Creating Value with Smart Software Products: Transformation Strategies for ISVs

Abstract

As modern users increasingly demand intelligent capabilities from applications, independent software vendors (ISVs) are embracing analytics and machine learning (ML) algorithms to make their products smarter to stay relevant amid increasing competition. Such a move requires ISVs to transform not only their products but also their organizations. This paper discusses the essential transformation ISVs will need to drive in order to fully realize the potential of analytics and ML in delivering to evolving customer demand.

Putting Data to Work: Driving Better User Experience and Faster Time-to-Market

Software products generate a huge amount of data and the resulting goldmine of insights can be used to offer contextual recommendations to enhance user experience. Multiple internal and external data sources exist around software products (see Figure 1).

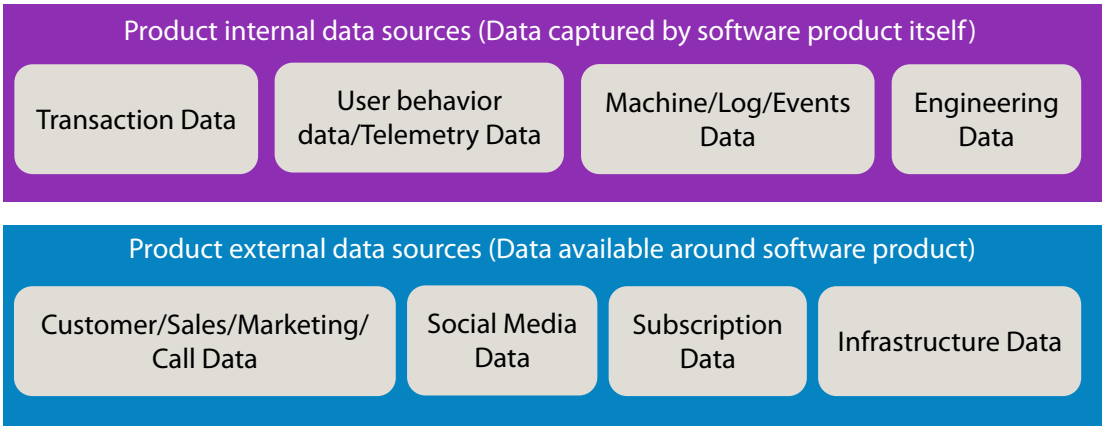

Figure1: Different sources of data available to ISVs

Product users and product functional teams such as engineering, support, sales, and marketing can benefit from the abundance of data.

Product users are the most important stakeholders in the ecosystem, and user experience directly impacts product revenue. Effective data analysis can improve user experience by:

- Smartly reorganizing UI based on the user's past behavior
- Providing smart recommendations to the user based on predicted future behavior
- Enabling self-healing capabilities for the product

Similarly, the data can help product functional teams develop the right strategy, positively impacting time-to-market and product quality. Analyzing the data can reveal several correlations for superior decision-making by helping functional teams:

- Accurately predict potential failures or issues in the product
- Understand the co-relation between number of bugs or issues in the product with churn rate
- Understand whether module placements, design elements, and flow have any impact on conversion rate

- Understand the impact of multiple factors like bugs or issues, design elements, and new feature release on market sentiment

The result: ability to positively impact churn rate, conversion rate, and time-to-market.

Transformation Strategies for Developing Smart Software Products

Implementing data analytics to help ISVs drive value is not without its share of challenges. The varied data sources are typically owned by different departments and exist in siloes across the organization, or sometimes even with partner companies. Integrating such scattered data poses several hindrances such as the need to invest in skilled resources and technologies, in turn driving costs up.

Here are some transformation strategies that can help ISVs address these challenges.

Transforming a software product into an analytics-driven smart product requires ISVs to drive change across three critical aspects:

Transforming the software product architecture

Many of the existing product architectures were conceived prior to the advent of ML and analytics algorithms, and are incapable of supporting these emerging technologies. Figure 2 highlights one way to build such a capability - wherein analytics-driven smart product architecture leverages an analytics engine and self-service visualization – to enhance user experience, data management, and data security.

