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Improving Warehouse Operations With
Low-Code Application Platforms

E-BOOK

Finding answers in a low-code environment

Warehouse and IT leaders across supply chains face challenges in managing ongoing disruptions and reaching optimal warehouse efficiency. They need adaptable, powerful technology solutions to meet fast-changing business and operational needs. However, identifying the best software and tools to support their goals is not an easy process.

A low-code approach to application development in modern warehouses may provide some answers. Already, low-code application platforms (LCAPs) are empowering warehouse leaders to respond quickly and effectively to shifting market demands. As we will discuss, LCAPs have the potential to revolutionize warehouses, helping supply chain leaders overcome existing and future challenges.

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"LCAPs are "application platforms that are used to rapidly develop and run custom applications by abstracting and minimizing the use of programming languages."

Gartner®*

This e-book explores LCAPs, highlighting why warehouse operations and IT leaders should consider their adoption. It discusses the benefits of a low-code approach over traditional methods and examines how LCAPs such as Itopia® — the cloud-based supply chain framework for Tecsys' Elite™ Enterprise suite — provide essential flexibility and scalability in modern warehouses.

The state of supply chains and warehouse operations

Today's supply chain landscape is characterized by unprecedented complexity and volatility, marked by global disruptions, fluctuating demand patterns and escalating customer expectations for speed and transparency. These challenges are compounded by persistent issues such as labor shortages, regulatory compliance demands and the urgent need for environmental sustainability.

Supply chain IT professionals are at the frontline, grappling with the need to maintain operational continuity, ensure agility and increase efficiency in the face of these persistent and evolving pressures. These disruptors not only challenge the resilience of supply chains but also highlight the critical importance of adaptable and robust warehouse management practices.

Common issues presented by legacy systems

Supply chain volatility is not the only cause for concern. Legacy systems, while once the backbone of warehouse and supply chain operations, now present their own challenges that can hinder operational efficiency and adaptability. Here's a brief analysis of the most prevalent issues:

- **Inflexibility:** Legacy systems are often rigid, making it difficult to add new functionalities or adapt to changing business processes.

- **Integration challenges:** They typically struggle to integrate seamlessly with newer technologies, leading to siloed data and processes.

- **High maintenance costs:** Keeping legacy systems running can be expensive due to the need for specialized skills and the increasing scarcity of expertise, updates and support.

- **Limited scalability:** Scaling up operations to meet demand spikes is often a cumbersome and inefficient process with old systems.

- **Data silos:** These systems frequently result in fragmented data landscapes, obstructing a unified view of operations and analytics.

- **Security vulnerabilities:** Older systems may not adhere to modern security standards, exposing organizations to greater risks of data breaches or cyberattacks; or physical standards, exposing them to risks like outages and even fires.

- **User-experience challenges:** Outdated interfaces and user experiences can decrease productivity and user satisfaction, impacting overall efficiency.

The need for flexible, innovative technology solutions underscores the critical role LCAPs can play in transforming warehouse operations and helping companies maintain a competitive advantage.

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How do LCAPs work?

As Gartner®* describes, "LCAPs accelerate application development by abstracting common reusable software components and allocating developer effort to tasks closer to business outcomes;" that is, they make application development accessible to "citizen developers."

LCAPs use low-code and no-code tools that allow businesses to build new functionality or customize existing functionality without extensive coding knowledge. This ease of use means that IT can focus on creating applications that meet the specific needs of their warehouse colleagues, rather than spending time and money hiring outside consultants to develop and troubleshoot hard lines of code.

A citizen developer is a non-technical user who can create applications successfully using low-code platforms, without formal coding knowledge or training.

Here are some key benefits of using LCAPs:

- **Faster application development:** businesses can develop custom applications in a fraction of the time it would take with traditional coding methods.

- **Simplified maintenance:** LCAPs are self-documenting, making it easier to maintain and update applications, even if the original developer is no longer available.

- **Cost benefits:** Low-code reduces the need for specialized coding skills, minimizing development costs. It also eliminates the need for multiple tools, reducing licensing fees and maintenance costs.

- **Adaptability:** With visual interfaces and pre-built components, IT professionals working with warehouse leaders can quickly make changes to meet new process requirements or address supply chain disruptions.

- **Collaboration:** LCAPs often include collaboration features that allow multiple users to work on the same application simultaneously, streamlining development and increasing efficiency.

