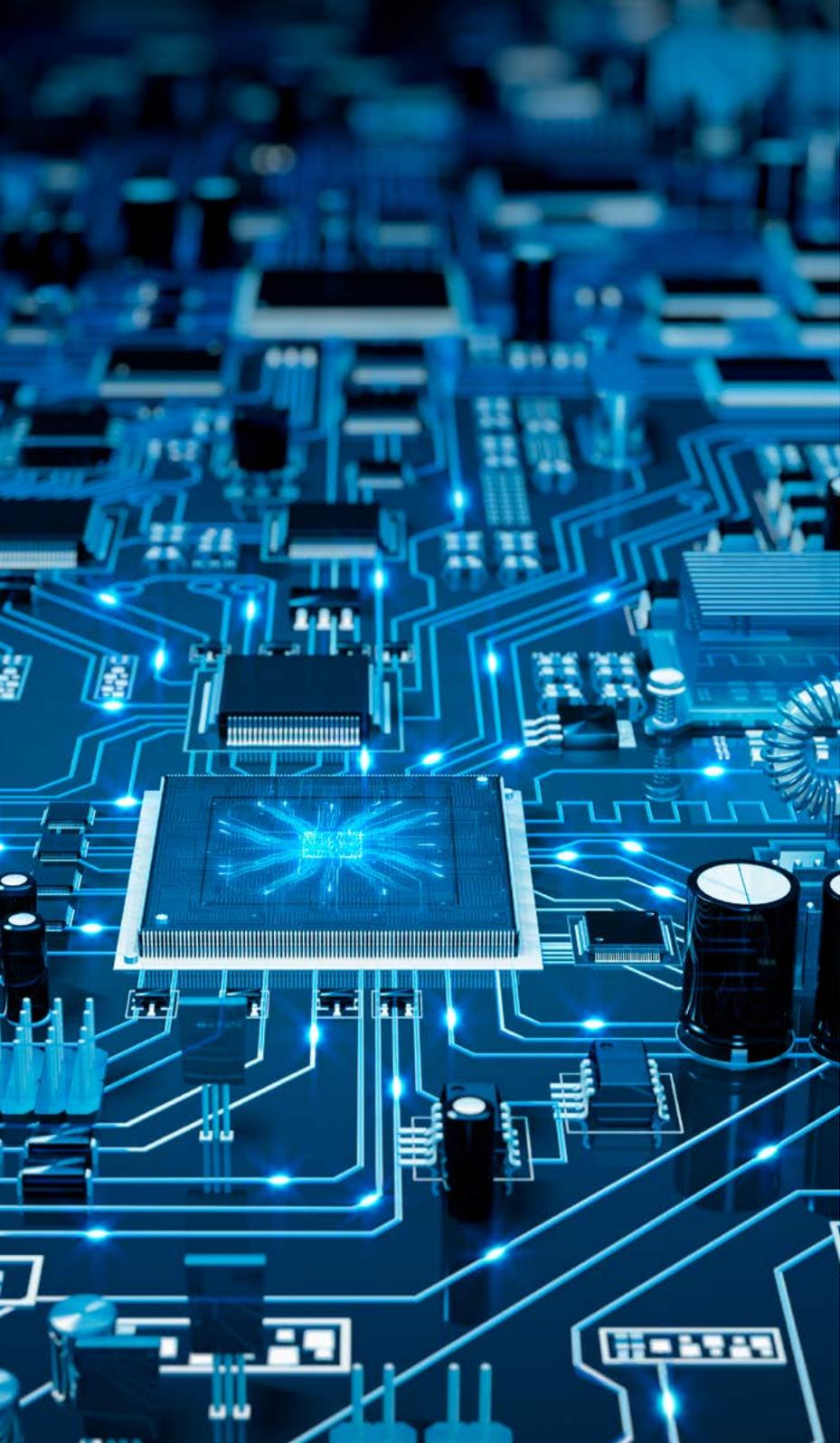


Electronics companies turn to enterprise **low-code solutions** to digitally transform and modernize their businesses

SIEMENS



Electronics companies are facing tremendous change.

