



Jellyfish
Technologies

MODERNIZE **LEGACY SYSTEM** **WITH AI**

A Strategy for CEOs



Imagine strolling through a bustling marketplace, surrounded by vendors offering various goods. You're captivated by the sight of aged artifacts among the vibrant displays. Each artifact, whether a weathered book or antique jewelry, has a different story. It's a sentiment reminiscent of cherished heirlooms and memories.

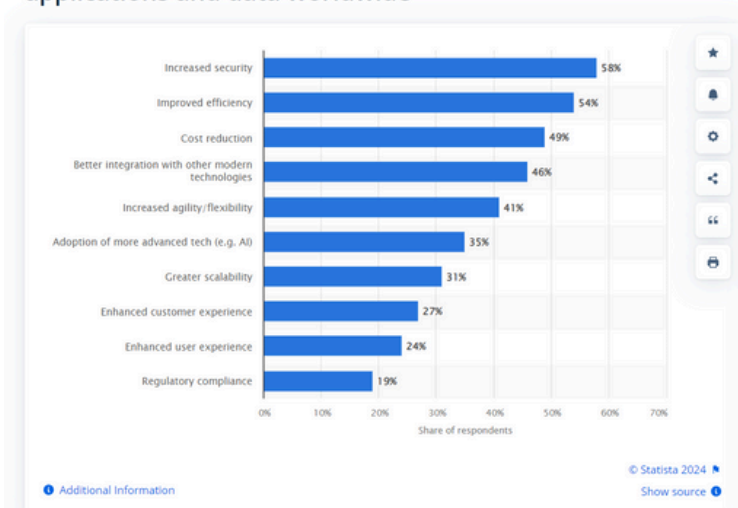
Yet, in technology, the concept of aging gracefully takes on a different meaning. While vintage treasures gain value with age, software remains stagnant, unable to improve or adapt over time. Here's where legacy application modernization steps into the picture, offering a pathway to revitalize and modernize outdated systems for enhanced functionality and efficiency.

What is Legacy Application Modernization?

Legacy application modernization involves updating or replacing outdated software systems with contemporary solutions that leverage the latest technologies. These legacy systems, often built on older platforms or architectures, can hinder organizational agility, innovation, and competitiveness.

Some ways to modernize legacy systems include migrating to cloud-based architectures, adopting microservices and containerization, refactoring codebases, and integrating artificial intelligence (AI) and machine learning (ML) capabilities. By implementing these strategies, businesses can enhance operational efficiency, drive innovation, and unlock new growth opportunities.

Top reasons driving companies' modernization of legacy applications and data worldwide





Why **CEOs** Should Care About Legacy System Modernization

In today's fast-paced business world, CEOs must innovate, enhance efficiency, and stay competitive. Legacy system modernization is one of the crucial focus areas in this endeavor. While it may seem daunting, the benefits of modernizing outdated applications far outweigh the challenges. Here are the top five compelling reasons why CEOs should prioritize legacy system modernization.

Enhanced Efficiency

Legacy systems often lack the agility and scalability required to keep pace with modern business demands. By modernizing these applications, CEOs can streamline processes, automate tasks, and improve overall operational efficiency.

Cost Savings

Outdated systems come with high maintenance costs, including expensive licensing fees, ongoing support expenses, and the risk of system failures. Modernizing legacy applications can lead to significant cost savings over time by reducing maintenance overhead and optimizing resource utilization.

Improved Security

Legacy systems are more susceptible to security vulnerabilities due to outdated software components and inadequate protection mechanisms. Modernizing these applications allows CEOs to implement robust security measures, such as encryption, access controls, and regular security updates, to safeguard sensitive data and protect against cyber threats.

Enhanced Customer Experience

In today's digital era, customers anticipate seamless and personalized experiences across various touchpoints. However, legacy systems frequently fall short of delivering the requisite level of functionality and responsiveness to meet these expectations. Through the modernization of legacy applications, CEOs can elevate the customer experience by offering faster response times, enhanced accessibility, and innovative features that foster customer engagement and loyalty.



