards and non-compliant labeling and processes that go beyond a simple violation:

Consumer safety may be compromised

Proper labeling and packaging is essential for the safe distribution of all products, especially those for human consumption, like food and pharmaceuticals. Improper labeling can lead to serious injury, death or side effects, and may hurt your brand's credibility.

Costly reparations

Mislabeling can lead to many costs associated with fixing the error including:

- Fines from regulatory agencies
- Relabeling costs
- Recalling products
- Legal fees
- Manufacturing new product

Damage to brand reputation

Customer loyalty and trust is an important part of a company's success, but if there is a product recall or regulatory violation, consumers may begin to lose trust. This can result in lost business or negative media attention, which may affect other parts of the company's supply chain. With damage to a brand's reputation it can be challenging to reestablish consumer confidence.

Interruptions to supply chain

If a company is found violating regulations, they may need to pause production and reconsider processes that consume time, money and resources, which affects the entire supply chain. If a supplier in one country isn't compliant, it may cause delays for each stakeholder, even if it isn't the company itself.

How the right labeling solution helps you navigate compliance

Choosing a comprehensive labeling and barcode software will help organizations maintain safety, security, efficiency and compliance by offering a number of specific benefits.

Integrate with sources of truth

While labeling software can aid with the proper creation of barcodes, RFID tags and labels, there is a wealth of data from other systems that needs to be integrated to facilitate streamlined, compliant labeling. A few of these important systems include:

- ERP
- WMS
- Remotely located printers
- Spreadsheets and databases
- Operating systems, web browsers and devices
- Human resources systems
- Financial

An example of proper integration can be found in hospitals that use barcoding systems for:

- Inventory of equipment
- Monitoring different types of devices
- Tracking the age of devices
- Updating equipment
- Managing compliance

Barcoding software is integrated with other automated hospital and healthcare systems, such as an ordering system, to ensure that the hospital always has the supplies it needs and is using equipment that is safe, compliant and fully functional. This helps reduce chances for human error, fosters accountability and helps protects patient safety.

Centralized labeling processes

If enterprise organizations have minimal supply chain visibility, siloed processes and labeling that occurs from multiple locations, it can lead to errors and inefficiencies. By centralizing data, traceability and serialization, organizations know that every label is consistent and accurate, no matter where it's being printed.

An example is a large apparel retailer that struggled to maintain consistent labels across its global supply chain. Goods from suppliers were often mislabeled and it was challenging to keep up with the pace of business across their eCommerce, catalog sales and brick-and-mortar stores.

With BarTender, they were able to centralize and standardize labeling so suppliers could quickly access templates through the Print Portal. Regardless of printer type or location, suppliers could choose from a selection of label formats and appropriate data to include on the labels, eliminating time-consuming and costly homemade labels.

Centralization also helps organizations trace the following in regard to barcodes and labels, which aids with label compliance and consistency:

- Part numbers
- Manufacturer ID
- Transaction codes
- Location codes
- Expiration dates
- Prices
- Personal information
- Product type
- Lot number

Additionally, small businesses may not have the time and resources to manage their inventory and warehouses in the same way as a large organization. Tools like barcode inventory software can help streamline processes so that even with fewer resources, small organizations can be successful and grow.

Improve workflow efficiencies

Complicated workflows and processes can hinder productivity and be costly. With the right labeling software, organizations can streamline workflows to remove unnecessary steps in the label creation and printing process.

If organizations rely on manual processes or legacy labeling software, they may greatly benefit from a dynamic, automated system that removes the need for manual adjustments or a person continuously monitoring the labeling process. The benefits of BarTender's software with improved document management and labeling workflow include:

- Improved QA with easy design, approval, tracking and deployment
- Fast approval with web-based Print Portal and email configuration for label approval anywhere
- Licensing backup server to keep printing operations moving
- Printing from any browser, device or connected printer
- Simple label system control

Simple scalability

Growth is inevitable, but what happens when an organization grows into a new market or introduces a new product? How can they ensure that label compliance is followed and that production will continue without issues?

Implementing labeling software that integrates with multiple systems and can align with evolving regulatory standards will help organizations scale with ease.

Learn more about streamlining business efficiencies with labeling software

When you're choosing labeling software, remember to check for the following features:

- Centralized data management
- Integration with other business systems, processes and devices
- Scalability
- Label compliance across global governing agencies
- Global change management
- Total security with label monitoring at all printing locations
- Superior customer service

BarTender proudly offers each of these features and more with our labeling software for small business and enterprise organizations. No matter where you operate in the world, which industry you're in or which label regulations you must comply with, BarTender is equipped to solve your most complex labeling challenges.