While trends and world events are shaping what the future will look like, many companies are looking to adapt now so they can continue doing business and get an edge on the competition.

To achieve these goals, companies must incorporate a digitalization strategy. A crucial part of this strategy includes taking advantage of emerging technologies to pivot and adapt quickly when market conditions change.

Low-code technology has grown from an emerging technology with potential to a proven tool with established results in the enterprise. For this reason, low-code capabilities can help companies progress faster along their digitalization journey.

For example, consider mission-critical projects. Traditional development methods are proving insufficient to meet the growing demand for solutions and software in new domains like data integration, workflow automation, AI and mobile development. With low-code capabilities, companies can be better equipped to work with these demands.

In this E-book, you'll learn:

- The four major trends driving change in the electronics industry
- The challenges that companies face as they plan for the future
- How low-code capabilities can help companies close gaps between newer and older solutions and their infrastructure to accelerate their digitalization plans

Industry trends: What does the future look like?

As electronics companies prepare their business for the future, understanding the trends driving meaningful change in the industry is a critical part of ensuring continued success and innovation – and an edge on the competition.

Following are the four trends shaping the future of the industry.



TREND #1

New markets

Being able to take existing products into new geographies, or new products into existing geographies, will be a key capability for electronics companies that want to be industry leaders.

The main way to do this will be reducing time to market. We've seen that many companies have product lifecycles that can be as long as five years. But a significant portion of the product's lifetime profits comes from the first few quarters of a product release.

WHAT THIS MEANS FOR YOUR COMPANY

Whether you sell consumer or industrial electronics, getting to market faster will require speeding up the whole process – from concept and design through prototyping and evaluation – to have tighter integrations and deliver higher quality products. Manufacturing electronics requires companies to use many tools and processes across their entire value chain. But, with so many systems, it's difficult to track what information goes where. Companies must manage data in secure sources, regardless of where or how it's generated. But they also need cross-functional collaboration and a way to securely share design data across the entire business. This includes stakeholders and partners outside of core data management systems and processes. To be successful and deliver more products faster, all stakeholders must be on the same page.

Forrester predicts that in 2021, **nearly every company will invest in technology-fueled experiences, operations, products and ecosystems** as a response to the events of 2020.¹

TREND #2

Emerging technologies

Electronics companies that take advantage of emerging technologies in their products can stand out in a crowded market. The challenge comes from how those same technologies will fit into their existing processes and if companies have the infrastructure in place to support them. Emerging technologies have a disruptive impact on the market and a company's ability to leverage them in a way that benefits their business.

For example, 5G connectivity can be a game-changer for both consumer and industrial electronics. However, the rollout won't be easy. Companies must learn how to pack more functionality into smaller enclosures, deal with new beamforming technology, respond to significant design and testing challenges, and leverage modern solutions to drive business growth and achieve a competitive advantage.

At the same time, leveraging technologies such as 5G makes digital streaming technology more accessible to manufacturers, allowing them to stream content anywhere, anytime. In addition, improvements in digital delivery and usage, including cloud computing and mobile phone applications, make communication and information sharing more practical. Embedded software enables manufacturers to manage capacity across networks, while remote diagnostics can help find component issues before anyone knows there's a problem.

WHAT THIS MEANS FOR YOUR COMPANY

Supporting and simultaneously leveraging emerging technologies requires a wholly connected, closed-loop system or process that can feed into faster development, testing and product manufacturing. The burden is on electronics businesses to integrate new technologies and capabilities in order to translate all the information and data into actionable business decisions. Integrating and upgrading standalone solutions and sophisticated information systems poses a significant IT challenge. Businesses need a better, more agile, faster way to integrate data, operations, processes and software that doesn't overburden already constrained IT resources.



TREND #3

Consumer-driven industry

Consumer demand is having a much bigger impact on the electronics industry today, because electronics are everywhere and in almost everything. As embedded electronics that bring more connectivity and “smart” capabilities remain high on consumer priority lists, the consequences of not being able to keep up with demand are playing out in real time.

