

TOP 5 TRENDS

LABELING & PACKAGING ARTWORK

2022





Cloud labeling becomes table stakes in modern global supply chains

If 2021 was the year the world learned the importance of agile global supply chains, 2022 will be dominated by the need to adjust to new realities, both in areas reshaped by the COVID-19 crisis and as deeper trends come to the surface. Now, companies that can effectively pivot and embrace new agile strategies for maintaining business, will have a competitive edge and will set themselves up for future success.

When speaking to our customers and partners, it's clear that one subject is top of mind: cloud adoption. During the COVID-19 disruption, the vital role of labeling in supply chains became

increasingly apparent. As a result, cloud-based labeling solutions were put firmly on the radar of organizations that needed to shift production, accommodate a remote workforce, and extend labeling to new partners and suppliers to ensure the continuous movement of parts and products – upstream and downstream – without delays.

As they work to harness the power of the cloud, forward-thinking companies are embracing cloud-first labeling strategies that allow them to improve scalability, configurability, standardization, and reliability across the enterprise. Cloud is becoming a mainstay

for application deployment, and this was clearly illustrated in in Loftware's annual Top Trends survey. We found that Cloud adoption was an underlying theme for all the Top Trends we've identified for 2022. We've also seen that the pandemic continues to have a significant impact on business and life in general and that many companies are faced with increased challenges as they continue to navigate supply chain shortages and disruptions.

In this report, based on our survey of nearly 1,000 professionals from organizations across all major industries and 55 countries, you'll find out how labeling and product packaging



are both areas that offer significant opportunities to gain control, increase agility and stay competitive during these tumultuous times. You'll learn how labeling can hold a key to business growth. You'll also find out how digital transformation has taken hold as business environments become increasingly complex and global in nature, leading companies to deal with the nuances of today's complex labeling requirements and regulations. And you'll gain new insights on how companies have been adopting Enterprise Labeling solutions to drive all their labeling devices including coding and marking systems.

Find out how cloud labeling is a strategic enabler of supply chain agility and business operations. By understanding the important role that labeling and packaging plays, you

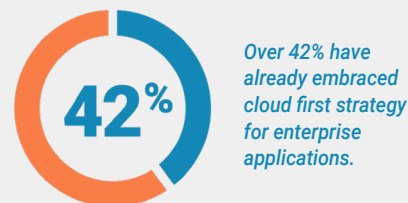
can create new efficiencies and cost savings while staying competitive and keeping pace with today's multifaceted, dynamic supply chain landscape. Most importantly, businesses using comprehensive cloud-based digital platforms for creating, managing, and printing complex labeling and packaging artwork will be poised for success in this new marketplace. Ultimately, leaders who embrace innovation, transformation and new labeling methodologies will optimize costs and gain a competitive advantage in their markets – for 2022 and in the years to come.



Companies embrace cloud-first labeling strategies

More than ever, businesses are embracing the cloud as a preferred deployment method for enterprise applications. As a matter of fact, according to Gartner*, by 2026 public cloud spending will exceed 45% of all enterprise IT spending, up from less than 17% in 2021. So, it's no surprise that labeling, as a core business function, has steadily moved into the cloud over the last ten years, with the cloud now reigning as the mainstay when it comes to software delivery. It has taken on an increasingly important role as corporate leaders recognize the direct connection between labeling

and supply chain health. Which is why the need for a unified, cloud-based



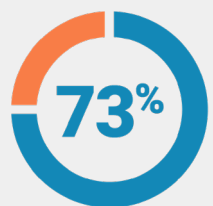
approach to Enterprise Labeling and Artwork Management became more evident as double-digit increases in e-commerce sales continued, despite businesses and storefronts opening

back up. Now, businesses are reaping the results of their cloud-first strategies in the form of removing IT burden, offering continuous uptime and availability, making label changes faster, automating workflows, eliminating errors, and offering financial predictability. Companies that successfully exploit and gain benefit from the Cloud are going to be positioned to have an advantage over competitors and set themselves up for the future.