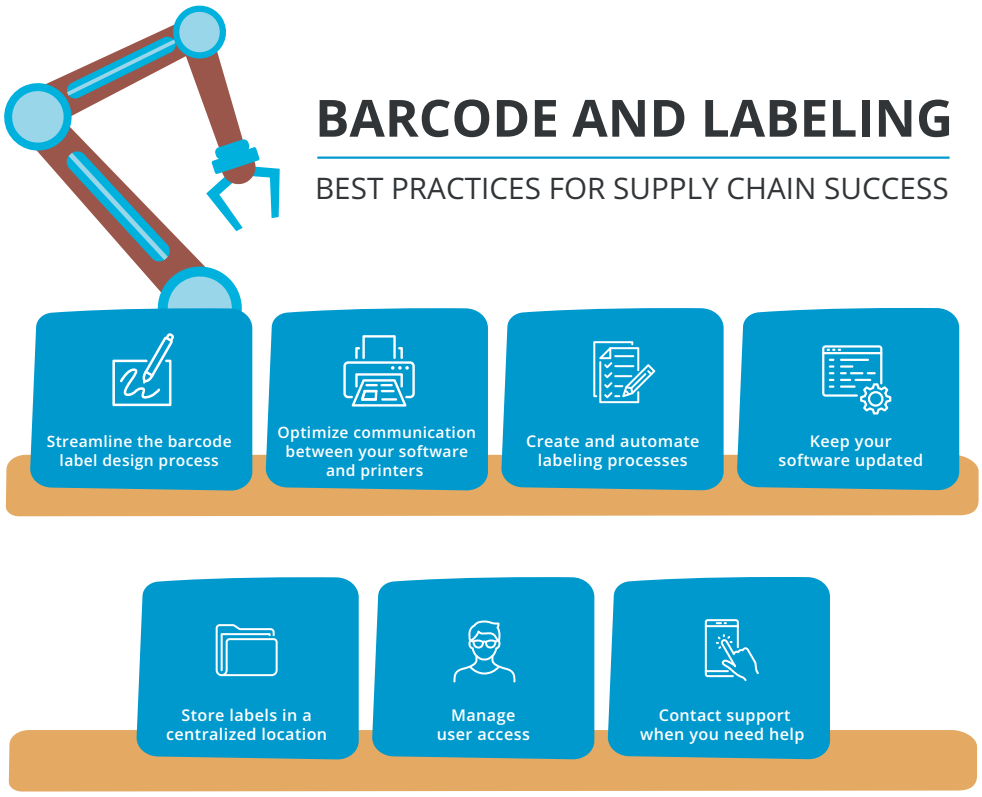
Learn more about label compliance and effective labeling solutions in the next chapter of our guide to streamlining business efficiencies, or contact us about software options or a free trial.

7 labeling and barcode best practices for supply chain success

Efficiency and accuracy are at the core of enterprise labeling in global supply chains. The complexities of global labeling requirements and regulations can be a challenge for enterprise organizations who often have to communicate important information on their labels, and in multiple languages, such as:

- Ingredients
- Warnings/safety information
- Product details
- Customer data
- Brand information
- Regulatory information

With the vast amount of information required, organizations must define an effective barcoding and labeling process that creates, automates and manages the labeling to enhance security, safety and accuracy.



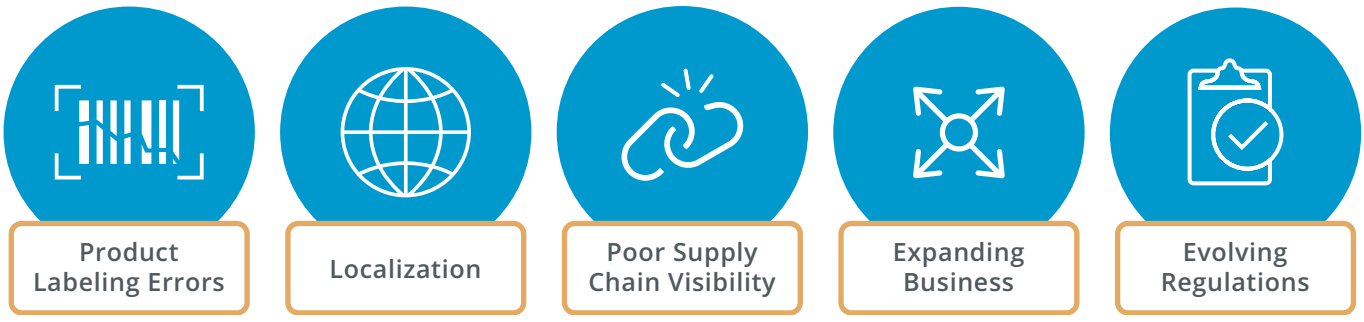
The following best practices will facilitate better management of labeling regulations, processes and communication across your supply chain.

Barcoding and labeling challenges facing supply chains

Before addressing best practices for barcode and label management, here are a few common labeling challenges that many enterprise organizations face across their global supply chain:

- **Product labeling errors:** misplaced or damaged barcodes, incorrect data and poor printing can lead to costly recalls, reprints and inefficiencies that affect the entire supply chain.
- **Localization:** meeting requirements and regulations in specific countries and/or regions is important to ensure proper information is communicated in the correct language and style.
- **Poor supply chain visibility:** labeling processes are siloed between different stakeholders making for an inefficient and often redundant process.
- **Expanding business:** when an organization expands into new regions, whether through manufacturing or distribution, it adds further labeling complexities.
- **Evolving regulations and requirements:** each industry is constantly evolving to include new requirements for labeling to address regulatory standards or industry-specific nuances that need to be accommodated.

The following sections identify opportunities for improving your labeling process to ensure these challenges don't affect your supply chain.