For example, today’s worldwide semiconductor chip shortage is bringing significant challenges to the automotive industry. Electronics companies must take note of this and similar crises: As they become more commonplace moving forward, companies must be prepared to act when they do.

As with many dynamic and changing market conditions, the chip deficit is a direct result of shifting consumer demands. When consumer demand for driving and buying cars dipped and shifted to remote work and collaboration, chip makers diverted production capacity from automotive to medical diagnostics, laptops, mobile phones, and other tools to meet demand.

As consumer demands shifted back toward driving and buying vehicles, the chips for those vehicles are no longer available – and as a result, that industry is hurting. At the same time, the semiconductor industry is benefitting and is substantially increasing its capacity utilization, but it takes time. Chipmakers can’t “flip a switch” and increase chip output overnight. In the meantime, automakers have had to shut down production lines for weeks at a time. Some industry experts estimate a production loss of over [1 million vehicles](#) and revenue losses of [\\$61 billion](#) in 2021 due to the shortage.

Today’s chip shortage is causing significant disruption, and it’s having a notable ripple effect through a number of markets. We know the likelihood of another crisis sometime soon is high: Disruption is inevitable with changing markets, possible material shortages and other supply chain issues. Companies may not be able to predict the future, but they must be agile enough to adapt when market disruption inevitably happens. If not, being caught off guard by a sudden shift could be devastating.

WHAT THIS MEANS FOR YOUR COMPANY

It’s imperative to manage the risks emerging from natural and artificial disasters, as well as from demand and supply chain issues, that lead to or change consumer demand. Companies must be proactive rather than reactive. They must invest in data integration, automation, business intelligence capabilities, and better tracking capabilities or key performance indicators for suppliers to ensure they position themselves to respond to change rapidly. They must build an ecosystem to pass information quickly to and from suppliers and partners. It’s critical to have access to actionable data that improves forecasting capabilities and helps predict market shifts but, most importantly, to help them quickly react to those shifts.

TREND #4

Globalization

Globalization continues to impact electronic design, manufacturing and market fulfillment across country and continent boundaries, as well as across company boundaries. More electronics companies are outsourcing their manufacturing, and that decision has huge impacts on supply chains and collaboration.

As electronics companies work 24 hours a day, 7 days a week to meet consumer and market demands, they must be able to continuously design across different time zones, share designs across multiple boundaries and still be following all export and restriction regulations.

WHAT THIS MEANS FOR YOUR COMPANY

Companies that want to take full advantage of global trade expansion must be flexible enough to respond rapidly to changing market conditions. They must also source cost-effective materials, suppliers and partners to suit different manufacturing needs and locations. They also need automated functions that can help localize deliverables with languages, graphical interfaces and even the restriction of specific applications. And because the capabilities often required to build complex products extend far beyond the core enterprise, it's essential to have many specialized partners and suppliers with these capabilities all working toward a common goal. Global visibility across internal and external suppliers, combined with proactive alerting, allows teams to align all supply-and-demand transactions more accurately. In the end, the success or failure of companies and their products in this market depends on how effectively businesses, suppliers and others in the supply chain collaborate.

Research firm McKinsey estimates that an average large company has **more than 5,000 suppliers.**²

Challenges for the future

In addition to preparing for these trends, electronics companies face a host of growing challenges as the industry continues to evolve.

Compliance and traceability

Being compliant goes beyond imports and exports. It requires remaining in accordance with government certifications, such as FCC ratings or FDA certification, or industry ratings, such as ISO 26262.

Proving compliance requires technology in the design process that accommodates those requirements and supports traceability. It's not a question of if a company will be audited but when – and when those audits occur, how they'll be able to provide any data at any given time.

What's more, trusted traceability is key. Companies must be able to maintain their data provenance and know where any of their data came from. Potential tactics to prove the traceability is trusted could include watermarks on a diagram or a digital fingerprint for a chip.

Privacy

A common undercurrent throughout these challenges is the concern of privacy.

Consumers want and need to feel like their privacy is protected. The challenge comes in meeting those concerns while also meeting the various levels and rules that exist to protect consumer privacy. Different countries have different levels; perhaps the most well-known example is the European Union's General Data Protection Regulation (GDPR), which imposes stiff fines for companies out of compliance.

