

Delivering Successful
**Software Product
Modernization** with
Modern Delivery Science

Table of Contents

01

**Decoding Product Modernization
with Fundamentals**

02

Product Modernization Strategies

03

Challenges in Product Modernization

04

**Modern Delivery Science at Work in
Product Modernization**

05

A Case in Point

06

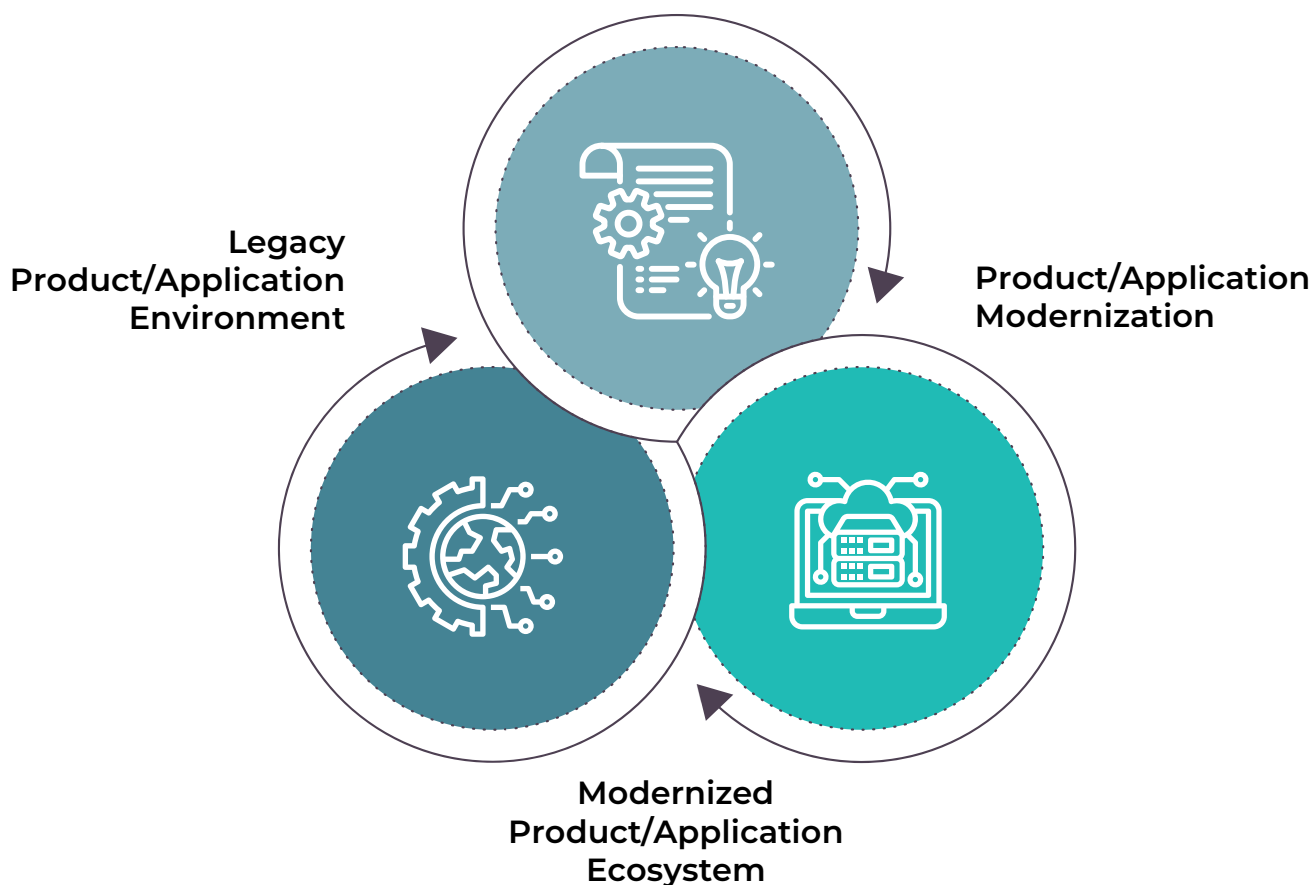
Key Takeaways

Decoding Product Modernization with Fundamentals

The modern IT industry's evolution encapsulates several waves of revolutions. These revolutions and advancements have made a phenomenal impact in every aspect. They have changed how modern enterprises invest, embrace, and consume technology. Legacy product/application modernization drives have been around for several decades now. However, here we aim to discuss the most impactful, comprehensive, complex, and rapid modernization drive the industry has ever witnessed, i.e., modernization since post the introduction of Cloud.