1. Streamline the barcode label design process

It's important to choose software that is accessible to users, easy to learn, easy to use, and effective to keep your supply chain running smoothly. Labeling software with features like a Windows interface and intuitive design make the barcode and label design process simple and streamlined from the beginning, ideal for complex labeling environments.

You can take advantage of enterprise labeling software features that support design layers. These hold different kinds of information and variable data, and then either include or hide each layer based on user-defined conditions when a label is printed. Automating your labeling process by using design layers and conditional printing, can dramatically reduce the number of label files you need to create and manage, saving time, money and resources.

With BarTender®, there are unique design features that allow for quick printing adjustments, such as:

- Auto-size text
- Nonstandard serialization schema
- Scripting logic
- Source images as data
- Create advanced date / time formats

While barcodes or labels may be designed by one organization, designs move through suppliers, distributors and manufacturers. With so many players in the labeling game, it's more likely for there to be errors or compliance violations that can be costly.

Integrating supply chain systems used with barcode software for enterprise businesses, helps to quickly and accurately:

- Populate product descriptions and expiration dates
- Calculate and generate barcodes and RFID
- Create labels that comply with industry standards
- Group labels in a single template
- Make global changes across the supply chain

For example, one chemical manufacturer needed its hazard labeling to comply with the regulations of eight different countries. Instead of building and maintaining eight individual label formats, they built a single format in which each country's data fields and layout were stored on a separate layer. At print time, a rule in the label chose the appropriate layer to print based on the product's destination.

2. Optimize communication between your software and printers

Optimizing the communication between your software and printers increases overall supply chain and labeling efficiency. It's also important to maintain security when information is traveling across networks and to help prevent printing errors.

Secure printing with enterprise barcoding and labeling software enables organizations to have:

- Completely control printing with online approvals
- Secure labeling with SSL encryption and role-based access that provides superior security

Print operators can use BarTender's forms-based interface to access a dropdown menu of forms for labels, so they never need to access the label design, offering increased accuracy and system security.

Implementing an enterprise labeling solution helps prevent printing errors by directly communicating with data sources. In doing so, labeling software accurately calculates barcodes for efficiency and to prevent errors. After information is populated, labeling software then communicates with the corresponding printer, anywhere in the world, sending the label to that location.

3. Create and automate labeling processes

When each part of your supply chain has different labeling processes and procedures, it can create inefficiencies and errors that slow down production and delivery and may affect brand credibility.

By creating a comprehensive labeling process, enterprise organizations can feel confident about product labeling across the supply chain, ensuring regulatory compliance and customer satisfaction.

BarTender creates and automates labeling for enterprise organizations using powerful features such as configurable workflows. These allow you to define document states and transitions to manage the barcoding and labeling process, beginning at the design stage all the way to print approvals. The following features will help to increase the quality of label production and enable end-to-end project tracking:

- Easily design custom workflow models specific to business needs with an intuitive, visual drag-and-drop interface
- Create workflows for specific file types, or for files housed in specific folders in the Librarian document management system
- Maintain control over user access (who will design, who will print, who will review/approve) and advance files through the workflow at each state

Enterprise labeling software populates this deli label with product and brand data, weight, allergen and ingredient information, calculates the product's use-by-date and total cost, and creates the barcode that's scanned at checkout.

- Generate automatic email notifications to specific recipients, which triggers when files move between workflow steps
- Simple review and approval process of BarTender documents for production from any web browser, device or operating system (Windows, Android, iOS) that's connected to the internet, anywhere in the world

Once you've established an effective labeling process, it's important to standardize its use across the supply chain to prevent future challenges.

4. Keep your software updated

No matter what labeling software, devices and other systems you use, staying up-to-date on supported versions is important for maintaining the security and accuracy of enterprise labeling. By updating software systems and devices across the supply chain, you can:

- Fix or resolve issues with previous or outdated versions
- Install patches to resolve potential vulnerabilities where hackers can gain access
- Add features that will improve processes
- Improve compatibility with devices, systems and applications in your network
- Enhance and streamline user experience

5. Store labels in a centralized location

Centralization makes for more effective data management. Without centralized control of a labeling system, data can become confusing and quickly spiral out of control.

Storing label files in a centralized location helps save time and money, reduces errors, improves efficiency and ensures regulatory compliance. A few advantages of centralized label management include:

- Virtually instantaneous global change management for pricing, data and format edits as market and regulatory conditions change
- Reduction of redundant or duplicated activities to increase accuracy
- Automated management and monitoring of serialization for better supply chain visibility
- Data accuracy — the right data is linked to the right label
- Label templates that contain business rules to enable compliance

6. Manage user access

No matter the size of your organization, it's crucial to know who is accessing label files at every point in the process. Not only is it critical for maintaining barcoding and labeling accuracy and efficiency, it's essential for regulatory compliance.

Enterprise labeling software like BarTender offers layered security settings such as role-based permissions and encryption to gain granular control over who can open files and who can edit or print labels.

BarTender also provides full audit trails and captures e-signatures to comply with regulations such as FDA 21 CFR Part 11. These features let you know who accessed a label, what edits were made, and where and when a label was printed. For industries like medical devices and pharmaceutical manufacturing, this regulatory compliance is essential for maintaining safety and security.

