



markem·imaje

a **DOVER** company

Right data. Right print. Every time.

Minimize waste, drive efficiency and
achieve compliance with CoLOS[®]

Redefine the possiblesm • markem-imaje.com

Did you know?

You can reduce costs of manual data entry and message data maintenance by

90%



You can cut your changeover duration by

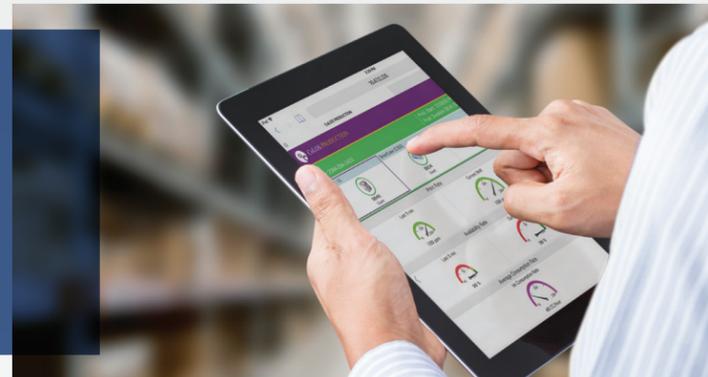
50%

and save hundreds of hours per year

You can ensure that your finished products are correctly marked and

100%

compliant with regulations



You can reduce your coding errors and cut up to

15%

off your total running costs

Helping you to integrate for the future



Between manufacturing and selling your products, you have more important things to worry about than ensuring the right information is printed every time.

You need accuracy and efficiency in your printing and coding so you can focus on producing high quality products which delight your customers. Markem-Imaje's CoLOS information management system can deliver this for you. Today and tomorrow.

CoLOS is a scalable modular solution that cuts waste from coding and marking errors, increases line efficiency and protects brand value by ensuring printing compliance.

It does this by facilitating structured message design and data management while streamlining printer setup and providing traceability of printed information.

In addition to providing printer performance reports and overall equipment effectiveness (OEE) data to drive

increased packaging line productivity, CoLOS seamlessly liaises with your production and information system infrastructure to further maximize efficiency and support your Industry 4.0 strategy.

And, unlike other suppliers, Markem-Imaje is not reliant on third-party vendors. We make the software and the printers so you will have fewer integration and operational issues than when using a patchwork of products and systems.

This single-source accountability, bolstered by an in-house service team with the market's most extensive global coverage, means if something goes wrong resolving it involves minimal hassle for you.

You can also rest assured that your investment will be protected long-term as CoLOS has been proven across 17,000 installs and fine-tuned throughout 25 years of internal development.



One-stop shop

Single-source supply of software and printers to minimize setup and operational issues



Proven solutions

Standard core software, used in over 17,000 installations worldwide



Scalable flexibility

From a single line to a large factory, configured or customised to your exact needs



Interoperability

Easy integration with third-party production equipment and back-office systems



Decision management functionality

Real-time and historical reports to optimize printer performance and OEE



Unparalleled global support

Quick, consistent service wherever you need it

We understand the product identification and traceability challenges you face throughout the lifecycle of your products



1 | Production preparation and start-ups

Your challenges

- Complex message label design with interlinked text and barcodes, with a high risk of operators selecting the wrong messages and entering incorrect data
- High costs and potential for mistakes when managing many message layouts for diverse printer types across multiple production lines
- Time wasted from manually copying data to be printed from system to system and operators needing to start up each printer manually

2 | Production performance

Your challenges

- Production downtime from unexpected printer stoppages and failures
- Poor line productivity and overall equipment effectiveness (OEE) because of under-performing equipment
- Insufficient visibility and insight into line performance and unexplained stoppages

3 | Product output: quality and coding

Your challenges

- Rework due to missing or unreadable text and barcodes because of poor printer setup and maintenance
- Waste from using incorrect data in printed messages
- Scrapped product due to incorrect packaging materials being used on the line

4 | Product distribution and compliance

Your challenges

- Difficulty in implementing coding solutions for 'on-demand' unique code marketing promotions
- High costs associated with identifying products in the supply chain leading to increased stock levels and hard-to-execute recalls
- Fines and returned product when codes are not compliant with regulatory requirements or retailer supply-chain demands such as GS1-128

A proven information management system which ensures accuracy and efficiency, however, small or large, your manufacturing operation