- **Upgradable customizations:** Unlike direct modifications to code, LCAP customizations upgrade with your core software, ensuring you use the most recent version across your environment.
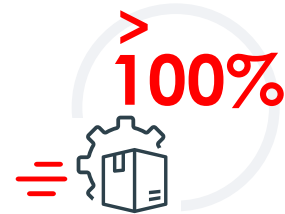
In addition to helping warehouse and IT leaders optimize their operations, LCAPs allow them to swiftly adjust and meet market demands, enhancing efficiency and supply chain visibility.

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Comparing LCAPs to traditional methods

Comparing LCAPs with traditional development approaches and microservice-based systems reveals distinct advantages, particularly in the context of warehouse operations.

>100%

A majority of global IT and business leaders claim low-code development is 40% to 100% faster — or more than 100% faster — than traditional development.

Statista*

Development using LCAPs vs. traditional application development

LCAPs

Development using LCAPs minimizes development time, helping warehouse operators adapt quickly to new operational, business or regulatory requirements. LCAPs enable quicker deployment of applications, allowing citizen developers to create or customize functionality. This agility is crucial for addressing urgent warehouse needs, such as adjusting to new supply chain protocols or implementing real-time inventory tracking systems.

Traditional

Traditional development cycles are lengthy and require a high degree of technical expertise, often leading to delays in responding to operational challenges. They tend to be resource-intensive and inflexible as well. For warehouses, this could mean slower reaction times to supply chain disruptions or customer demand changes, impacting overall efficiency and service levels.

LCAPs vs. microservice-based systems

LCAPs

LCAPs provide a consolidated and accessible path for application development, without the need for deep technical expertise. For warehouse operations, LCAPs can accelerate the integration of new functionalities — such as analytics for forecasting demand or improving inventory visibility — without the overhead of managing multiple interdependent services.

Traditional

Microservice-based systems support scalability and enable different services to be updated independently. However, developing and maintaining a microservice architecture requires a skilled IT team familiar with this approach and can introduce complexity in testing, deployment and inter-service communication. The granular nature of microservices might also lead to overhead in coordination and data management across services.

LCAPs present a compelling solution for warehouse operations seeking to enhance agility, improve efficiency and overcome the limitations of legacy systems, without the complexity and overhead associated with traditional development or microservice architectures.

* How much faster is low-code development comparing to traditional development? https://www.statista.com/statistics/1254662/low-code-development-speed-compared-traditional-it/

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The Itopia® platform for warehouse IT professionals

Itopia® — the low-code application platform (LCAP) on which Tecsys' Elite™ Enterprise suite of applications is built — is a cloud-based supply chain framework that connects inventory, warehouse and distribution operations. Designed to meet the agility, efficiency and scalability needs of today's supply chains, Itopia makes configuring and customizing warehouse systems easier, helping you expand capabilities as your business needs evolve.

Extensible

Itopia® enables you to add entirely new capabilities, data tables and attributes to suit your specific goals.

Adaptable

You can tailor business processes within the Itopia® platform, enabling you to refine operations and rapidly respond to changing market demands.

Integration

Itopia® can become a central hub for supply chain operations, with APIs that help scale to integrate with existing systems, third-party applications and partners.

User permissions

Custom user roles and permissions ensure secure access control, helping citizen developers can work and collaborate safely with both internal and external partners.

Visibility

Get a unified, control tower-like view with customizable dashboards and reports that turn detailed data into actionable insights, helping you proactively tackle potential issues.

Scalability

The Itopia® architecture is designed to grow with your business, ensuring your warehouse operations can handle growth without bottlenecks.

Ongoing training and support

Adopting Itopia® includes access to Tecsys' continued expert support, ensuring you always get the most out of your investment.

Evergreen

The Itopia® cloud-based platform ensures your supply chain operations benefit from regular and efficient updates, ensuring you have the best features, capabilities and security.

Warehouse transformation done right

Low-code application platforms (LCAPs) offer warehouse leaders a robust toolset to swiftly overcome challenges and adapt to changing market demands so they can focus on core business objectives and value creation. With LCAPs like Itopia®, companies can significantly enhance operational efficiency, agility and innovation, ensuring they stay competitive in today's fast-paced supply chain environment. As future challenges emerge, LCAPs will continue to play a pivotal role in how supply chain leaders adapt, evolve, and succeed.

Learn more about the Itopia® solution →

About **Tecsys**

Since our founding in 1983, so much has changed in supply chain technology. But one thing has remained consistent across industries, geographies and decades — by transforming their supply chains, good organizations can become great.

Our solutions and services create clarity from operational complexity with end-to-end supply chain visibility. Our customers reduce operating costs, improve customer service and uncover optimization opportunities.

We believe that visionary organizations should have the opportunity to thrive. And they should not have to sacrifice their core values and principles as they grow. Our approach to supply chain transformation enables growing organizations to realize their aspirations.

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