7. Contact support when you need help

Even if you're using barcode best practices and a comprehensive labeling solution, support may still be needed. It's crucial to choose labeling software that provides support where you need it and when you need it, whether it be resources to walk you through processes, or technical support for troubleshooting assistance.

BarTender's legendary support includes email for non-urgent questions, phone (Standard and Premium plans) for immediate help with troubleshooting, or online chat that uses automated translation to help you resolve simple fixes.

Additionally, BarTender maintains a collection of knowledge-based articles, white papers, blog articles and product help on their website. Through these resources, you can quickly gain access to detailed information to walk you through processes and product information that keeps labeling moving.

Find which BarTender version is right for you

Labeling is an essential part of many business functions, whether a small or large operation. BarTender is proud to offer label and barcode software for large organizations and small businesses, with features uniquely designed for your business needs from global supply chain management to regulatory compliance.

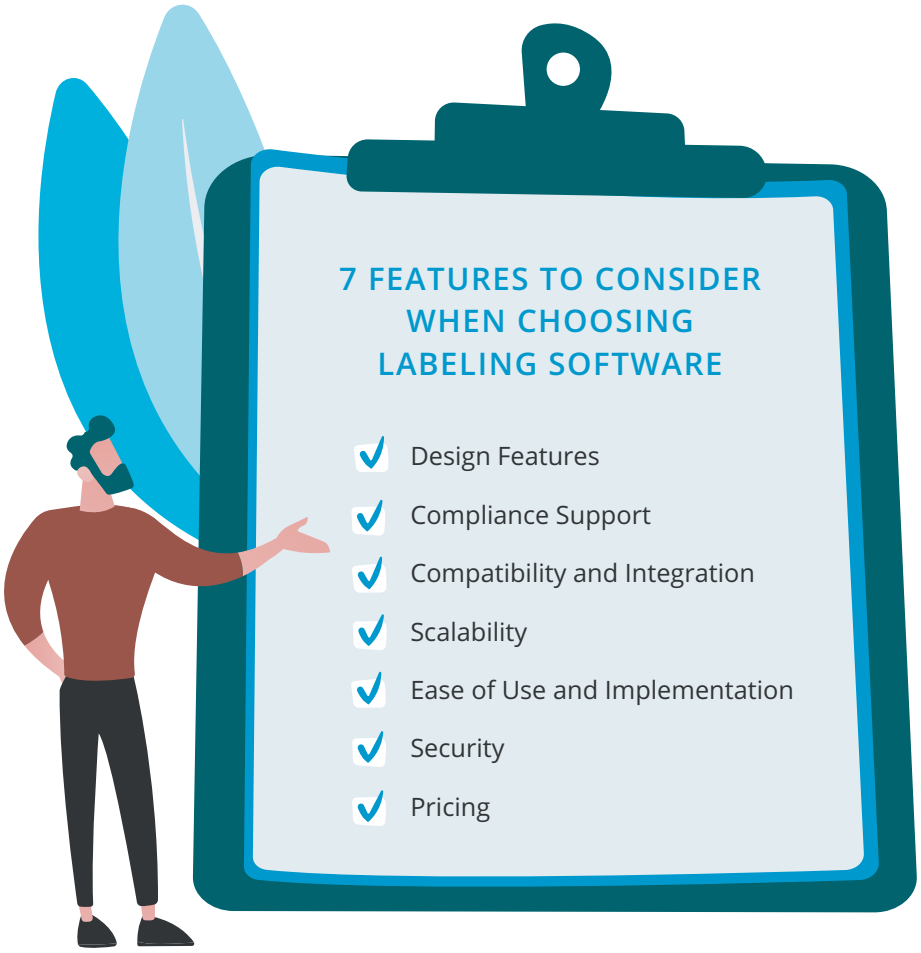
To learn more about which BarTender version is right for you, contact us and continue reading our guide on how to streamline your barcoding and labeling practices.

Choosing the right barcode and labeling software: 7 features to consider

Within today's vast network of supply chains, organizations rely heavily on the accuracy and efficiency of barcoding and labeling software. This valuable software helps organizations effectively design and print labels while meeting industry and regulatory standards and guidelines.

The right labeling and barcoding software can help reduce errors, streamline processes, provide better supply chain visibility and meet consumer demands, all of which can lead to cost savings for organizations.

There are several labeling software solutions, but how do you know which barcode and label software for enterprise business is right for you? In this article, you'll learn about the top seven aspects to look for in a comprehensive labeling solution that meets the needs of your unique business and industry.



1. Design features

The demand for complex and variable designs increases as organizations scale and grow into new markets, leading to a need for dynamic label design. Proper design ensures that color, data, structure, positioning, language and more are accurately represented on each barcode or label, no matter where in the world it's printed.

Unfortunately, barcoding errors can occur, particularly in data structure elements. For example, the unique device identification systems set forth by the US FDA, European Commission, China FDA and other regulatory bodies call for a data structure properly formatted to a specific syntax. Failure to follow these guidelines with proper design could affect patient safety and proper use.

Considering compliance and consumer safety, organizations need to rely on barcoding software that allows for the creation and instant implementation of label designs.

BarTender's® Intelligent Templates™ offer the most comprehensive design solutions for producing a high volume of flexible label designs without creating hundreds of documents for each. They enable the print operator to select things like graphics, format and data fields, giving unique agility for companies serving multiple markets with various guidelines and standards.