1 Production preparation and start-ups

CoLOS helps you

- Design text, logo, line and barcode messages for all printer types, link these to ERP master product tables and to stock keeping units, and automatically populate messages with SKU data
- Download complete production line jobs in one step from an easy-to-use operator interface or automatically from line control automation equipment



Key benefits

- Hassle-free complex message design and data management with reduced costs, errors and time
- Increased efficiency through automation for faster production changeovers and fewer operator errors

2 Production performance

CoLOS helps you

- Get immediate alerts for printer problems to your mobile devices and instantaneous access to printer performance indicators and dashboards
- Increase productivity by measuring, displaying, reporting and acting on OEE KPIs using information obtained directly from printing and other line equipment



Key benefits

- Greater uptime by having the latest printer performance information at your fingertips
- Better insight into factors impacting OEE so the right measures can be taken to improve productivity

3 Product output: quality and coding

CoLOS helps you

- Confirm that every pre-printed print is present, readable and contains the right data, using a fully integrated Cognex camera
- Check that pre-printed packaging materials are correct for every individual product being manufactured



Key benefits

- Reduced product rework and scrap
- Coding and packaging material errors detected and corrected in real time instead of at the end of the production run

4 Product distribution and compliance

CoLOS helps you

- Apply unique marketing codes to each and every product at full line speeds and with flexibility of both always-on and "on demand" promotions
- Automatically apply compliant tracking labels (LPN or GS1 SSCC) to pallets and report data in real-time to supply chain information systems



Key benefits

- Easier to meet marketing promotion needs
- More accurate inventory control to streamline stock levels and execute better targeted recalls
- Reduced compliance risk and fines

Scalable solution addressing your challenges today and tomorrow

CoLOS increases production efficiency while reducing coding- and printing-related waste. It also protects your brand by ensuring coding integrity and making recalls easier to execute.

Live and historical production reports are available to give enhanced visibility and insights into your coding and printing performance, quality and compliance.

You can run CoLOS from your office, shop floor or server room. Connectivity to printers, production devices and company data sources is established over Ethernet. And, a user management system ensures employees access the CoLOS interfaces most appropriate to their role and location, from desktop, tablet and mobile devices. CoLOS works within your cybersecurity environment and has various backup options.

CoLOS is modular and scalable so you can adapt it to fit your exact needs by considering three factors.

What challenges are you trying to solve?

We recognize that customers have different needs so we have created applications which address the concerns of various teams within your company. Our application modules exist to minimize the challenges you face, not only when your products are being manufactured, but also when they are out in the marketplace.

The solution can be off-the-shelf with standard configuration or with advanced customization provided by Markem-Imaje to address highly specific needs you might have. Custom coding is never required, however.

How large is your production operation?

The CoLOS offering is bundled to address different sizes of facilities. You can run single printers, individual lines or entire factories from a single product.

What extra functionality do you need?

Our application modules come with information and automation interface add-ons to ensure seamless integration with your existing infrastructure. Examples include ERP integration interfaces and open platform communication (OPC) interfaces.

A solution which combines your production line needs and your factory size...

	Fully-featured image design and data management	Line-level printing control and monitoring	Factory-level printing control and monitoring
	1 printer at a time	Up to 4 networked printers	Up to 99+ networked printers
	CoLOS® Base 	CoLOS® Line 	CoLOS® Factory 
CoLOS® Message Design & Data Management 	●	●	●
CoLOS® Production Control 		●	●
CoLOS® Printer Performance 		○	○
CoLOS® Overall Equipment Effectiveness (OEE) 		○	○
CoLOS® Mark & Read 		○	○
CoLOS® Packaging Integrity 		○	○
CoLOS® Promotional Coding 		○	○
CoLOS® Pallet Track 		○	○