As a result, companies must be able to comply with these varying levels of regulations and protection while also meeting their customers' expectations of privacy.

Between January 2020 and January 2021, **GDPR fines rose nearly 40% and totaled \$191.5 million USD.**³

Security and the cloud

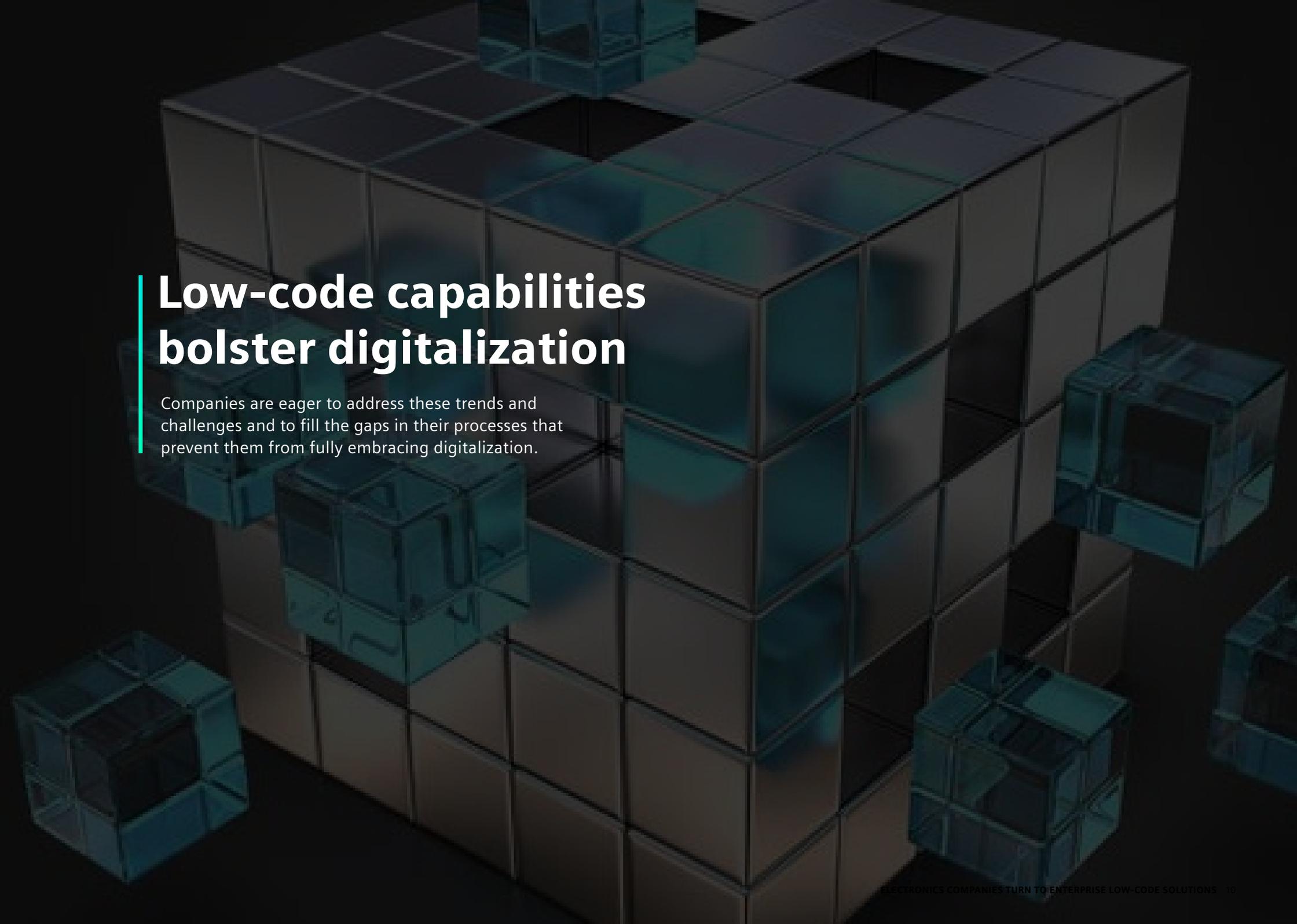
Security is a massive issue with electronics companies. There are continuous threats from hackers trying to get access to designs, rogue chips getting inserted into circuit boards or counterfeit chips being used in circuit boards with the wrong quality standards and testing. Companies must be able to detect problems, address security issues and be prepared to alter the supply chain.