Here are a few specific design techniques offered by BarTender software to ensure efficient, accurate label design:

- Conditional printing to specify when objects, layers or entire templates are printed.
- Custom scripting in response to certain document-level events, which can alter any object's appearance by changing its color, font, position, size or border.
- Automatic sizing for text, barcode and picture objects to make the objects fit a designated space on a template.
- Suppression to automatically hide text on a template based on specified conditions set by the user.
- Numerous options for fonts, text formatting and transformation, shapes and lines, symbols and graphics.

2. Compliance support

When it comes to regulatory compliance, labeling is crucial to providing safe, effective, accurate information that meets the standards set forth by specific governing bodies in industries such as:

- Healthcare
- Medical device manufacturing
- Chemical
- Food & beverage
- Automotive
- Pharmaceutical

When you're researching different labeling software, compliance is one of the most important factors to consider because of the challenges and complexities it creates for labeling.

With this in mind, it may be helpful to look for labeling solutions that offer various levels of support based on the needs of your organization. For instance, consider the following capabilities that help with compliance:

- Secure document access and printing from web browsers that prevent cyber threats.
- Accurate management of traceability and serialization to support compliance with industry regulations like 21 CFR Part 11, UDI, MDR and more.
- Templates that contain business rules to enable compliance.

More specifically, BarTender's features are designed to meet evolving regulatory demands, no matter where your business and supply chain operate, which industries or how much your business scales. You can feel confident that your BarTender labeling software will meet compliance demands, even when changes need to occur quickly and regularly.

3. Compatibility and integration

When managing a global supply chain that contains numerous device types, operating systems, networks and users, it's essential to maintain labeling software that can seamlessly integrate with existing systems. These may include warehouse management systems (WMS) and enterprise resource planning systems (ERPs) like Oracle, SAP and Microsoft Dynamics. Without proper integration and compatibility, costly errors may occur as a result of inaccuracies and inefficiencies.

Flexible labeling and barcoding software integration supports interoperability that enables systems to easily exchange information. It also creates a foundation for business processes that supports the wellbeing and growth of your organization and the entire supply chain.

Methods to consider when looking at different labeling software options are:

- Building triggers using HTTP web service (REST or SOAP), file drop, database monitoring, e-mail, TCP or UDP network port, serial port and MSMQ.
- Ability to select from different data formats including: JSON, XML, SOAP, CSV and other text file formats.
- Enable label printing, database queries, network communications and more with different action types
- .NET SDK for custom-built applications or web-based front ends
- Integration with printers around the world

With integrated labeling software, you can standardize labeling across different systems to reduce operational expenses and define labeling based on your unique needs.

4. Scalability

For many enterprise organizations, there is opportunity to scale and grow, which means your labeling and barcoding software needs to be capable of growth, too. Whether it's expanding into new markets, merging with other companies or introducing new products, scalability needs to be a concern when choosing labeling software.

The following labeling software features can help organizations scale their labeling process:

- Centralized management of data.
- Automation for accurate label creation and printing.
- Templates with intelligent features that populate accurate information and structure.
- Simple point-and-click interface to aid print operators.
- Workflow designer that simplifies label creation and ensures team accountability.
- Incremented serial numbers at a single printer or printers across your network.

5. Ease of use and implementation

Features of labeling software are important, but it's also key that they are easily implemented. Transitioning to new software can present challenges like integrating with existing systems and training.

When researching labeling solutions, look for things that will help with implementation and use:

- Interoperability with existing systems like WMS and ERP.
- Well-managed deployment process by a team with experience in your industry and specific business needs.
- Comprehensive technical support including live phone and chat features.
- Integration with legacy systems.
- Ample resources such as articles, training videos, product help, white papers and online communities to offer instruction and assistance.

BarTender is proud to offer comprehensive support that includes an extensive collection of articles and videos to help users navigate their labeling software.

6. Security

Operating across a global supply chain with hundreds of devices, numerous users and networks is a huge undertaking, particularly as it relates to security. Cyberthreats are common and attackers can try to enter vulnerable networks that aren't secured by proper authentication, audit trail capture or encryption. This can lead to costly security threats or breaches that may affect your entire supply chain.

When looking for labeling software, check that it maintains comprehensive security, such as the following features:

- Role-based permissions.
- Document and printing passwords required to design or print.
- Status monitoring that reports information back to Windows about printer errors and jobs status.
- Email notification to automatically alert IT managers and team members of labeling problems.
- Electronic signatures for audit trail accountability and regulatory compliance.
- Document encryption for secure use across networks.

7. Pricing

There are many options when it comes to labeling software with various features that may be appropriate for your business. But it's also important to consider the cost in relation to your organization's needs and goals.

Be sure to research the options each software offers. Many labeling software solutions will provide options to serve different size businesses and those with specific needs like compliance or centralization.

They may also offer upgraded features, but you'll want to check the cost for those upgrades and if they're for new editions or specific features, and what they include. Understanding your options, and the features within those options, will help you assess which product is best for your organization.

Additionally, be sure to check the licensing options available from your software provider, including printer licensing. Consider the number of licenses, purchasing options and ability to expand those licenses to ensure you have the proper labeling solutions as you grow.