Cloud technology has brought complete digital transformation for enterprises. Under this context, we can define product/application modernization as the transitioning from existing traditional software product capabilities and functionalities to a modern platform. This platform offers innovative and refined capabilities and redefines how those capabilities are delivered. Modernization in the Cloud-era is about moving an enterprise IT environment from a traditional on-premises datacenter model to a cloud environment. The latter is rich with valuable microservices and containers.

Sometimes a transition turns out to be complex beyond the limits of a broader impact and financial implications. It is important to note that in such cases redeveloping that entire product or application from scratch on new-age cloud technology may make sense. The result is a Cloud-native Product/Application.



Product Modernization Strategies

In the journey to modernize a product/application, one can choose from the following strategies:

1 Rehost

Rehosting involves moving the product's underlying resource base from an on-premise set up to the Cloud, as it is. This is also popularly known as the 'lift-and-shift' model. In this, the software product code remains the same. The underpinning infrastructure is transitioned to Cloud Infrastructure-as-a-Service (IaaS).

There are several pros and cons of this approach. While the pros are easy to guess, some of the cons are:

- ❖ Deceleration in time-to-market
- ❖ Higher costs
- ❖ Security vulnerabilities
- ❖ Lack of relevant and on-demand scalability
- ❖ No modularity in design causes a lack of collaboration
- ❖ Unable to leverage Cloud app development strengths such as high uptime, fault tolerance, and more

2 Refactor

Refactoring involves moving an entire application to the Cloud while re-architecting it to suit the environment. This strategy consists of modifying the existing software, or a large chunk of the code, leveraging the cloud-based features, and the resulting flexibility and elasticity.

Application code changes are required, and comprehensive testing is needed to prevent downgrading the functionalities. The product/application needs to be re-architected carefully for better resource utilization in the Cloud to avoid incurring high costs. The refactoring approach could become highly time-consuming and resource-intensive. However, it can also provide the highest ROI once successfully transitioned.

3 Rebuild

Rebuilding the product/application as cloud-native (i.e., leveraging the full capabilities of Cloud platform) is the most recommended strategy. This enables the leveraging of Cloud capabilities and their benefits, delivering a substantial strategic advantage. In addition, the rebuilding approach can be most cost-effective one. This is because the underlying cloud platform offers a costing value proposition. With a rebuild, the product/application codebase is rewritten as a cloud-native application to accelerate innovation and release the underlying value faster. Quite practically, thousands of lines of code can often be replaced with a few hundred lines, leveraging the power of vast Cloud technology.

Different paths - one journey to the cloud

| App Data Infrastructure | Migration & Modernization | | Cloud-Native | SaaS |
|-------------------------|--|--|---|---------|
| | Rehost | Refactor | Rebuild/New | Replace |
| Description | Rehost Redeploy as-is to cloud | Refactor Minimally alter to make better advantage of cloud | Rebuild/New New code written with Cloud- Native approach | |
| Business drivers | <ul style="list-style-type: none"> ▪ Reduce Capex ▪ Free datacenter space ▪ Quick cloud ROI | <ul style="list-style-type: none"> ▪ Faster, smaller updates. ▪ Code portability ▪ Greater cloud efficiency (resource, speed, cost) | <ul style="list-style-type: none"> ▪ Accelerate innovation ▪ Build apps faster ▪ Reduce operational cost | |
| Core technologies | IaaS | Containers PaaS | PaaS Serverless Microservices | |

Challenges in Product Modernization

As soon as there is a decision to modernize the legacy product/application, several initiatives must be taken. Experts' definite processes and workflows need to be followed when undertaking a modernization drive. However, the journey to modernization is not free from its challenges. Industry stalwarts point to many such obstacles. But for this white paper, let us look at some of the significant ones often encountered:



Cost and tenure of a modernization initiative

This is an immediate challenge faced by many. While a business angle calls for modernization, there are equally business-centric cost and time considerations involved. Modernization "at any cost" is not a feasible proposition in these cases. One can end up draining considerable monetary resources and time without a balanced approach or a crafted vision behind modernization.



Talent or know-how shortfall

Aspirations to modernize the product/application should correspond with the availability of and access to technical know-how required for execution. The big bang approach of accumulating a comprehensive knowledge-base on required stacks/platforms is not feasible either. The best practice would be to start modest and scale up as the project progresses. Most software product firms or enterprises looking to modernize do not recognize this fundamental problem right at the planning stage, causing concerns later.



Co-existence of legacy products with the modernized ones

The target enterprise where systems are typically deployed has several technology solutions, products, and applications. These work in tandem to run the business efficiently. A new product/application brought in over a modern platform might make co-existing with legacy ones difficult in terms of integration.