*Gartner Says Four Trends Are Shaping the Future of Public Cloud, Newsroom, 8/2/1

Labeling's New Normal

It's clear that business has been moving toward the cloud for many of their enterprise applications but as mentioned, companies are now using cloud-first labeling strategies as well. This deployment method has become the norm as companies recognize the opportunity to enable continuous operations; quickly shift production and labeling across multiple sites; flex to meet the demands of remote work trends; and provide ample tech support where needed. Because it enables flexibility and integration with sources of truth, extends labeling to all stakeholders across the enterprise (including suppliers and partners), the cloud also allows organizations to easily scale their labeling operations. With the cloud, maintenance is greatly simplified, and upgrades are seamless thanks to on-demand provisioning



of \$1B+ companies believe in three years' time cloud will be preferred method for labeling applications.

of hardware and software. Finally, it provides a high level of financial predictability since it shows up as an operating expense versus a capital expense. With no IT infrastructure to purchase or maintain, companies can allocate their budgets to other core operating expenses and focus on what they do best: running their businesses. Therefore, cloud is here to stay – it's the new normal for business applications and as companies look to future proof their business, it has become that for labeling as well.

Tearing Down Barriers

Although on-premises enterprise software systems were historically cost prohibitive for small to mid-sized organizations, the cloud has removed these barriers and put world-class enterprise systems into the hands of companies of all sizes—even those that may be resource-constrained. This has had a direct impact on the Enterprise Labeling and Artwork Management space, where leveraging the power of unified, cloud-based solutions does not require a large IT team or limitless budget. With cloud labeling, small and mid-sized companies can be up and running quickly, benefit from automatic software updates, have the opportunity pay on subscription basis and easily scale their printing operations when needed. Now, companies of all sizes are embracing the opportunity and reaping the benefits

of moving their labeling applications to the cloud. These businesses are recognizing improved efficiencies, reduced infrastructure costs and improved sustainability with a zero



view ease of deploy as a top benefit for managing labeling applications in the cloud.

on-premise footprint, along with the opportunity to future proof and easily scale their labeling operations. That's not all, small and mid-sized business have more flexibility and cloud-based labeling improves cashflow, offers enterprise-level data governance and data recovery and improves IT

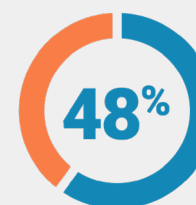


security while facilitating collaboration and enabling employees to work from anywhere.

Changing Ecosystem

The pandemic and the shifting marketplace have forced companies to think differently about the Cloud. This has been due to scarcity of IT resources, difficulty in hiring and new hybrid remote working models along with subsequent supply chain and business disruptions. These shifts have resulted in an accelerated move to the Cloud across the broader

business landscape. It's become clear that companies that aren't already embracing the Cloud are either thinking about it or planning on it. This shift has also enabled partners and resellers to easily replace legacy solutions, refresh old hardware with cloud-connected printers and scale out implementations more effectively by easily setting up multiple users in multiple locations. They also can better serve their customers by working remotely and securely at a reduced cost while also creating the opportunity to earn recurring revenue. And, once up and running cloud applications can offer the opportunity to design and print collaboratively while providing valuable business insights including the ability to monitor customers' supplies and usage to help grow that business. As the labeling ecosystem continues to evolve, those companies that continue



of \$1B+ companies expect to have all their enterprise apps deployed in the cloud in next three years.

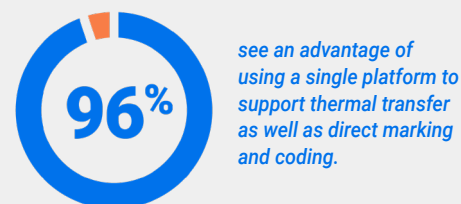
to think more strategically about addressing current challenges and charting a path for the future will turn to cloud-first labeling strategies to help them achieve these goals.