Businesses with government agency or private enterprise contracts experience similar concerns with supporting security around design and manufacturing. As the cloud has come into play, many companies want better platforms hosted on the cloud to speed up the design process while still maintaining security around design databases and intellectual property.

However, the cloud brings its own challenges with security. For example, with data from the Internet of Things hosted in the cloud, being able to crowdsource that data requires companies to figure out who is friend or foe. This requires artificial intelligence or machine learning capabilities to make those distinctions in nanoseconds.

There's also the question of whether having the cloud on premises, off premises or a hybrid of both would be the best approach. While having on-premises cloud would allow companies greater control over servers and the general flow of information, many of their customers are using off-premises cloud. As a result, companies would need the security to support sharing data with those customers.





Low-code capabilities bolster digitalization

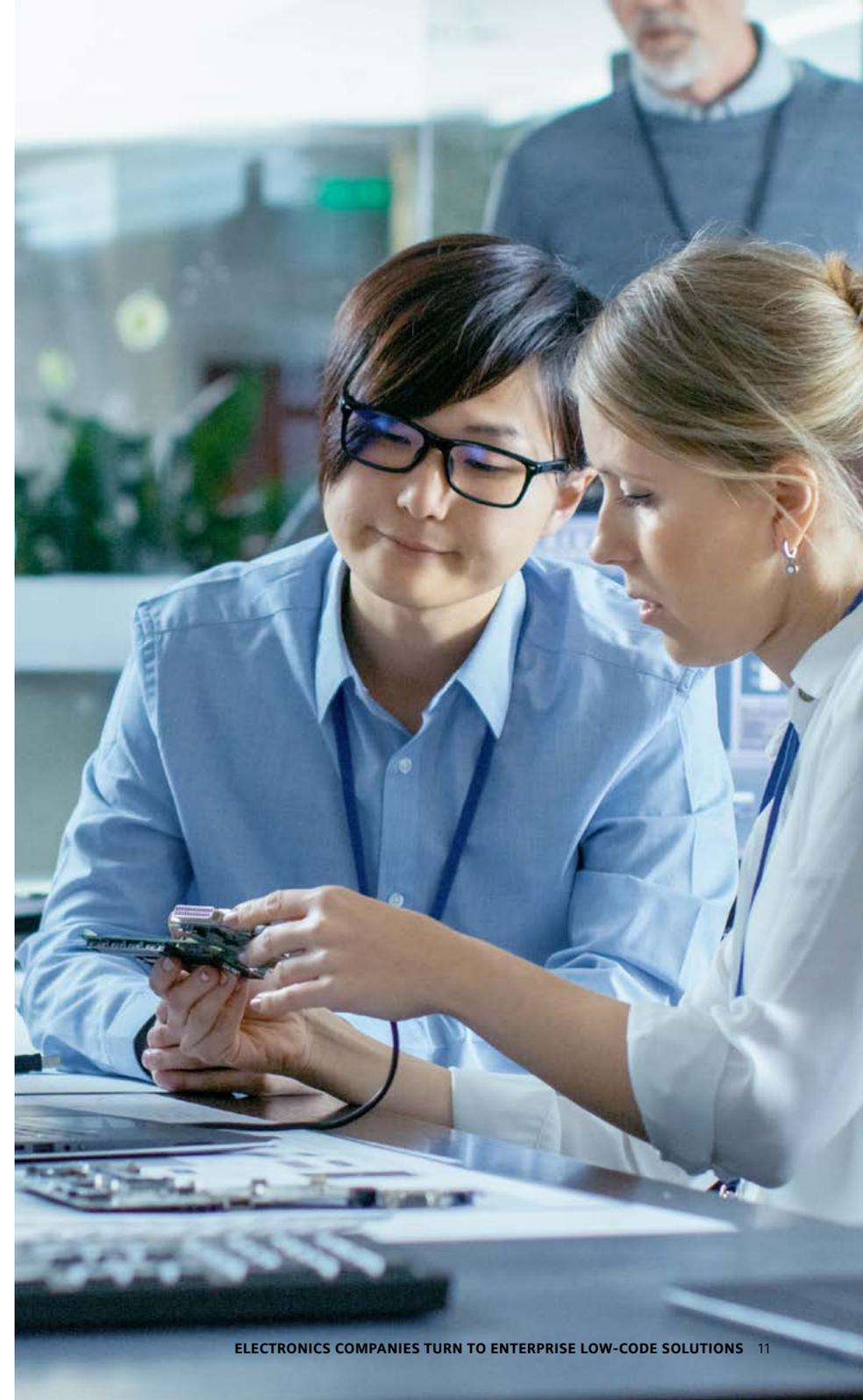
Companies are eager to address these trends and challenges and to fill the gaps in their processes that prevent them from fully embracing digitalization.

