

## Value Genesis: Video-Voice-of-the-Customer™ Drives World Platform Architecture

**Client:** A Global 1000 leader in industrial process equipment.

**Challenge:** The client had multiple established lines of industrial process systems used in parallel applications, independently developed in Europe and North America. The products served multiple industry segments, dominantly in Europe and North America, and were often customized both by segment and geographic region. The client had acceptable margin performance in its established markets, but was feeling intense price pressure as it attempted to expand into emerging markets in Asia, Latin America and Eastern Europe.

Product Genesis was brought in to evaluate and plan a Voice-of-the-Customer-driven, platform-based, next-generation product strategy. Goals included dramatic cost reduction and increased flexibility to meet evolving market demands.

**Diagnosis:** The client thought they had a good understanding of the market requirements for their products. Product teams in Europe and North America did understand their local markets. However, little understanding was available on emerging market needs in Asia, Latin America and Eastern Europe.

Because of perceived market differences between Europe and North America, product teams had developed separate, incompatible architectures for these markets. Each unique architecture was the basis for 5-7 loosely related base products for each geography and dozens of incompatible, configurable options for specific industry segments. Most configuration options had to be factory installed, often early in the manufacturing process.

The 12 base products could only be manufactured and configured in their factory of origin in Europe or North America. The architectures were poorly optimized for manufacturability; cycle times for “standard” configurations were averaging 4 weeks. Customized configurations could add 4-8 additional weeks to the cycle time. Manufacturing inefficiencies led to unacceptable gross margins around 48% on shipments to Europe or North America, and less than 35% on

competitively priced shipments to Asia and other emerging markets.

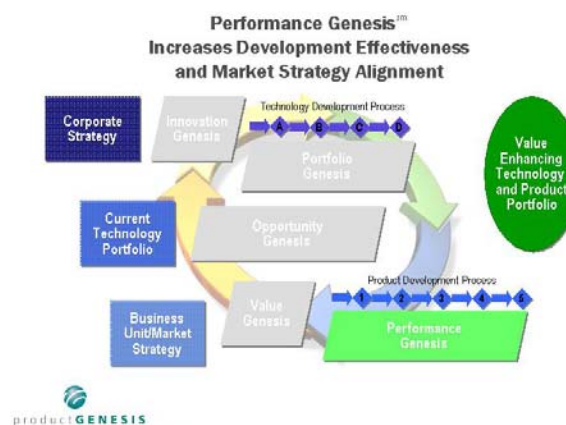
The world platform architecture planning was divided into two phases. Phase One focused on capturing Voice-of-the-Customer data from around the world, and translating this data into clear platform requirements. Phase Two focused on platform architecture definition to allow the core product requirements to be achieved with a single world platform, and flexible configuration options, many of which could be accomplished by local partners for regional markets.

**Methodology:** The Value Genesis framework is a modular set of tools that can be implemented based upon client needs. In this case, the client required an in-depth Video-Voice-of-the-Customer™ analysis to understand the core customer requirements, and regional and industry segment variations required to delight current and future customers. From a clear understanding of the customer requirements, a world platform architecture could be accomplished both from a complexity standpoint (improving manufacturing efficiencies and cost) and from a variation standpoint (to flexibly achieve the variety of market requirements).

In Phase One, starting with the client’s strategic goal of building a single, flexible, highly profitable world platform, Product Genesis analyzed the market dynamics and competitive business environment. This led to a rethinking of the focus for customer requirements gathering. The client had been focused on Europe and North America, but the trends and dynamics pointed to future business growth all coming from Asia, Latin America and Eastern Europe, and stagnation or even decline in Europe and North America.

Building on the client’s understanding of the core market requirements for Europe and North America, Product Genesis developed a

Video-Voice-of-the-Customer™ protocol that filled in gaps in understanding about the emerging markets in Asia, Latin America and Eastern Europe. The protocol included interviews and site visits that spanned all geographies and all major industry segments served by the client (pharmaceuticals, food and beverage, forest products, bulk materials, plastics and adhesives). The protocol also included in-depth interviews with OEM partners,



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who integrated the client's products into larger systems for installation worldwide.

The results from these interviews and site visits were processed through a KJ Analysis, and industry segment/region specific new, unique and difficult requirements were segmented from requirements that were core to all product applications and regions. The core requirements became the basis of a Design for Six Sigma (DFSS) platform architecture definition; the new unique and difficult requirements became the basis of flexible configuration options to be applied in final manufacturing upon the base platform.

Cluster analysis techniques were applied to the market requirements, and re-segmentation allowed the definition of a single world platform. Additional industry-specific and regional requirements were re-segmented into configuration clusters with sufficient demand to become part of the world architecture definition.

In Phase Two, Product Genesis started with an in-depth review of the client's development capabilities in Europe and North America. Unique capabilities were identified in each team, which could be exploited during platform architecture definition and subsequent system development. Critical capabilities that were lacking in the team (software architecture for open standards) were supplemented with a development partner in Asia.

For the platform architecture, further exploration of the cluster analysis identified that the 12 base products could be rationalized to two new products that would meet the core requirements for 80% of the market. This was accomplished by radically reapportioning the system architecture, eliminating a major, costly subsystem. In addition, the reapportioned architecture accommodated the creation of industry segment specific products with unique delighter characteristics for each segment. Four industry specific product variations were included in the architecture definition. The remaining 20% of the market requirements were achieved through four flexible configuration options, which could be added on during product installation.

The architecture reapportionment included allowances for risk and uncertainty in the market requirements and cost/value tolerance of customers. Two subsystems were modularized due to these risks and uncertainties. A communications subsystem was left as an industry standard, flexible module, because of lack of standardization for communications protocols. A power supply subsystem, that had been a warranty and service challenge in previous product generations, was isolated in an easily serviceable location to allow two optional configurations – a cost effective option that required preventative maintenance, and a high-cost option that

offered high reliability and uptime guarantees for a specific industry segment.

The new base platform and configuration options were optimized for manufacturability. Core functionality for the platform was highly integrated to minimize manufacturing operations and cost. Four "smart" subsystem modules were defined, each capable of independent self-test as a stand alone assembly. Integrated unibody designs using advanced injection molded magnesium housings with integrated frames and supports eliminated secondary machining and assembly operations. Self-aligning, snap-in-place interfaces sped final assembly operations.

Variations among the two new base products and four industry segment specific versions were accomplished in a single personality module and external features, applied in the final assembly step. Final assembly was so simple that the product was kitted for local, in-country final assembly. Some content could also be locally sourced to meet local content requirements. Final self-testing was automatic upon installation of the personality module and system power-on.

The Phase One Video-Voice-of-the-Customer™ analysis, and Phase Two platform definition and development, including manufacturing scale up were accomplished in 12 months. All six product variations, two base and four industry-specific versions, along with the four on-site configuration options were simultaneously launched, all based on the single world platform.

**Results:** The Video-Voice-of-the-Customer™ world platform architecture delighted customers throughout the client's regional, industry segment and OEM markets.

- Industry-specific versions led to double-digit growth in targeted industries.
- Pricing flexibility, on-demand, in-country final assembly option and on-site configuration led to explosive growth in Asia, Latin America and Eastern Europe.
- Extremely cost effective OEM version led to doubling of sales in OEM partner channels.
- Cost of Goods were reduced by more than 40%; product line profitability grew to more than 25%.

Performance Genesis took two successful, but under-performing product lines, and reinvented them on a single world platform. Not only did the platform architecture approach to the next generation product line secure manufacturing adaptability, cost reductions and pricing flexibility, it delighted customers and channel partners throughout the world.