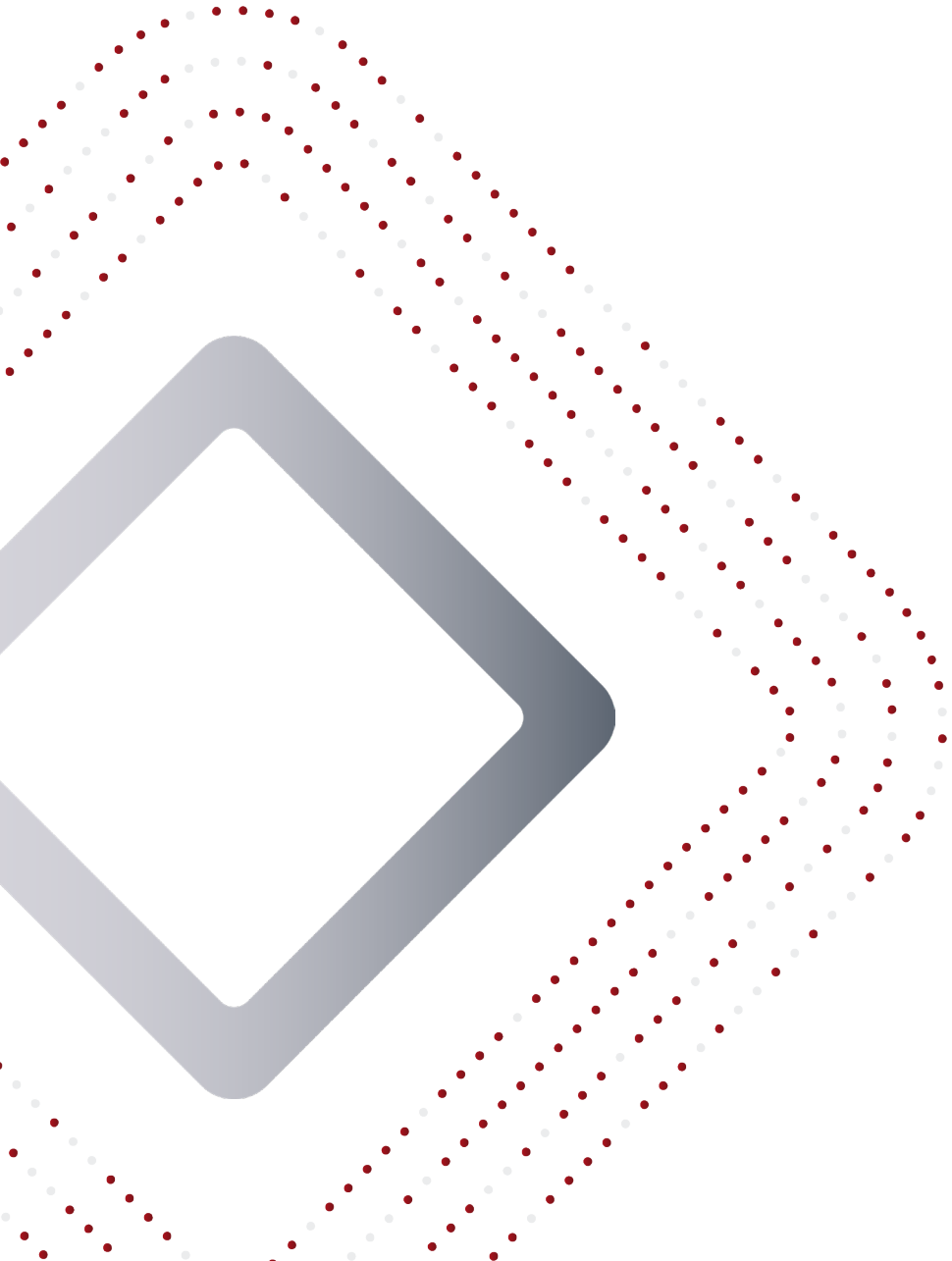
ANDREWS COOPER

Navigating the Product Development Life Cycle

BOOK 3 OF 5

ENGINEERING VALIDATION

TECH TALKS™ EBOOK SERIES



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Building a Solid Foundation for Valve's Virtual Reality Product Vision

In this series, we highlight the PD engineering journey to describe how integrating our engineering services with Valve Corporation helped them realize their vision to innovate VR gaming hardware to launch the Valve Index VR system. Through this eBook series on Navigating the Product Development Life Cycle, we explore the progression of the interdependent stages that underpin end-to-end engineering success.

Image Credit: Valve Corporation

ANDREWS COOPER

Andrews Cooper (AC) excels at advanced engineering for emerging technologies, specializing in Research & Development, Product Development, Hardware Testing, and Manufacturing Automation. We cater to ambitious, tech-focused companies seeking to innovate and lead their industries. With expertise in multiple engineering disciplines, our engineers function as force multipliers, propelling the development of HardTech solutions. With a focus on rapid development using proven methodologies, we de-risk the development process and integrate validation and testing to ensure high-quality, manufacturable products.