Rather than starting from scratch to address these trends and challenges, companies have the option to try something that improves collaboration, is accessible to any skill level and doesn't disrupt the flow or methodology of their electronics company: low-code applications.

Electronics companies that experiment with low-code development also put themselves on the fast-track to digitalization because of low-code's ability to break down silos. Rather than users needing to go to a location, meeting or device to aggregate the information they need, low-code apps can decentralize that activity and allow for real-time participation.

These apps are developed with a more visual, collaborative approach than traditional development methods. All parts of the business work side by side with IT professionals to build the solution that fulfills a specific need. Low-code apps are also built for multi-experience: End users can use the app in the experience that they demand, including desktop, mobile, handheld or virtual reality. For example, business and engineering users can have different views of the same app and have it tailored to what they need to accomplish. And with electronics companies ever mindful of their time, budget and resources, apps can be built, deployed and managed from the same platform.

By 2024, Gartner estimates that low-code application development will be **responsible for more than 65% of application development activity.**⁴



In addition to the benefits mentioned previously, electronics companies that work low-code capabilities into their processes can experience:



Integration

Low-code apps can be integrated with any data system or data source, including PLM, MES, ERP and CRM systems. This integration can be critical for companies with siloed teams and disparate data sources as they look for ways to increase not just the visibility of data but the important insights – without sacrificing compliance or traceability.



Easier interactions and visibility

Because low-code can facilitate faster development and approvals, users can concentrate more on product designs or the business side of the company. Low-code doesn't disrupt flows or methodologies, but enhances them. And users don't need to log in to many systems to see data: They can do all their work from the app without touching the systems.



Fast app development

Apps can be built and tweaked using existing templates; this can be particularly helpful for smaller companies that may not have the overhead or resources to create apps from scratch or build a platform. By taking advantage of pre-built templates, companies of all sizes can begin accelerating their approval and review cycles to better meet changing consumer demands and get to market faster.



Control and governance

Low-code allows teams to build business-critical apps without sacrificing the governance that IT has implemented and the control to adhere to organizational standards. When the business and IT can collaborate, business teams can focus on the outcomes, and IT teams can focus on setting the needed governance, control and security standards to support the business.