Enhanced Efficiency

Modernization streamlines processes and automates tasks



Cost Savings

Modernization reduces expenses and optimizes resource utilization

Why CEOs Should Care About Legacy System Modernization?



Improved Security

Modernization implements robust security measures for data protection



Enhanced Customer Experience

Modernization improves responsiveness and accessibility for customer engagement



Competitive Advantage

Modernization ensures strategic positioning for success

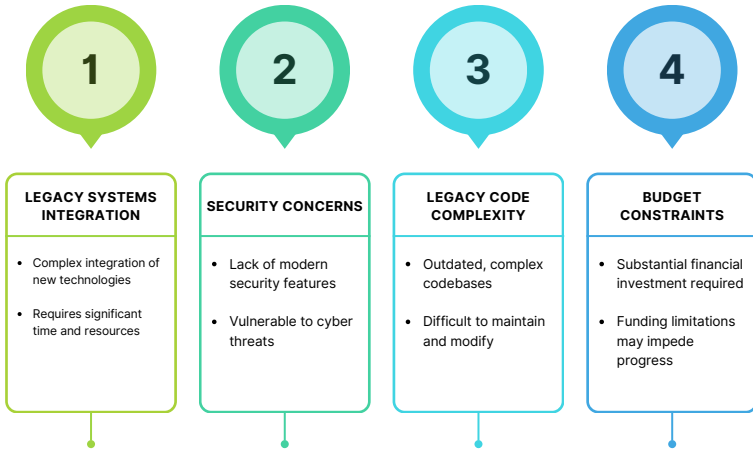
Competitive Advantage

Businesses that neglect to modernize their legacy systems run the risk of lagging behind competitors who leverage modern technologies to secure a strategic advantage. By embracing digital transformation and updating legacy applications, CEOs can strategically position their organizations for long-term success. This involves staying ahead of market trends, adapting to evolving customer needs, and seizing new opportunities for growth and innovation.

Future-Proofing

In a changing landscape of technology, businesses must adapt to remain relevant. However, legacy systems, inherently resistant to change, risk becoming obsolete over time. By modernizing legacy applications, CEOs can future-proof their organizations. This ensures flexibility and agility to embrace emerging technologies and market trends, positioning them for sustained success in the years ahead.

Key Challenges CEOs Encounter When Modernizing Legacy Applications



7 Options for Modernizing Legacy Applications

There are several options available for modernizing legacy applications, each with its advantages and considerations. Let's explore these options in detail.

Rehosting

Rehosting involves moving existing applications to a new infrastructure without modifying their codebase. This option offers quick migration with minimal changes, making it suitable for applications with stable functionalities and low complexity.

Encapsulation

Encapsulation involves wrapping legacy applications with modern interfaces, allowing them to interact with newer systems seamlessly. This approach enables integration with modern technologies while preserving the existing functionalities and data.

Refactoring

Refactoring entails restructuring the codebase of legacy applications to improve their maintainability, scalability, and performance. This option involves optimizing code, removing redundant elements, and adopting modern coding practices to enhance the application's agility and efficiency.

Replatforming

Replatforming involves migrating legacy applications to a new platform or environment that offers better support and scalability. This option allows businesses to leverage modern infrastructure while minimizing disruptions to existing functionalities.