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VALVE

Valve Corporation first turned to AC's Integrated Engineering Teams (IETs) for R&D support with gaming systems and controllers. To innovate in the highly competitive and evolving VR gaming market, Valve needed a partner capable of de-risking and developing core technologies. AC provided comprehensive engineering solutions necessary for the successful development and launch of its Index VR system.

Looking for a snapshot of our Product Development services? Watch our 1-Minute Video.

ENGINEERING VALIDATION:

Turning Vision into Reality with Completed Prototypes & Testing

Engineering validation (EV) is a pivotal stage in the product development lifecycle, where fully functional prototypes are completed and tested. Our client's vision is engineered into a testable prototype during this stage, including validating manufacturing and supply chain readiness. For Valve Corporation, this phase was crucial for validating the integration and performance of complex VR hardware and software systems. Collaborating with AC allowed Valve to leverage our expertise in thorough testing and validation processes.

1 | Completing fully functional prototypes

Completing a fully functional prototype is essential to verify that the product design can be manufactured and perform as expected. AC's engineering teams worked closely with Valve to develop prototypes incorporating all the intended features and components. Functional prototypes are required for use in rigorous testing throughout the engineering validation stage.

OBJECTIVE: Fully functional prototypes completed for engineering testing.

HMD Flexible Circuits & Sensors (top)
HMD Sensor Accuracy Validation Testing (bottom)

2 | Validating product performance

Performance validation is critical to ensure that the product meets user expectations and technical specifications. AC conducted comprehensive tests on the VR hardware to evaluate factors such as visual clarity, sensor accuracy, and user comfort. For Valve, this stage involved iterative testing and refinement to achieve the optimal balance of performance and usability.

OBJECTIVE: Components tested to performance specifications.

3 | Validating product feasibility

Feasibility validation involves rigorous testing to ensure prototypes meet the defined requirements. AC conducts extensive tests on prototypes to evaluate performance, durability, and user experience (UX). For Valve, this meant ensuring their VR hardware could deliver high-resolution visuals, precise motion tracking, and comfortable ergonomics. This phase confirms that a product can be realized within the constraints of current technology and manufacturing capabilities.

OBJECTIVE: Functional prototypes tested for overall performance, durability, and user interaction.

4 | Establishing baseline for supply chain and quality

A robust supply chain and quality control process are essential for scaling production. AC worked with Valve to establish a baseline for the supply chain, identifying key suppliers and setting quality standards for components and assemblies. This groundwork ensures that the production process is efficient and capable of delivering high-quality products consistently.

OBJECTIVE: Material supply and quality baselines defined for production.

The purpose of engineering validation testing is to ensure fully functional and manufacturable prototypes.

"A robust supply chain and quality control process are essential for scaling production.

This groundwork ensures that the production process is efficient and capable of delivering high-quality products consistently."

5 | Defining product launch plan

A well-defined product launch plan is critical for a successful market entry. AC collaborated with Valve to develop a comprehensive launch strategy that included sales, marketing, and finance plans. This strategy outlined the steps needed to bring the VR hardware to market, from initial production runs to full-scale manufacturing and distribution.

OBJECTIVE: Comprehensive strategy defined for smooth product launch, from production to market.

Groundbreaking Innovation Through Advanced Product Engineering

Navigating the product development life cycle is a multifaceted process that requires strategic planning, technical expertise, and a collaborative approach. Our experience with Valve Corporation and other game-changing developers enables us to rapidly integrate advanced engineering services at each product development stage, leading to groundbreaking innovation, premium quality, scalable supply chain management, and seamless contract manufacturing for a successful product launch.

Our engineering team can support your product from concept to production or at any stage in your development journey. Looking for more in this journey? Read about the next stage of the product development life cycle in our series, Stage 4: Design Validation.

Regardless of where you are in your product lifecycle, improve your speed to market with AC's engineering teams in Research & Development, Product Development, Hardware Testing, and Manufacturing Automation.

Let us know how can we support your current needs and solve your ambitious challenges.

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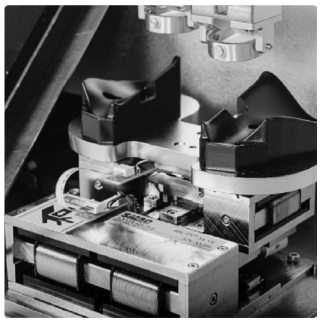
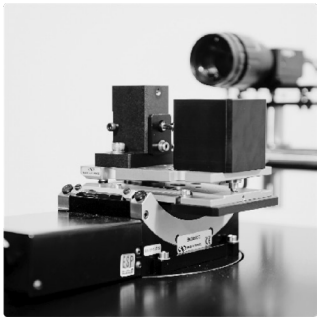
R&D Accelerator



Product Development

Hardware Testing



Manufacturing Automation

Integrated Engineering Teams

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