Change inertia among stakeholders

Modernized products/applications sometimes drastically vary from legacy systems. These variations are not only from a UX standpoint but also due to workflow, functionalities, and core architecture. When these are deployed in the end-user ecosystem, the change inertia among stakeholders needs to be addressed. The best approach here would be to manage this problem from the beginning of a modernization drive. Then an attempt to gradually ramp up the acclimatization of stakeholders in the new system is needed.



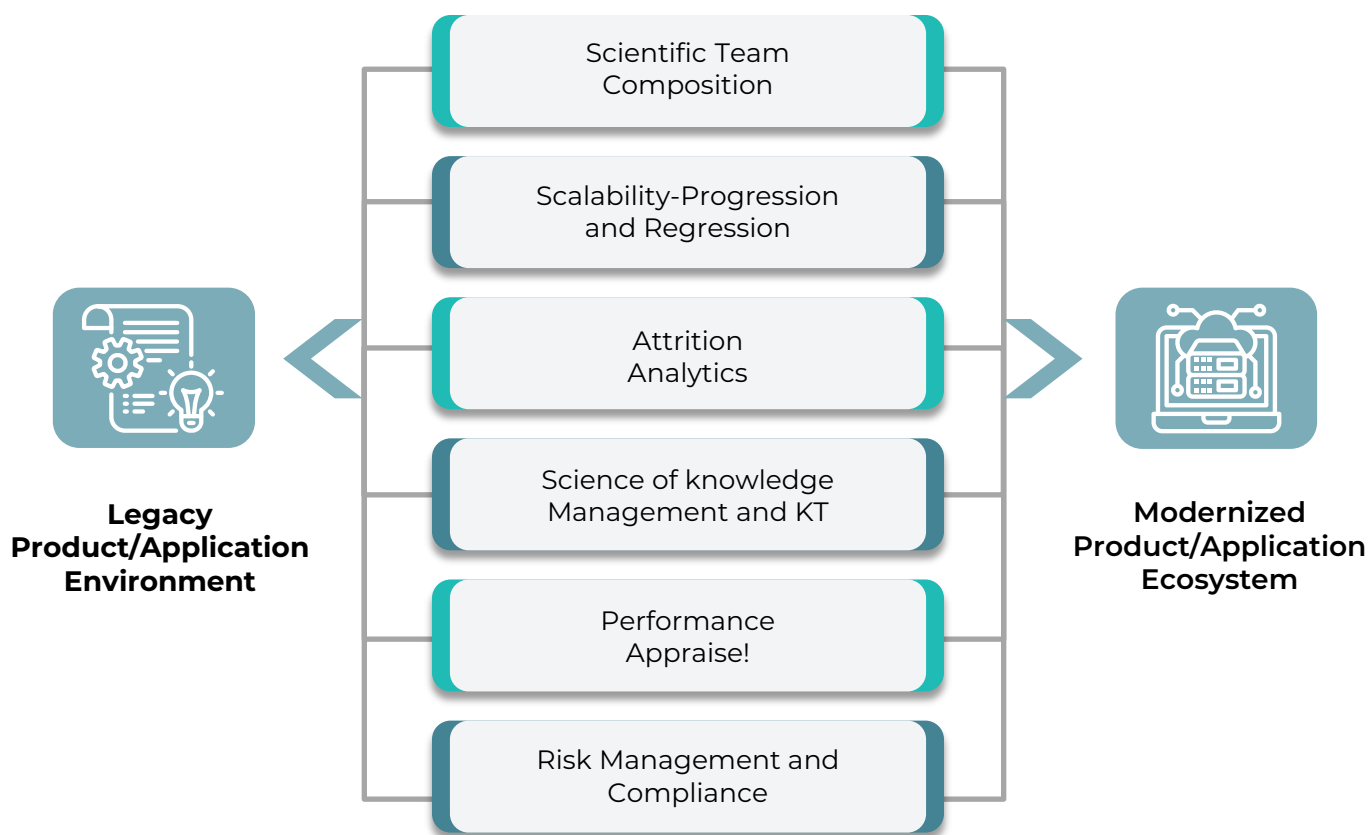
Disruption in Business-As-Usual

The change, migration, integration, and internalization are important factors. A modernization drive affects the running of entire system sets (on-premise or over the cloud) in an otherwise usual way. This may lead to some frustration among stakeholders, customers, and suppliers. The way to address this seamless integration of new systems is to modernize in chunks.