○ = Optional

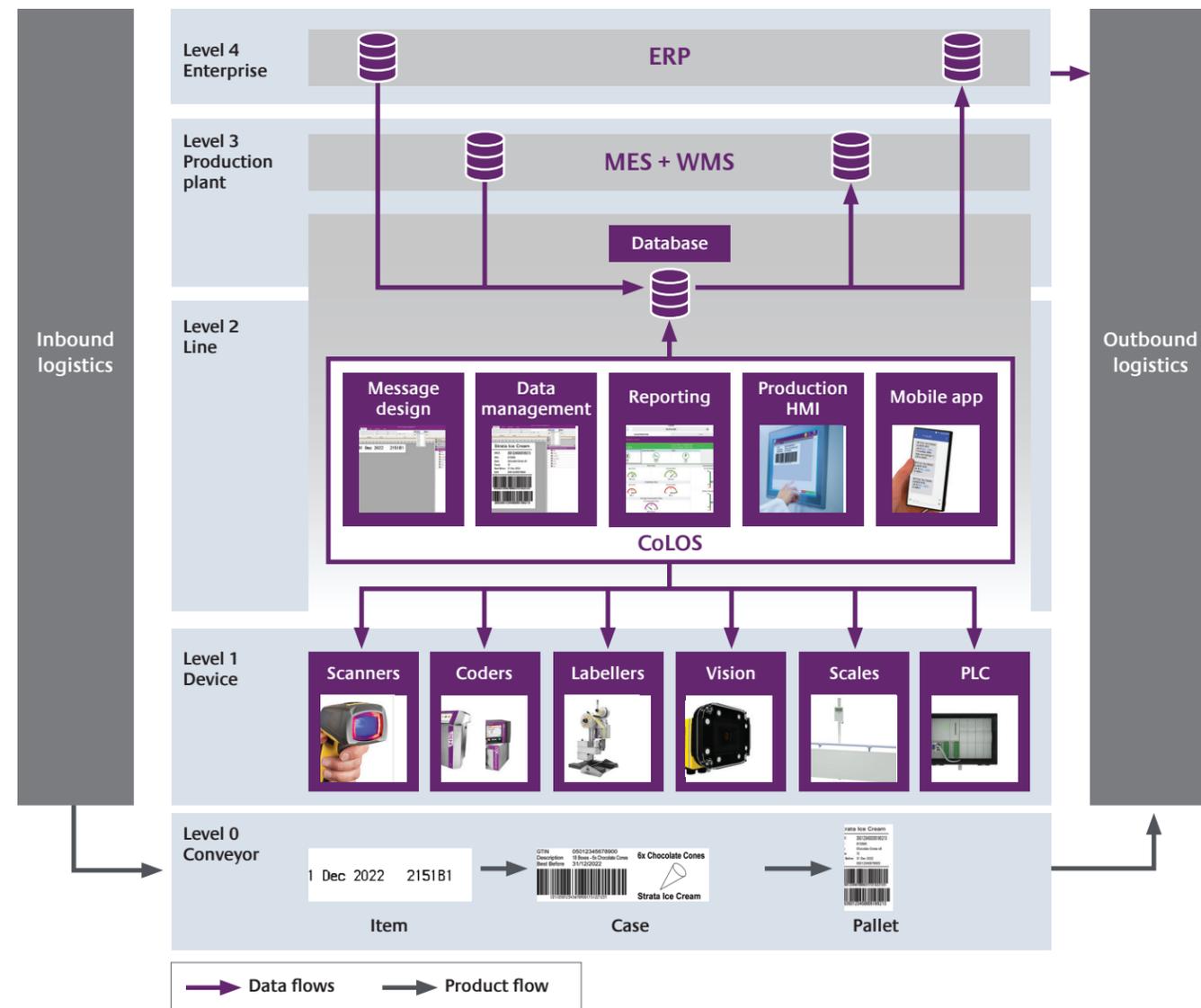
If you need to implement control processes, interfaces or business logic beyond the standard elements provided by the application modules above, Markem-Imaje can provide consultancy and project resources to configure CoLOS using its Applications Toolkit to customize solutions to your exact requirements. That said, Pallet Track and Packaging Integrity always require configuration through the Application toolkit.

...along with extra functionality, as required

CoLOS add-on options	
System functionality	You can increase the number of simultaneous user connections and have extra backup licenses for spare PCs to be quickly swapped in emergencies. And, for those requiring a secure audit trail via electronic signatures and records, functionality exists to implement CoLOS as part of fully validated 21 CFR Part 11 system (e.g., in pharmaceuticals)
Information interface	Our advanced production interface provides a simple management tool so you do not need to be a database expert, while our event-driven automation data interface can pass coding and production data easily between CoLOS and SAP systems.
Automation interface	You can opt for remote job selection options as well as interfaces to allow external industrial control or data systems to exchange information with CoLOS and control CoLOS, if desired. You can also use open platform communication (OPC) to connect CoLOS with production equipment to share coding and production data so that they can control production sequences together.



