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KnightMotives Automotive Case Study

Company Overview

KnightMotives is a car manufacturer specializing in autonomous, self-driving vehicles, including Battery Electric Vehicles (BEVs), hybrids, and traditional internal combustion engine (ICE) vehicles. While KnightMotives has made strides with the in-vehicle experience in their BEV fleet, the hybrid and ICE vehicles have yet to implement these new systems and are viewed poorly by critics and drivers. The lack of modern in-vehicle technology in hybrid and ICE vehicles has resulted in declining sales and customer satisfaction.

KnightMotives wants to modernize the consumer experience across all vehicles within five years. Artificial Intelligence offers a unique opportunity to revolutionize the in-vehicle experience, as well as the shopping, buying, and service/maintenance experience. Investment in this new technology will require a shift in financial priorities on a global scale.

KnightMotives also wants to improve their online ordering system, which is unreliable. Systems for customers to build their vehicle online for acquisition through a dealer are not delivering the data or reliability that dealers need, causing. a strain in the relationship between KnightMotives and dealers. Service technicians and sales staff need better tooling to enhance dealer successes, including built-to-order vehicles.

Solution Concept

KnightMotives wants to shift from manufacturing cars to creating a complete and compelling "automotive experience." Their strategy prioritizes delivering a consistent experience across all models, developing AI-powered features, generating new revenue from data monetization, adopting a digital focus to differentiate their brand from competitors, and developing better tools for mechanics and salespeople.

Existing Technical Environment

KnightMotives's IT is largely on-premises with some applications on major cloud platforms. Their supply chain runs on an outdated mainframe, and Enterprise Resource Planning (ERP) is also outdated, making new promotions and dealer discounts difficult to implement. Dealers have no budget for new equipment. There is fragmentation across vehicles with multiple code bases, and significant technical debt from supporting backwards compatibility. Network connectivity to manufacturing plants and vehicle connectivity in rural areas are challenges.

Business Requirements

Key business requirements include fostering a personalized relationship with the driver and delivering a cohesive experience across all models. Creating a better build-to-order model will reduce time on the lot and provide transparency for both dealers and customers. Additionally, KnightMotives seeks to monetize corporate data to finance new technology investments, as their current AI infrastructure is obsolete and corporate data remains siloed. Security is a paramount concern due to past data breaches. Adherence to European Union (EU) data protection regulations, especially for emerging autonomous platforms, is critical.

KnightMotives plans to make significant investments in fully autonomous driving capabilities, with initial implementation targeting regions with favorable regulatory environments. Prioritizing employee upskilling, attracting top-tier talent, and fostering better communication between business and technical teams are also critical objectives.

Technical Requirements

- **Modernizing the in-vehicle experience** includes developing a consistent user experience (UX) that seamlessly integrates AI-powered features across all models, updating in-vehicle hardware and software in legacy models to support new UX features and AI capabilities, and ensuring reliable network connectivity, especially in rural areas, to support real-time AI features and data transmission.
- **Network upgrades** are necessary to support increased data traffic and improve connectivity between plants and headquarters.
- **IT infrastructure modernization** requires adopting a hybrid cloud strategy to leverage the benefits of both on-premises and cloud infrastructure, and gradually modernizing or replacing legacy systems to improve efficiency and agility.

- **Autonomous vehicle development and testing** requires investing in cutting-edge AI and machine learning technologies, building a robust simulation environment, and ensuring compliance with evolving regulations related to autonomous vehicles.
- **Data monetization and insights** requires implementing a robust data management platform, strict data security and privacy measures, and a scalable AI/ML infrastructure.
- **Increased focus on security and risk management** involves implementing a comprehensive security framework to protect against cyber threats and data breaches, developing an incident response plan, and providing security awareness training to employees.
- **Providing a delightful experience for dealers and customers** requires improving the online build-to-order system; developing modern dealer tools to streamline dealer operations, including sales, service, and inventory management; and implementing a comprehensive Customer Relationship Management (CRM) system to track customer interactions, personalize experiences, and improve customer satisfaction.

Executive Statement

"KnightMotives is committed to enhancing safety and saving lives by leveraging an extensive body of data—encompassing driving, road conditions, behavioral studies, and crash safety statistics—to create compelling digital experiences for drivers. Our AI consistently outperforms national safety statistics, ensuring the unique and coveted KnightMotives experience is aligned across all our vehicle models."

Michael Knight, KnightMotives CEO