TREND 2

Labeling unifies coding and marking

Printing at the plant and production level is a core focus for many businesses today. Although, many companies still don't have software to control the print process for coding and marking devices which are used to enable direct application on all types of substrates, anything from a bag of chips to a bottle of water to cardboard box. If they do it is proprietary software provided by the hardware manufacturer or it is custom built for specific requirements. Most often, this is legacy software with limited capabilities and typically runs on desktop computers with old operating systems. This is why companies are beginning to think more broadly about their

labeling and how to automate printing across production lines irrespective of brand or technology. These companies



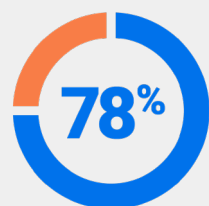
are looking to manage all their print technologies including coding and marking devices from one comprehensive cloud-based solution. Fortunately, the labeling software space is undergoing an exciting transformation

as manually operated, disconnected printers get connected, integrated and controlled by intelligent systems. Now companies can utilize a standard platform for Enterprise Labeling, which offers integration capabilities to manage output for all their devices from thermal and color laser printing to coding and marking devices, visual inspection systems, serialization solutions and more.

Evolution of Technology

There has been significant momentum gained over the past couple years when it comes to the evolution of thinking

in coding and marking. Although, integrating with these devices wasn't of a much consideration ten years ago when company adoption of Enterprise Labeling solutions was relatively low and the technology to support these initiatives wasn't quite ready. Not to mention that the vendors in the coding and marking space had limited overall interest in embracing external software solutions. Coding and marking devices, generally found at plants and production facilities, typically have been driven as "closed-loop" systems. Printers were disconnected and not networked together, and processes were manual with limited automation controlling the workflow, leaving operators to manually enter production related information like expiration date, batch, and lot numbers. Businesses could use complex legacy software to control printing processes, although



believe requirements for coding and marking tech will increase in next three years.

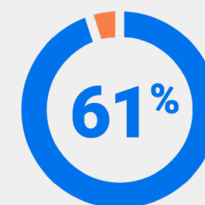
the software was often proprietary and purpose-built to meet customer requirements. These approaches led to mislabeling due to manual entry and extended times to switch lines over to a different product or a new run. Now, with the recent advancement of technologies, companies are taking advantage of best-of-breed cloud-based labeling solutions which can integrate with these devices to provide the powerful capabilities and drivers

needed to automate and streamline all their labeling as well as coding and marking from a single platform.

Companies Thinking Differently

It's no secret that customers are thinking differently right now. They not only want orders faster than ever, but those orders must also be accurate, personalized and customized to specific needs. And evolution of the market has resulted in a demand for more products, shorter production runs, faster turnaround, and increased customer requirements. It doesn't stop there, with demand to print on anything from a smooth card to a flexible or hard plastic, to a curved surface, to a board or even wood. However, companies recognize coding and marking can offer savings, eliminating the cost of labels and pre-printed inventory. It also can help companies manufacture

and package goods with a higher level of authenticity. But companies have struggled with multiple ways of driving these devices in an environment that typically is a heterogeneous mix of print technologies from different manufacturers with different makes and models. Now businesses are looking for a modern solution with intuitive user interfaces where they can control every print device no matter what the requirements. They want one user experience for designing and printing across production lines, warehouses,



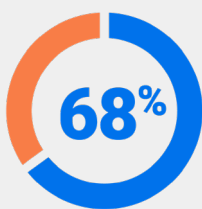
report their company currently has a requirement for direct printing on prod/pack lines using coding and marking.

suppliers, and distribution—all the way across the supply chain. Most importantly they are looking to streamline and automate processes to eliminate potential errors and eliminate extra costs associated with past methods.