Rebuilding

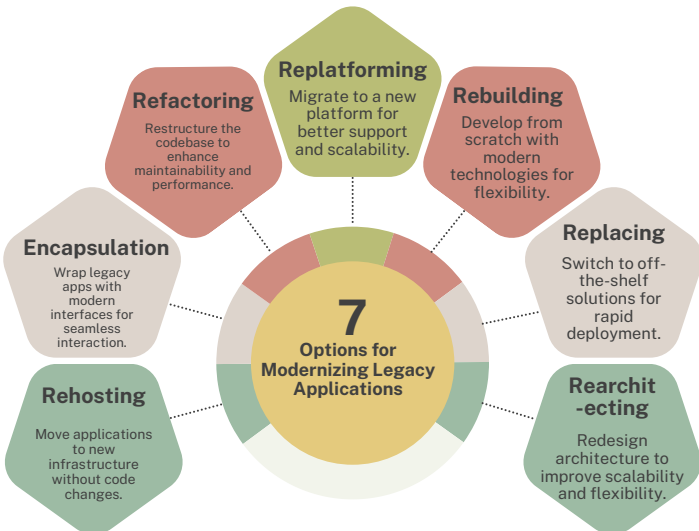
Rebuilding involves redeveloping legacy applications from scratch using modern technologies and architectures. While this option offers maximum flexibility and innovation, it requires significant time, resources, and expertise to ensure a successful transition.

Replacing

Replacing involves replacing legacy applications with off-the-shelf software or Software-as-a-Service (SaaS) solutions that offer similar functionalities. This option offers rapid deployment and reduced maintenance overhead but may require customization to fit specific business requirements.

Rearchitecting

Rearchitecting involves redesigning the architecture of legacy applications to align them with modern design principles and technologies. This option improves scalability, flexibility, and resilience while maintaining compatibility with existing functionalities and data.



How AI Modernizes Legacy Systems Across Industries

Healthcare

By leveraging predictive analytics for patient care, drug discovery and development, and personalized medicine, AI-driven solutions are enhancing efficiency, accuracy, and outcomes in healthcare delivery.



- **Predictive Analytics for Patient Care**

AI analyzes patient data to predict health outcomes and personalize treatment plans.

- **Personalized Medicine**

AI enables personalized treatment plans based on individual patient characteristics.

- **Virtual Health Assistants**

AI-driven virtual assistants provide personalized health advice and assistance.

- **Drug Discovery and Development**

AI accelerates drug discovery by analyzing molecular structures and simulating drug interactions.

- **Medical Imaging Analysis**

AI-powered algorithms analyze medical images for faster and more accurate diagnosis.

Finance

From fraud detection and prevention to algorithmic trading and customer service, AI is driving improvements in security, investment optimization, and personalized services for financial institutions and their customers.



- **Fraud Detection and Prevention**

AI algorithms analyze transaction data to detect patterns of fraudulent behavior.

- **Algorithmic Trading**

AI-driven algorithms analyze market data to identify trading opportunities and execute trades.

- **Customer Service and Chatbots**

AI-powered chatbots provide personalized financial advice and support to customers.

- **Risk Management**

AI analyzes market trends and assesses credit risk in real-time.

- **Regulatory Compliance**

AI automates regulatory compliance processes and identifies potential compliance risks.

Manufacturing

AI is driving advancements in predictive maintenance, quality control, and supply chain optimization in manufacturing. Furthermore, by harnessing AI-driven solutions, manufacturers can reduce downtime, improve product quality, and streamline operations for greater efficiency and competitiveness.



- **Predictive Maintenance**

AI analyzes sensor data to predict equipment failures before they occur.

- **Quality Control and Defect Detection**

AI-driven algorithms inspect products in real-time to detect defects or anomalies.

- **Supply Chain Optimization**

AI optimizes inventory levels, predicts demand fluctuations, and identifies supply chain bottlenecks.

- **Robotics and Automation**

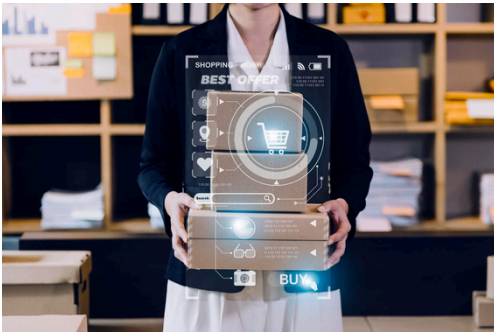
AI-powered robots automate repetitive tasks and enhance efficiency on the factory floor.