BarTender offers four options including Starter Edition, Professional Edition, Automation Edition and Enterprise Edition:

- Starter Edition is ideal for small businesses and departments that need a quick labeling solution to support variable data from databases like Excel or CSV files.
- Professional Edition is barcode and label software for small businesses and departments that includes RFID encoding and enables easy linkage to content.
- Automation Edition is ideal for businesses that need to automate their labeling efficiency, agility and accuracy in a complex labeling environment.
- Enterprise Edition is ideal for large organizations that operate globally and must meet the demands of regulated industries with complex supply chains.

Learn more about the labeling features your business needs

No matter what type of business you operate or where you operate in the world, you'll need a reliable barcoding and labeling solution to ensure the efficiency and accuracy that drives your business and its growth, one that includes the features discussed above.

BarTender not only contains these features, but many more that help small and large businesses meet the demands of their industry, regulatory bodies and consumers. Contact us to learn more about BarTender software options and receive a free trial today.

What is e-labeling and why is it important?

E-labeling is a modern alternative to strictly physical labeling that provides web-based product information via electronic screens such as smartphones and computers. Industries are embracing e-labeling for several reasons, including to abide by law mandates, increase efficiency and provide enhanced and expanded product information.

As technology evolves throughout industries, manufacturers, legislators and regulatory bodies must embrace labels such as barcodes that enable access to online information. When transitioning to an e-labeling model, organizations may need to improve internal systems and operations to meet regulatory requirements. Modern labeling solutions allow for improved integration between internal systems and labeling systems, and by following labeling best practices, organizations can benefit from increased capabilities and consumer satisfaction.

What is e-labeling?

E-labeling stands for electronic labeling and is a barcode of any kind (QR, 1D, color) or RFID inlay that links to online information. The digital barcode provides access to more information than can be displayed directly on a product with a physical label. E-labeling is a way to share compliance information electronically on a screen. By scanning the product code with your smartphone or entering the URL into your web browser, you are taken directly to important, regulated product information.

What is GS1 Digital Link?

GS1 Digital Link is an e-labeling standard that enables the dissemination of product data on the web. GS1 Digital Link "web-enables" barcodes by providing a simple, standards-based structure for the data. Before GS1 Digital Link, there was no non-proprietary way for brands to seamlessly communicate with consumers using a barcode scan. Some products carried multiple barcodes which caused scanning issues and consumer confusion. GS1 Digital Link remedied these issues by providing apps, websites and POS scanners with rules they "can use to translate both old and new barcodes into connections, shopping experiences and interesting product content."

GS1 Digital Link works by using a lookup tool called a "resolver" that functions as an information connector. Depending on the needs of the business and the desired results, resolvers can be developed to manage or connect information in the business-to-consumer context as well as the business-to-business realm. The GS1 Digital Link standard for web-enabled barcodes revolutionizes item-level identification by using a dynamic code that provides contextual data.

Consumers can access information with the simple scan of one code and without the need for a specific app. This single code can produce different results depending on what the point of access is. A consumer can use their smartphone to scan a food product's QR code that contains a GS1 Digital Link URI and be directed to a brand-owned webpage with additional nutritional details, recipes, and other product information.

This same consumer could scan the exact same barcode using a retailer app and be connected to completely different experiences such as product ordering, brand loyalty points collection and social media product shares.

Pharmaceutical manufacturers are tasked with generating patient information in multiple languages which makes the production of patient leaflets laborious. Instead, consumers could use an app that reads the pharmaceutical product's GTIN encoded in the GS1 DataMatrix barcode on the package and directs them to an electronic patient information leaflet.

The information is delivered in their preferred language through a simple setting on their smartphone. The app uses the GS1 Digital Link known rules to use the barcode data to connect to an industry-agreed "resolver" service which routes it to the source of the leaflet.

Manufacturers, marketing agencies, logistics and other related parties can leverage GS1 Digital Link and resolver technology to streamline and connect relevant sources of data. Digital Link technology is the future of barcodes and labeling and delivers significant potential throughout global businesses.

What are the benefits of e-labeling?

E-labeling technology can benefit manufacturers, regulators and consumers by connecting and facilitating data-sharing among all participants. Let's discuss some of the key benefits of e-labeling which span all industries.

Label real estate is limited

E-labeling gives manufacturers the ability to provide more information than they can print on a physical label. This is especially important where label data is regulated, such as in FDA applications like medical devices or pharma manufacturing. The FDA has stated that these online data sources count as an extension of the label and are under FDA purview. This opens the door for detailed and personalized product information that is always current and is not required to fit on the product itself.

Consumers want to know everything about products

Consumers now want to have access to all product particulars, from nutritional information to where a product is from and how ethically it is sourced. By scanning a simple code, they can access things like provenance, nutrition or ingredient information, handling instructions and more. Companies in the food and beverage industry can use e-labeling to share more than just required information. When a consumer scans a code, they may also see a recipe or a coupon. The retail industry can share information consumers need when shopping and making purchasing decisions.