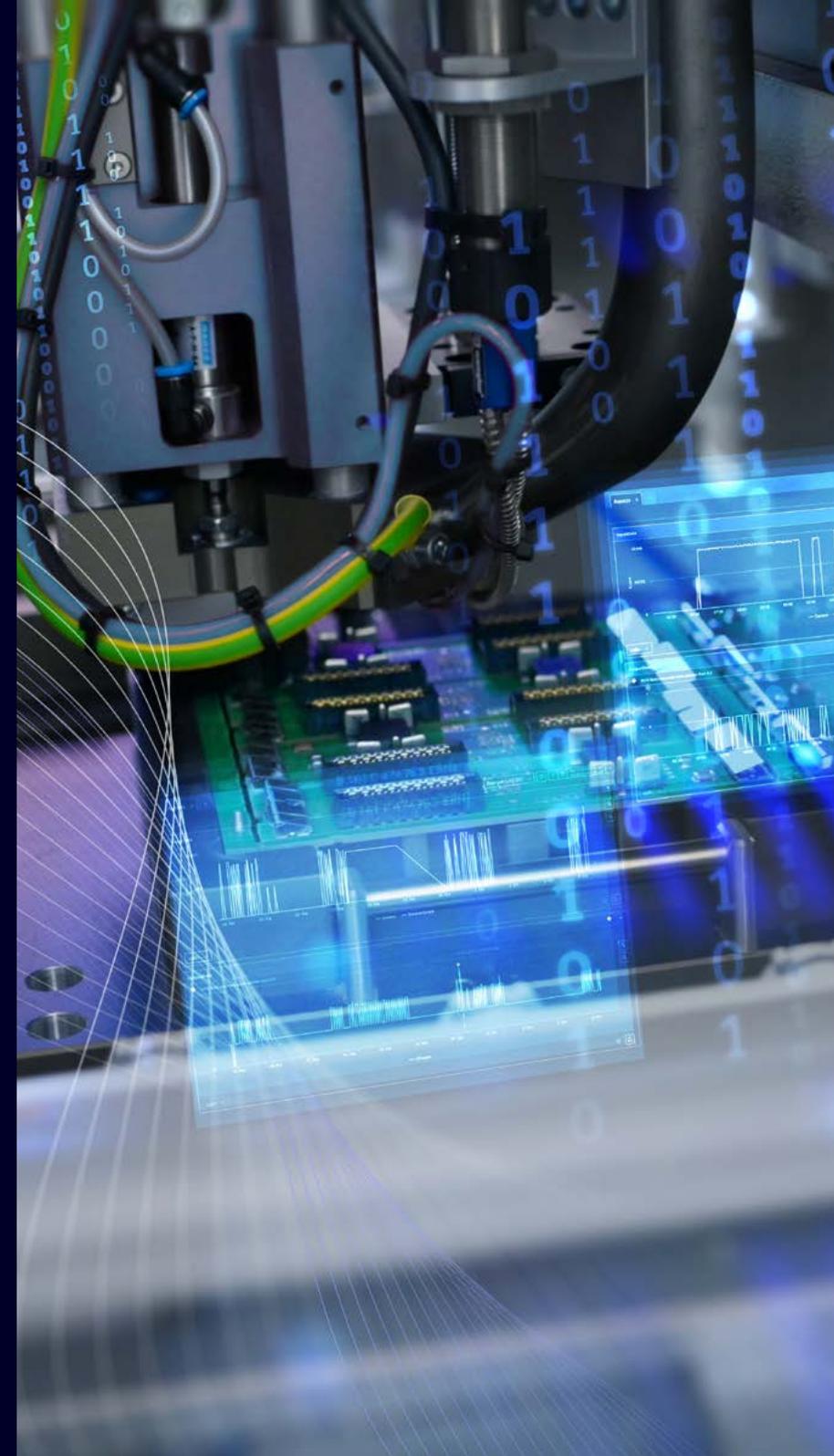
Accelerate the path to digitalization

Having the right software solutions to provide support and agility to their design and manufacturing capabilities is critical for all companies that produce electronics of any kind. It will be essential for enhancing and ensuring their future success.

Suppose companies have the foresight to incorporate low-code capabilities into crucial areas of their business. In that case, they will quickly realize the benefits, agility, and scalability that enterprise-level low-code software brings to their business.

This approach can help electronics companies go to market faster, quickly pivot when market conditions change and accelerate their path to digitalization.

Want to see low-code in action? Check out the different apps that have been built using low-code application development.



1 [Forrester](#): Predictions 2021 - Technology and Customer Obsession Help Firms Emerge From Crisis Mode

2 [McKinsey](#): Effectively implementing President Biden's supply-chain review

3 [Tessian](#): 18 Biggest GDPR Fines of 2020 and 2021 (So Far)

4 [Mendix](#): Low-Code Guide

About Siemens Digital Industries Software

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