Modern Delivery Science at Work in Product Modernization

There are several approaches in practice to deliver product/application modernization once the vision is laid out and the relevant strategy is chosen. In today's world of digital transformation, a lot has changed – including the delivery science to execute such big impact modernization drives.



Modern and data-driven delivery science recommends innovation in managing the core matters that directly impact modernization goals. These core matters are the ones that drive a project from the very fundamentals of running a successful product/application modernization. Let us look at this delivery science from one more level of depth by applying them to the fundamental challenges in modernization examined in the previous section:



| Sr. | Modernization Challenge | Mitigation through Modern and Data-driven Delivery Science | Impact on Modernization Vision |
|-----|--|--|--|
| 01 | Cost and tenure of the modernization initiative | <ul style="list-style-type: none"> ✓ Deploying the right person for the right job ✓ Data driven project hierarchies ✓ Scalability progression and regression | Prevents cost overrun and time overrun by more than 70% |
| 02 | Talent/Know-how Deficit | <ul style="list-style-type: none"> ✓ Scientific team composition ✓ Predictive attrition analytics ✓ Data-driven knowledge Transfer/management ✓ Scientific performance appraisal | Sharpens the modernization vision and minimizes the progression risk |
| 03 | Co-existence of legacy products with the modernized ones | <ul style="list-style-type: none"> ✓ Stakeholders' dashboard to show strategic and tactical disparities ✓ Predictive analytics with 'what-if' ✓ Data-driven prioritization of DevOps goals | Prevents cost overrun and time overrun by more than 70% |
| 04 | Change inertia amongst the stakeholders | <ul style="list-style-type: none"> ✓ Training dashboards to show program spread based on business priorities ✓ Scientific performance appraisal ✓ Capture and analysis of KPIs for stakeholders' grouse/aspirations | Prevents cost overrun and time overrun by more than 70% |
| 05 | Disruption in ensuring Business-as-usual | <ul style="list-style-type: none"> ✓ Automated risk management and compliance dashboards ✓ Address the system-guided KPIs of different business processes and workflows ✓ Machine Learning and Artificial Intelligence to train the system based on recurrent feedbacks and learnings | Prevents cost overrun and time overrun by more than 70% |

A Case in Point

A North American \$300 Million Independent Software Vendor (ISV) has a flagship product in areas of regulatory compliance. It features compliance with Sarbanes-Oxley Act (SOX) with internal controls embedded on straight out-of-the-box spreadsheets. This brings them compliance with SOX in line with the COSO's Enterprise Risk Management framework.

The forward-looking technology and engineering teams working with this ISV started by looking at the emerging Cloud Computing ecosystem. They aimed to improve the software product's efficiency, while reducing the Total Cost of Ownership (TCO) and the entry barriers for end customers. This would help them become more competitive, increasing the top and bottom lines. Modernization of their entire stack was required to ensure the least business disruption, reducing the change inertia.

A risk-based approach is also assured when delivering cloud-native products over a subscription model. Their Chief Product Officer in mid-2020 decided to partner with a Digital Product Engineering Services company and realize their goals cost-effectively with the right time-to-market. The partner they chose offered a unique blend of Cloud Product Technology Consulting with a scientific data-driven product delivery ecosystem. While the ISV had a choice to select from a list of partners that offered cloud enablement services, the ISV decided to go with the one who not only provides the modernization experience but also presents an inherent value proposition. The partner delivered the product at the right cost and at the right time to market, along with offering them business-linked scalability of resource deployment.



The modernization project was started in late 2020. It began by presenting a consulting-led, technology/platform agnostic, and risk-based approach. Multiple stakeholders from both sides engaged and collaborated for due diligence. They arrived at the right technology stack for modernization, given the partner's ability to work across platforms. Identifying and choosing a platform that was just right for the ISV's priorities was vital.

The project lasted for a few months. And during evaluation in Jan 2022, several findings suggested that the ISV's entire business ecosystem had changed – the product was modernized to a reasonable Cloud Platform. Additionally, the business processes that the ISVs ran to engineer the product became more efficient and effective.

Following are the specific business benefits that the ISV derived from this partnership:

- A complete transformation of the product to a modernized, customer-friendly, and scalable cloud environment was accomplished.
- Cost control with the scientific data-driven product delivery model brought in by the partner was accelerated. This ensured that scalability across the modernization drive was just in time, and had the ability to reverse scale. It also empowers the understanding of how attrition in teams can be good for the company and ensure that the hierarchies are efficient.
- Strategies deployed for modernization and to ensure business success were customized per the environment/industry, i.e., the Regulatory Compliance space. This provided a direct bottom-line impact.

Key Takeaways