When it comes to healthcare and the pharmaceutical industry, consumers stand to benefit greatly when paper patient information leaflets (PIL) are replaced with e-labeling. Revisions to medicine labels require a lengthy process that results in a newly printed version of the paper document. In addition to this new version, to maintain patient safety, regulations require additional notices to be included with the PIL which are lengthy and difficult to read.

Patient safety is also improved when the pharmaceutical or medical device industries use e-labeling. Electronic labeling allows companies to update safety information immediately and frequently which provides enhanced safety and supports better patient experiences.

In more sophisticated applications, like Digital Link and Amazon Transparency, consumers can find information on the item-level. This means that each item can be individually identified and traced, for example, every package of butter in a pallet or on a shelf.

For brands who want to enroll in the Amazon Transparency program, BarTender includes a labeling solution that includes preconfigured label templates that conform to the branding and application guidelines that the Transparency program requires.

Reduction in production costs and improved supply chain traceability

No matter what industry you are in, when changes are made to a product, product labels must change too. E-labeling offers cost savings in both design manufacturing and in updating compliance information. Rather than having to pay to redesign, retool and print updated labels every time something changes, e-labels are instantaneously updated. There are no physical materials needed and it allows compliance to remain up to date.

As manufacturing trends continue toward interoperability, smart labels provide the foundation for a digital transformation that results in reduced costs and improved supply chain transparency. E-labeling provides information that can be identified by a machine which is increasingly important as global manufacturing lines employ the use of automation. Products can be tracked from end-to-end of the supply chain.

Enables product innovation

Product innovation shouldn't be held back because of a need for the physical space for a label. E-labeling enables product innovation by removing the challenge of fitting multiple labels onto products. This is especially important in the information and communication technology (ICT) industry where product advancement generally results in reduced size and surface space.

E-labeling also makes it easier for organizations to support multiple iterations of the same product across different markets. E-labeling medical devices is a prime example of such a complex situation. A version-specific IFU must be designated for each product version and content must be regionalized. Online labeling allows companies to effortlessly maintain compliance for each version across locales.

Reduces environmental waste

Physical labeling uses valuable natural resources that could be spared with the use of e-labeling. Consider how many labels are generated only to become environmental waste after a short time. This predicament applies across all industries but is especially poignant in the food and beverage industry where products are one-time use and labeling is relatively large for marketing purposes and to conform to FDA standards.

Automate and streamline product labeling with BarTender

As consumer demands and business needs require more from product labels, e-labeling provides a means of delivering this. It's important for businesses not currently using e-labeling technology to take steps today to start laying the foundation for e-labeling.

By assigning GS1 identifiers to your products and/or your location and encoding your products' unique identifiers, you can use apps to tap into powerful communication channels. Rather than maintaining all assets, data and content in one location, GS1 Digital Link enables you to connect product identifiers to wherever you store your data with resolver capabilities.

Ready to advance your operations with a single, web-enabled barcode? As global businesses migrate to e-labeling, Digital Link is positioned to eclipse other programs and standards to become the global e-labeling standard. As the only software that includes complete and native Digital Link support, BarTender offers the capabilities your business needs.

Explore our website to learn more about our barcode and label software for small businesses as well as barcode and label software for enterprise businesses.

Contact us today to find out how BarTender enables organizations to improve safety, security, efficiency and compliance and continue reading our guide to learn about the future of labeling.

The future of labeling: 4 trends to watch

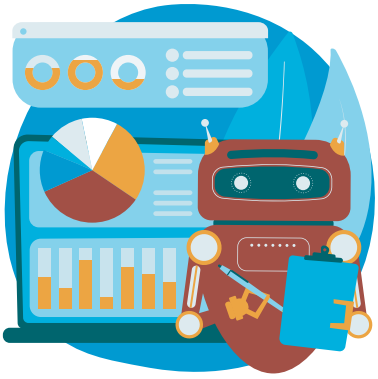
From meeting compliance requirements to answering the demands of consumers, today's complex business environments constantly challenge enterprise organizations to innovate their supply chain management and processes.

Improving transparency and traceability is at the foundation of a successful, robust global supply chain, but how do organizations do that in an ever-evolving global market, particularly if they're relying on legacy systems or manual labeling?

Implementing powerful, automated labeling solutions provides the level of supply chain transparency and traceability needed to improve efficiency and reduce costs. But it's also important to understand the future of labeling and barcode technology, and how it may serve your organization.

With a better understanding of the benefits of automated labeling software for enterprise businesses, and where labeling technology is headed in the future, you'll be well-prepared to compete in your industry while maintaining credibility and consumer confidence.

Here are four labeling trends to keep an eye on.



1. Automation technology

Labeling automation is already in place for many enterprise organizations and is a crucial part of maintaining an efficient supply chain. Continued innovation of automation technology is important for keeping up with changing standards and regulations to develop and manufacture safe and efficacious products. Furthermore, automation helps:

- Reduce human error
- Enable labeling compliance
- Increase speed of label production
- Directly integrate label and document printing

For pharmaceutical, medical device and food and beverage companies, there are industry-specific challenges — like shorter product life cycles and large SKU portfolios — that make the need for automation even greater to prevent product recalls and protect consumer safety.

Using artificial intelligence (AI) or machine learning (ML) enables organizations to compare labels for various countries and regions and quickly respond to changes to avoid non-compliance. This technology is important for industries like medical devices where regulations are ever evolving, and data is always in flux.