Vendor Adoption

Some hardware vendors in the coding and marking space are also thinking differently and have embraced new levels of openness. They understand the benefits of enabling a unified, all-in-one digital ecosystem that manages throughout for all their customer's devices. There is a growing realization that customers want to manage all their devices in one place and that there is demand for a single integrated

labeling platform which can ensure uptime, integrate with sources of truth, offer details on print status, and provide a range of other capabilities.



find the main benefit to implementing a unified system for labeling, direct marking and coding would be centralized and standardized approach to output.

This type of platform can ensure continuous printing on lines with high availability and disconnected print capabilities. Solutions can be centralized but also maintain security and full control of all remote systems. This is why leading manufacturers of coding and marking devices are showing a

new level of openness in working with best-of-breed cloud-based Enterprise Labeling solutions so that their customers can meet their full scope of requirements quickly and efficiently without worrying about errors.



TREND 3

Labeling holds a key to business growth

One thing that has become clear this past year is that companies must be thinking about labeling in lock step with supply chain strategy. Today's successful businesses understand that labeling is no longer a tactical necessity but rather an enabler for business and supply chain operations. It's evident that the role of labeling is expanding. It is an area where companies can make a measurable difference and realize significant ROI when they implement a comprehensive cloud-based Enterprise Labeling solution which can meet their full scope of labeling and packaging artwork requirements. This type of end-to-end

solution eliminates multiple steps and redundancies and enables companies to bring product to market quickly,

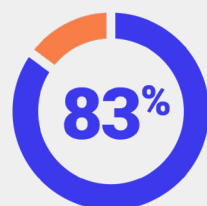


efficiently, and more competitively. This streamlined approach enables companies to address common requirements, as well as a host of content and labeling challenges while reducing overlap and redundant costs. When companies deploy a single,

more holistic approach, they can centrally source and manage content, label formats, approval processes and workflows. This guarantees accuracy and consistency, mitigates risk, increases agility, optimizes costs and enables global expansion. This of course has become even more important as companies look to launch and move products faster while complying with regional and regulatory requirements.

Improving the Bottom Line

In an environment where cost cutting measures and operational savings have become expected, companies are looking for creative new ways to extend ROI, offer value to customers and become more of a brand differentiator. Of course, spending is scrutinized more than ever and at the same time organizations are challenged to remain competitive and respond to new and changing conditions just to keep afloat. This makes prioritizing return on investment and ensuring that organizations run as efficiently as possible critical. This has led many executives to recognize the advantage of implementing a cloud-based labeling solution which can reduce maintenance costs and minimize fines. Additional cost savings come from reduced template management and administration.



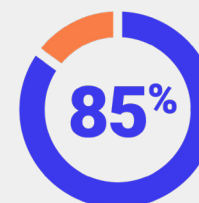
believe they would generate significant cost savings by consolidating under a single labeling solution.

There's also financial predictability, and improved cash flow, along with improving brand awareness and reducing time to market. These same leaders understand that by embracing an end-to-end cloud-based labeling platform for all their labeling and packaging artwork needs, they can avoid delays and downtime, eliminate redundancies and waste, meet customer and regulatory requirements, improve operational efficiencies, and create a clear path to growth and improvement for business processes.

Enabling Compliance

Regulations and the speed at which they change are continuing to have a significant impact on businesses today. With new standards and regulations dictating requirements throughout a wide range of industries across the globe, labeling and packaging have become recognized as critical functions for meeting compliance. However, constant change is necessary to comply with evolving requirements. Therefore, labeling must be both dynamic and data-driven for companies to quickly respond while ensuring accuracy and consistency to avoid fines, secure entry into new markets, and ensure safety. As requirements increase, companies must find efficient ways to showcase unique data attributes and formatting standards including pictograms, regional requirements, and a vast array

of other regulatory content. Also, data elements must appear in specific locations, and new standards dictate which languages need to be applied



believe having an Enterprise Labeling solution helps to eliminate risk of non-compliance.