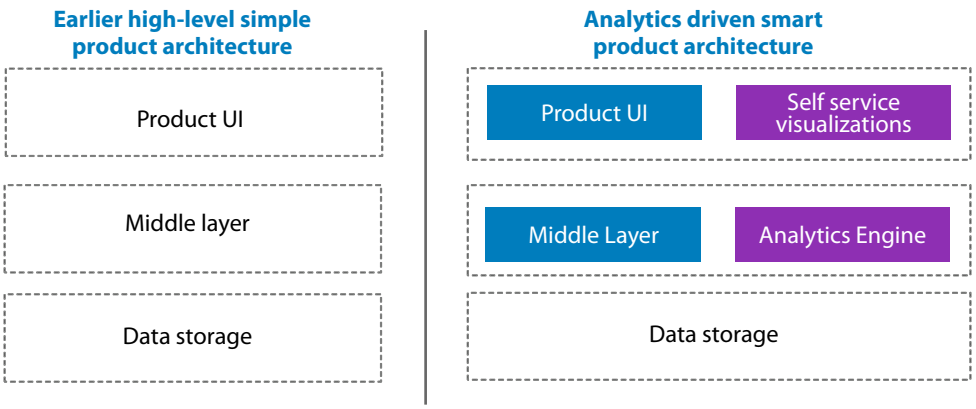

Figure 2: Simple product architectures vs. smart product architecture

User Experience

The analytics-driven architecture can help ISVs drastically change user experience by providing smart and relevant visualizations as well as recommendations that guide users in performing further actions. Product analytics helps ISVs improve performance based on usage patterns such as personalized flow and role-based caching rather than generic Least Recently Used (LRU) algorithms or other algorithms. Powered by product feature, usage and failure pattern analysis, ISVs can completely reimagine UX by better understanding user needs, and enabling auto-improvements and adaptive UI. In addition, they can improve simplicity, proactively predict failures, and avert security threats. The outcome: ISVs can create products that are smart enough to self-learn and make decisions without human intervention. For example, products will move from offering simplified usage to user-centric simplification. If products today are assisting in decision-making and self-healing, going forward, they may start making better, informed decisions and proactively take actions to prevent failures.

Data Management

Creating centralized data lakes and deploying the analytics platform on top of that can help ISVs consolidate data scattered across platforms, departments, and verticals.

Data Security

While enterprises are collecting large amounts of data for consumption across multiple devices, security threats are also increasing proportionately. Big Data analytics enables distributed storage and processing of the data on commodity hardware, significantly enhancing security threats.

Restructuring the product organization

One way to maximize the benefits of data analytics is to create separate organization level data divisions to focus on the following activities:

- Collate all data that is generated and identify the value or insights that can be drawn from such data
- Identify new data that needs to be collected, stored, and analyzed to solve specific business problems
- Guide engineering teams to architect the analytics-driven features in the products

The new data divisions must ideally be supported by new roles based on the needs of the organization such the chief data officer, data architects, data scientists, data curators, and data security experts.

To create synergies between different divisions of the organization while adopting data-centric operations transformation, each of the roles must be part of different teams such as product, IT, sales, and marketing. These roles can help channelize unified analytics approach and data architecture across the organization. However, solving problems at each department must be led by an identical approach – one of identifying the problem and applying analytics to come up with best-fit solutions.

Imbibing data analytics driven engineering culture

Creating an agile culture underpinned by unified analytics requires organizations to bring together key insights across various functions such as sales, operations, product management, and product engineering to drive faster time-to-market and higher quality products.

The blue print shown in Figure 3 depicts various stages in the product engineering life cycle where data can be captured for relevant analytics. It also depicts how insights generated at various stages can be ingrained in the engineering lifecycle for better outcomes. For example, error log data generated at production can be analyzed for automated problem classification, which can help resolve issues faster and improve overall time-to-market.

Analytics Driven Product Engineering Blue Print

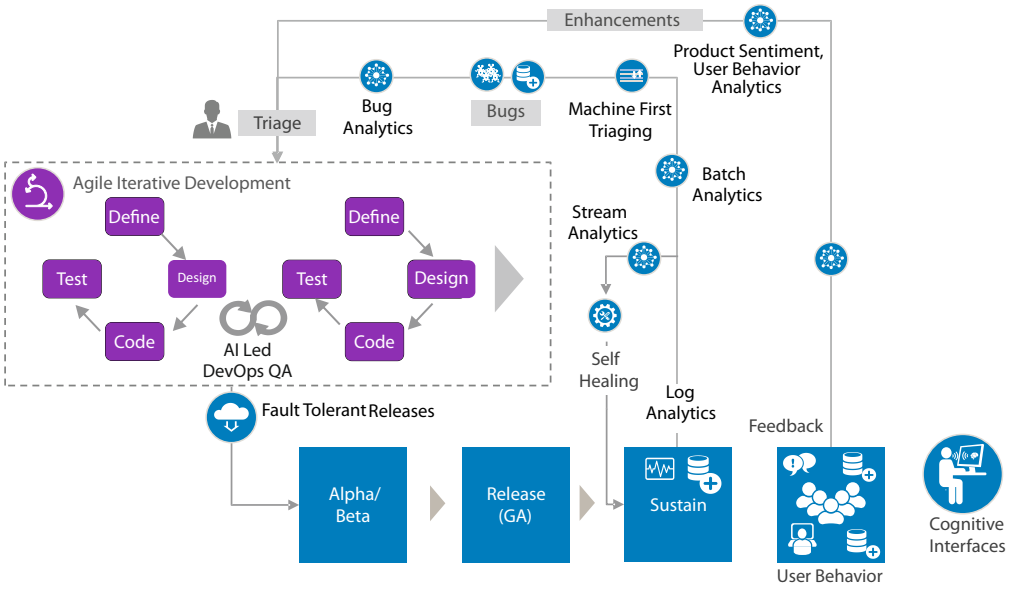

Figure 3: Analytics-driven product engineering cycle

Separating Winners from the Rest

Going forward, software products will extensively leverage AI and ML capabilities that will enable ISVs to create the high performance, smart applications that modern customers demand. AI-enabled products will reduce the need for human intervention with their self-decisioning capabilities, creating a superior user experience while reducing costs and the overall IT footprint for business users. ISVs that actively infuse a data-driven culture across the organization and allow it to percolate further into their products and services will emerge as winners.

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