The concept of the digital twin is helping enterprise organizations improve efficiency by predicting potential problems, reducing downtime and developing new products. Primarily used in manufacturing and automotive, digital twins are the "digital representations of people, processes and things."

Gartner says that digital twins help with "understanding the asset's state, responding to changes, improving business operations and adding value." Essentially, anything that happens to the physical object will show up in the digital model, or twin, so you always know what is happening with a specific product.

2. Innovative labeling technology

Deploying new and developing barcode and labeling technologies helps organizations remain competitive and cultivate greater efficiency. Here are a few ways companies are using technology to improve labeling processes:

- Automated label printing that enables greater customization and efficient workflows
- New symbologies, such as Digimarc that help prevent counterfeiting
- Innovations in substrate and adhesive technology that make labels more recyclable
- Lighter, thinner labels that improve handling
- New technology standards, such as GS1 Digital Link and Amazon Transparency that encourage greater consumer engagement with personalized, location-specific content

Different industries have different needs when it comes to labeling, but each of these technologies offers organizations the opportunity to be more efficient and provide greater value to the end-user or consumer.

3. Increased push for sustainability

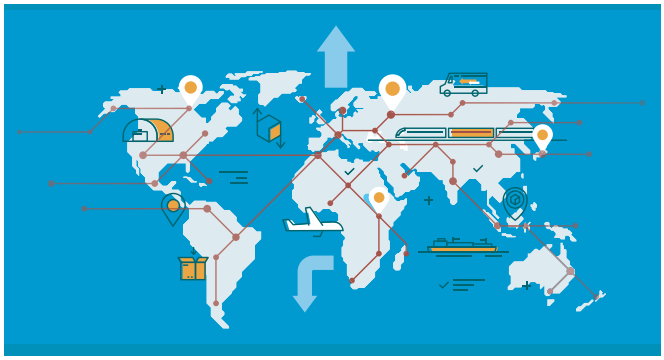
Growing demand for sustainability across the world is leading many enterprise organizations to develop processes and systems that positively contribute to society by reducing waste. The World Bank estimated that "without urgent action, global waste will increase by 70 percent on current levels by 2050," making it all the more important for organizations to take responsibility where they can.

One area enterprise organizations can take social responsibility and foster sustainability is in the circular economy. A circular economy seeks to get the most value out of products, keeping them in use as long as possible, then regenerating them to reduce waste.

Automated labeling plays a key role in enabling the circular economy through traceability, which is the process of tracking products and materials throughout the supply chain, providing greater visibility. Without good visibility, it's hard to know which products are being used, where they're going and their impact on the environment. With full visibility, organizations can optimize processes and workflows that enable greater sustainability from product design to disposal.

Coding provenance, proper use and disposal instructions put into a label allows organizations to track products, ensuring they end up in the right place to prevent further waste, and instead, be recycled or regenerated into new products.

An example is in the fast fashion industry where retailers put a QR code inside garments that hold specific data to communicate how to recycle a garment, helping to eliminate landfill waste.



4. Product information accuracy

With the growth of e-commerce and the global market, product information accuracy is growing increasingly important. As an organization grows and introduces new products in new regions, they can encounter challenges related to everything from labeling regulations to lack of consumer confidence, particularly if they are trying to manage too many label files and data.

One way that accuracy is being addressed is through barcode verification. These innovative tools, like special cameras and software, can be used in-line during production or off-line to identify errors and blemishes to ensure barcodes meet GS1 and other standards.

Even though companies can use advanced design functions in their labeling software, they may be missing out on other functions that help them streamline label formats and use accurate data. They likely have complex labeling systems that may encounter challenges with data storage and added costs associated with labeling inefficiencies. Without a single-source-of-truth data strategy, needless duplications can occur, and changes become difficult.

Automated labeling connects labels to accurate, trusted data sources, which is particularly helpful in industries that maintain numerous SKUs, like retail or food and beverage. Rather than storing static data in each label file and managing one label format for each SKU, shipping address or production date, labels can be designed with variable data fields that link to your existing sources, like ERP systems (such as SAP or Oracle), local spreadsheets and text files, system calendars or clocks, image databases or even weighing scales. Enterprising labeling software can automatically input accurate information into the label fields at print time based on business rules set forth.

Labeling automation and barcode technology, like data integrations and interoperability, particularly at the enterprise level, is important for meeting the demands of complex supply chains and industries. With the right labeling software that offers seamless integrations with existing systems and processes, you'll feel confident that your data is accurate and providing the most value to all stakeholders.

Learn how BarTender can support your organization

With the complexities of supply chains continuing to grow, your labeling is more important than ever. It's important to choose a labeling software that can meet the demands of your industry, labeling regulations and your growth.

BarTender® is automated labeling software that's uniquely designed to suit the needs of enterprise organizations. With BarTender, organizations can capitalize on the new features that take labeling to the next level including:

- Advanced document management with commercial-level design tools and graphically based approval workflows
- Fast, secure web-based printing
- High-availability license redundancy options
- Enhancements to automation, integration and database capabilities

If you're ready to step into the future of labeling, contact us to learn more about how BarTender can support your organization with barcode and label software for small businesses, enterprise organizations and everything in between.

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