- **Data-driven Decision Making**

AI analyzes large volumes of data to provide actionable insights for decision-making.

Retail

From recommendation systems to inventory management and customer segmentation, AI is enabling retailers to deliver personalized, efficient, and targeted services to their customers.



- **Recommendation Systems**

AI analyzes customer preferences and behavior to provide personalized product recommendations.

- **Inventory Management**

AI algorithms forecast demand and optimize inventory levels to prevent stockouts and overstock situations.

- **Customer Segmentation and Targeting**

AI analyzes customer data to segment audiences based on demographics, preferences, and purchasing behavior.

- **Personalized Pricing Strategies**

AI-driven pricing algorithms analyze market trends and customer data to set personalized prices.

- **Enhanced In-store Experiences**

AI technologies, such as facial recognition and personalized offers, enhance in-store experiences for customers.

Transportation and Logistics

AI technologies are driving a revolution in transportation and logistics, transforming route optimization, demand forecasting, and the development of autonomous vehicles.



- **Route Optimization**

AI algorithms analyze traffic patterns, weather conditions, and delivery data to optimize delivery routes and schedules.

- **Demand Forecasting**

AI predicts future demand for products or services based on historical data, market trends, and external factors.

- **Autonomous Vehicles**

AI-powered autonomous vehicles navigate roads, detect obstacles, and make real-time decisions without human intervention.

- **Supply Chain Visibility**

AI-driven analytics provide insights into supply chain operations, enabling real-time monitoring and optimization.

- **Last-Mile Delivery Solutions**

AI-powered drones and robots facilitate last-mile delivery, increasing delivery speed and reducing costs.

Education

Through AI-driven solutions, educational institutions are tailoring learning experiences, identifying at-risk students, and automating administrative tasks to improve student and educator outcomes.



- **Personalized Learning Paths**

AI analyzes student data to tailor educational content and activities to individual needs and learning styles.

- **Student Performance Prediction**

AI algorithms identify at-risk students by analyzing academic data, attendance records, and behavioral patterns.

- **Administrative Efficiency Improvement**

AI automates administrative tasks such as grading, scheduling, and course planning.

- **Adaptive Learning Platforms**

AI-powered adaptive learning platforms adjust content and pace based on student progress and performance.

- **Virtual Tutoring and Assistance**

AI-driven virtual tutors provide real-time assistance and feedback to students.

Applications of AI in Legacy Modernization

Artificial Intelligence is increasingly becoming a key enabler in the modernization of legacy systems. Let's explore some of the key applications of AI in legacy modernization.

Automated Code Conversion

AI-powered tools can analyze and convert legacy code written in outdated languages or architectures into modern programming languages. This helps streamline the modernization process by reducing manual effort and ensuring code compatibility with newer systems.

Intelligent Data Migration

AI algorithms can intelligently migrate data from legacy systems to modern databases or cloud platforms. These algorithms can identify and classify data, ensure data integrity during migration, and optimize data storage and retrieval processes.

Predictive Maintenance

AI-driven predictive maintenance systems can monitor the health and performance of legacy equipment and machinery in real-time. By analyzing sensor data and historical maintenance records, these systems can predict potential failures before they occur, reducing downtime and maintenance costs.