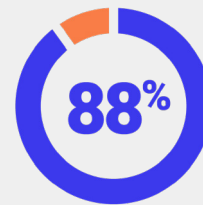
to labels, based on where goods are traveling through the supply chain. Implementing a cloud-based solution for Enterprise Labeling and Artwork Management, allows companies to integrate with sources of truth, access



centralized data and use business logic to address requirements so they can more easily manage regulatory variations. This approach minimizes the risk of errors leading to costly recalls and fines and helps companies meet requirements with increased speed and agility.

Creating New Efficiencies

Today's organizations are being driven to do more with less and to do it faster. This is leading businesses to identify new ways to optimize business processes and work smarter not harder. One example of how companies are doing this is by automating workflow processes which improves collaboration, eliminates redundancies, and saves time while



think having automated workflow and approval processes for labeling and packaging artwork would shorten time market.

ensuring accuracy and consistency. Ultimately, using labor-intensive and error-prone manual processes is swiftly becoming a thing of the past—especially when it comes to labeling and packaging artwork. By standardizing on one single cloud-based Enterprise Labeling and Artwork Management platform, companies can significantly improve operations and manage both labels and packaging artwork simultaneously. This integrated and unified approach simplifies, streamlines, and shortens workflows and approval processes to monitor and control label and artwork

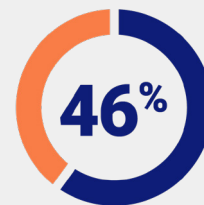
changes. It also reduces costs and simplifies system maintenance. And, integrating with a range of ERP, PLM, manufacturing, supply chain and other enterprise applications ensures accurate, real-time content. Companies can now manage, and source content centrally to dramatically increase the speed, accuracy, visibility, and flexibility required for dynamic labeling and packaging artwork. Additionally, centralization of data ensures adherence to corporate templates and standards focused on consistency and accuracy while ensuring continuing operations.

TREND 4

The focus on digital transformation accelerates

Digital transformation is vital for companies to respond to new risks, shift their business models, and leverage new opportunities using current resources. No longer a luxury, these transformations became crucial during the pandemic and are expected to prevail as organizations emerge from those challenges and plan for what's ahead. Whether they're supporting remote workforces, striving for better collaboration across the enterprise or working to improve the customer experience, companies are implementing comprehensive, cloud-based labeling solutions that help them meet these and other goals. Companies are demanding all-in-one digital ecosystems that are available

in the cloud around the clock. And, offering a key resource for curating digital information and converting it into a physical representation, labeling stands at the forefront of the digital



believe that eliminating manual processes and replacing with automated labeling would increase ability to meet customer and regulatory demands.

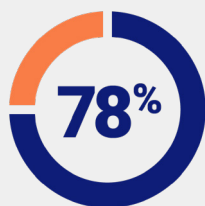
transformation. Simply scanning a label enables companies to obtain vast amounts of information about the product and its journey through the supply chain. Ultimately, companies

that take on this digital mindset can reap the benefits of a streamlined business and intelligent supply chains to become more flexible and deliver results while staying relevant in this shifting global landscape.

Digitizing Manual Processes

As previously identified, automating labeling artwork processes is becoming more prevalent in today's fast moving global business landscape. This is because manual processes represent barriers to growth and scale and risk to the business. However, once digitized, manual processes give way to the seamless exchange of data and allow companies to maintain

existing systems and user interactions to improve overall efficiencies. For instance, the use of spreadsheets and routing of physical folders for the review and approval of labels and packaging artwork adds time and risk to your product lifecycle. This is even more apparent when there are multiple



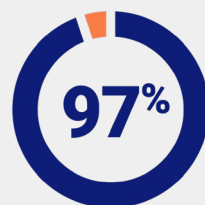
believe that eliminating manual processes and replacing with automated labeling would reduce labeling and artwork errors.