The CoLOS landscape



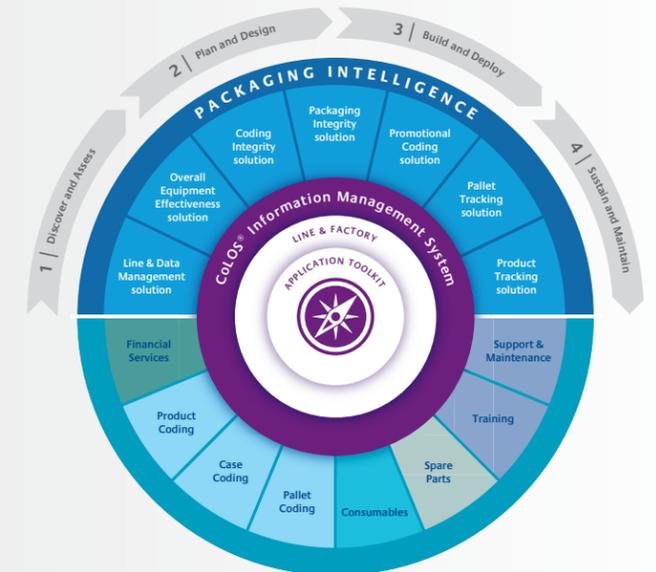
Consulting & Integration Services Delivering the right solution, each time, every time

While you can download and install the standard CoLOS software yourself and use many applications straight out of the box, we can offer you so much more – our experience in solution implementation.

Our industry-leading Consulting & Integration Services team can handle all aspects of solution implementation from initial needs discovery, through implementation, to in-service support. For applications beyond our standard software, we have experts who are fully trained in using the CoLOS toolkit to add further functionality to achieve the most advanced solutions.

And, if you need support once the system goes live, our helpdesk personnel are on hand to provide telephone or remote support, all backed up by annual and multi-year support contracts.

Not only are we experts in using the CoLOS toolkit but also our standard project methodology allows us to achieve rapid, predictable, repeatable and successful solution implementations.



This can be done for single production facilities or easily rolled out across multiple global sites.

Our solutions team can ensure you can design once and deploy many times.

Four-phase standardized approach

A Discover & Assess	B Plan & Design	C Build & Deploy	D Sustain & Maintain
<ul style="list-style-type: none"> Use site visits to assess your needs along your products' lifecycle stages, considering current and future material and information flows Identify areas where an integrated solution will add value and reduce costs to your product, packaging and distribution processes Decide on the best configuration to achieve these gains, either as a single or multi-phase project 	<ul style="list-style-type: none"> Develop an implementation plan by device, line and factory Define mutual roles and responsibilities for the most economical implementation Design efficient and secure data management and control sequences 	<ul style="list-style-type: none"> Configure the hardware and software and confirm suitability with factory acceptance tests at a Markem-Imaje facility Install on site and configure interfaces with other company information and line-control systems, migrating data as needed Train message designers, line operators, maintenance staff and system administrators and perform site acceptance tests to ensure everything operates as planned 	<ul style="list-style-type: none"> Through training, helpdesks, remote access and on-site support, enable your team to run the system easily and effectively each and every day Provide proactive programs for audits and maintenance to maximize the value from the system Provide access to upgrades and enhancements to keep the solution fully up to date and delivering the desired benefits

The above methodology can be applied to the whole range of solutions possible with CoLOS. These include:

- Advanced production control solutions
- Pallet identification with full ERP data communications
- Advanced packaging integrity solutions
- Customized line-control sequences
- Customized data processing and reporting modules
- Customized user interfaces to match

About Markem-Imaje

Markem-Imaje is a wholly owned subsidiary of the US based Dover Corporation and a trusted world manufacturer of product identification and traceability solutions. We offer a range of market-leading inkjet, thermal transfer, laser and print and apply systems along with the software and consumable solutions to go with them so you can streamline all your printing needs from one supplier. We provide a global reach to over 50,000 customers worldwide.

With decades of technical experience in hardware and software implementation and the most extensive global network coverage in the industry we can meet your needs, however big or small. Plus, with our extensive and ongoing research, development and testing activities you can be assured of using a world-class solution that is at the forefront of technology.



We reserve the right to amend the design and/or specifications of our products without notice.
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