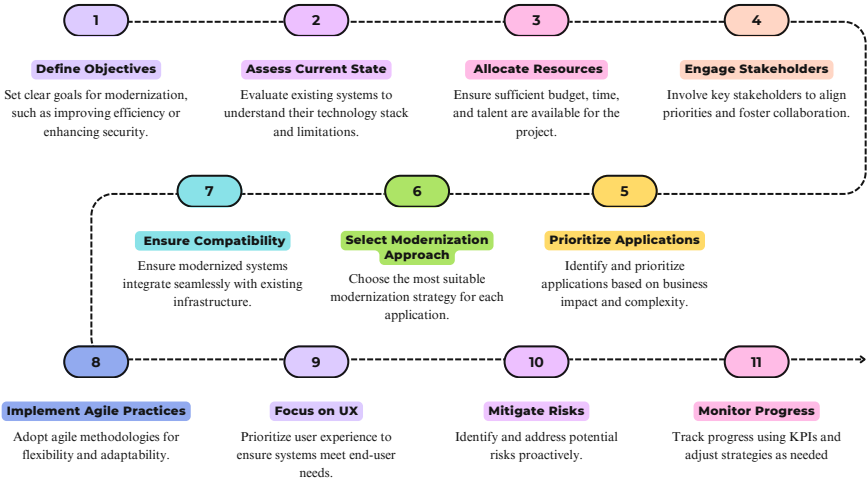
NLP for Documentation Analysis

NLP algorithms can analyze and understand documentation, manuals, and other textual resources associated with legacy systems. This helps extract valuable insights, identify dependencies, and document system functionalities, facilitating the modernization process.

Automated Testing and Quality Assurance

AI-powered testing tools can automate the testing process for legacy applications, identifying bugs, errors, and inconsistencies more efficiently than manual testing methods. This ensures the reliability and stability of modernized systems before deployment.

Checklist for CEOs to Ensure Successful Legacy Application Modernization



AI Development Case Studies And Success Stories

Our case studies showcases real-world examples of how our AI-based software development solutions drive success and innovation for our clients.

Image to PDF Conversion:

Selectable & Searchable Text



AI is transforming businesses through automated document digitization, improving efficiency, and extracting valuable insights from data.

AT A GLANCE

Challenges

- Image Quality Variation
- Text Extraction Accuracy
- Processing Speed
- User Interface Design

Benefits

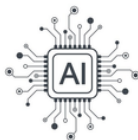
- Enhanced Productivity
- Improved Accuracy
- Versatility
- Scalability



The successful completion of the project resulted in the fulfillment of client demands, meeting their requirements for converting raw images into PDFs with selectable and searchable text.

Our dedication to employing advanced computer vision techniques, coupled with rigorous preprocessing methods, yielded positive feedback from the client, affirming the effectiveness and reliability of our approach.

This project exemplifies our commitment to delivering innovative solutions that address the evolving needs of our clients in the realm of document processing and conversion.



OBJECTIVES

In response to client demands for converting raw, irregular images into organized, searchable PDFs with selectable text, our project employed advanced computer vision techniques coupled with meticulous preprocessing methods. The primary challenge revolved around transforming rough, inconsistent images into streamlined PDF documents while ensuring the text within remained searchable and selectable.

SOLUTIONS

Solutions involved leveraging advanced AI algorithms for text extraction, implementing image quality enhancement techniques, optimizing processing through parallel processing, and prioritizing user-centric design principles for interface development.

The project encompassed several key stages:

Preprocessing:

We initiated the process by meticulously preprocessing the raw images. This step involved enhancing image quality, removing noise, correcting orientation, and rectifying any distortions present.

Text Extraction:

We performed text extraction from the preprocessed images by leveraging state-of-the-art computer vision algorithms. Our approach aimed to identify and isolate text regions within the images accurately, overcoming challenges posed by varying fonts, sizes, and orientations.

Layout Structuring:

Following successful text extraction, we focused on structuring the layout of the PDF documents. This step involved arranging the extracted text in a coherent and organized manner, replicating the original layout as closely as possible.

Integration of Searchable and Selectable Text:

A pivotal aspect of the project involved integrating functionality for searchable and selectable text within the PDF documents. Through meticulous implementation of computer vision technology and text encoding techniques, we ensured that the text content within the PDFs remained fully searchable and selectable.




Thank You

Contact Us

Want to take your organization's technologies, teams and operations to the next level?
We're ready when you are. Let's start the process of making progress.

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