teams and product lines involved. Although, when using a cloud-based solution it's easy determine status of a project and stakeholders can review comments and feedback in real time. Additionally, these projects can

be shared and tracked to automate critical paths and for better collaboration. Real-time intelligent workflows clearly identify projects that are behind schedule or at risk of running late. This enables users to take corrective actions to eliminate bottlenecks, improve time to market and ensure compliance. The benefits of digitizing do not end there—automating labeling is helping to meet customer and regulatory demands. A digital platform offering integration to sources of truth can also enable users to automate business rules so they can quickly and efficiently address variability in labeling.

Standardized and Centralized

What's clear is that global standardization and centralized labeling is key to digital transformation—whether



believe that maintaining one standardized labeling solution across their enterprise provides time and cost benefits.

supporting remote work forces or striving for better collaboration across the enterprise.

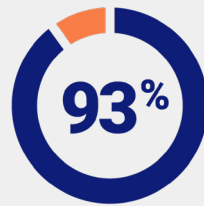
What's also clear is that for companies still managing siloed, disconnected, legacy labeling solutions, continuity is at risk and valuable time can be lost. Additionally, enterprises dealing with multiple locations dispersed across the globe have often struggled with implementing efficient processes for managing labeling and packaging

artwork. Today's forward-thinking businesses understand that fractured processes and multiple labeling systems can create unnecessary complexity in many ways. However, by enlisting a standardized approach, companies can ensure that a common set of labels, centralized applications and data sources are used across the supply chain. This, along with centralizing labeling, helps global companies ensure business continuity and achieve consistency and accuracy while empowering them to enable mass label changes to meet complex, global and high-volume labeling demands. Using a standardized cloud-based solution, companies can effectively streamline maintenance, ensure accuracy and consistency,

simplify oversight, and make rapid label changes across the supply chain. Implementing a scalable cloud-based solution also reduces costs and facilitates expansion to new global locations.

Eliminating Redundancies

As demands in labeling and packaging artwork have increased, there are a host of common requirements and many shared challenges across these two areas. Existing Enterprise



believe it is beneficial to automate processes with an end-to-end labeling and artwork management solution.

Labeling and Artwork Management solutions have traditionally not been very well integrated, thus creating inefficiencies and redundancies across the teams managing these functions.

Companies that are now looking to automate and streamline processes are recognizing the interconnected nature of the two. They understand the synergies in these areas and the value of consolidating to realize added productivity, as well as significant time and cost savings. With an integrated cloud-based Enterprise Labeling and Artwork Management platform, organizations can rely on accurate label data, less redundancies and

fewer label templates while eliminating labeling errors. A unified platform eliminates multiple steps, and redundancies to offer convenience and create new efficiencies. With this, companies can address common requirements and shared challenges to reduce overlap, waste, and redundant costs, while improving time to market so that businesses can remain competitive. Today's digital solutions for labeling and packaging artwork offer new levels of control and consistency and enable business users to dynamically make changes to adjust to complex labeling variations and meet evolving customer and regulatory requirements.

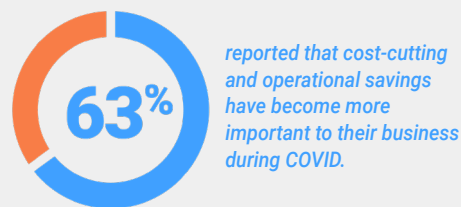


TREND 5

COVID has a lasting impact

The modern supply chain is more complex than ever, with those complexities exacerbated by the global pandemic and subsequent supply chain disruptions. Issues like labor constraints, port congestion, driver shortages and raw material outages—to name just a few, are some of the key pain points companies dealt with in 2021. These will either continue or morph into new challenges in 2022. While many thought the situation would resolve by now, several industries are still having to change operations to cope with changes. However, an Enterprise Labeling solution can help organizations navigate these changes and future-

proof their operations for the long haul. For example, when manufacturers adopt labeling ecosystems that extend across their end-to-end operations,

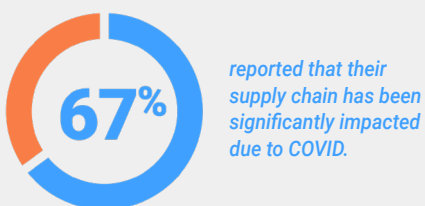


they can readily address any regulatory nuances, maintain strict controls, and ensure continuous operations providing a competitive edge in this new era and in any business conditions. With

a renewed appreciation of the supply chain and the role it plays in stocking grocery store shelves, fulfilling B2B orders, building homes and a myriad of other activities, business leaders and consumers have their eyes on these critical networks. Businesses today also know that nothing goes anywhere without a proper label—a realization that continues to make integrating sources of truth with business logic driven labeling a critical must-have for the present and the future.

Impact on Supply Chain Agility

By late-2021, critical shortages of semiconductors, electronic components, resin, construction products and other goods were escalating to an alarming level. This and other trends were having a severe impact on supply chain agility in a world where manufacturers need to operate more efficiently, keep costs down, maintain quality and respond quickly to customer requirements. Through it all, companies need to make sure that goods flow throughout the supply chain in a fast and frictionless manner. They understand



that it's more vital than ever to think differently about processes, operations, and supply chains to minimize the impact of another global pandemic and ensure prosperity. With a cloud-based Enterprise Labeling solution in place, manufacturers across the globe can quickly and easily shift production and ultimately labeling from one location to another if there is a break in continuity, an outage, a shutdown, or a supply chain disruption at any point across their enterprise. When this happens, their labeling must be flexible to support new products, languages, regions, formats, shipping routes and more. This all must be done quickly and in a compliant and consistent manner to ensure continuous operations and minimize downtime.

Growth in Ecommerce

With the continued surge in online shopping comes a renewed focus on labeling and packaging to accommodate increased packing and shipping as the greater public moves away from traditional retail and purchasing from brick-and-mortar establishments. E-commerce storefronts are now all the rage, and those providers understand that labeling is a key function that has a significant impact on business. The e-commerce boom presents both opportunities and challenges for companies that need labels for product identification, warehousing, order management, shipping, inventory, and other activities. Customer-facing labeling has become equally as important with the next competitor just one mouse click away. In fact, some online shoppers end up making their purchase decisions based on the prod-



uct label. The right label and packaging can improve customer satisfaction, impact delivery and potential delays, strengthen corporate branding and even reduce returns. This movement has also placed a greater focus on traceability as providers and shippers



use barcodes to track shipments from manufacture through the supply chain all the way to the customer's door. So, as e-commerce continues to grow, so too will the related labeling and artwork requirements. By replacing homegrown, legacy, and disparate labeling systems with a modern, cloud-based enterprise solution, online sellers can seamlessly implement, deploy, maintain, and scale their labeling operations across their global networks to keep pace with business operations and customer demand.

Supporting Remote Workers

The shift to remote work isn't expected to wane anytime soon and could long outlast the COVID-19 pandemic itself. This is why it's critical to offer immediate access to users, anywhere

and at any time. To support this trend, a growing number of companies are investing in cloud-based technology that allows employees to work, collaborate and contribute even when they're not physically onsite. Workers – displaced or remote can leverage the power of the cloud to connect. When it comes to labeling, traditionally, it would take time to provide



access to label templates and data sources for users at a new location – time that companies can no longer afford to waste. To provide users

with immediate access to labeling regardless of location, companies are now provisioning their labeling infrastructure through the cloud. This approach provides the benefit of being able to quickly add computing resources on an as-needed basis, while also preventing slowdowns and bottlenecks. Also, this enables remote users to access a definitive library of approved label templates without recreating their own local versions and introducing the possibility of labeling errors.



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

