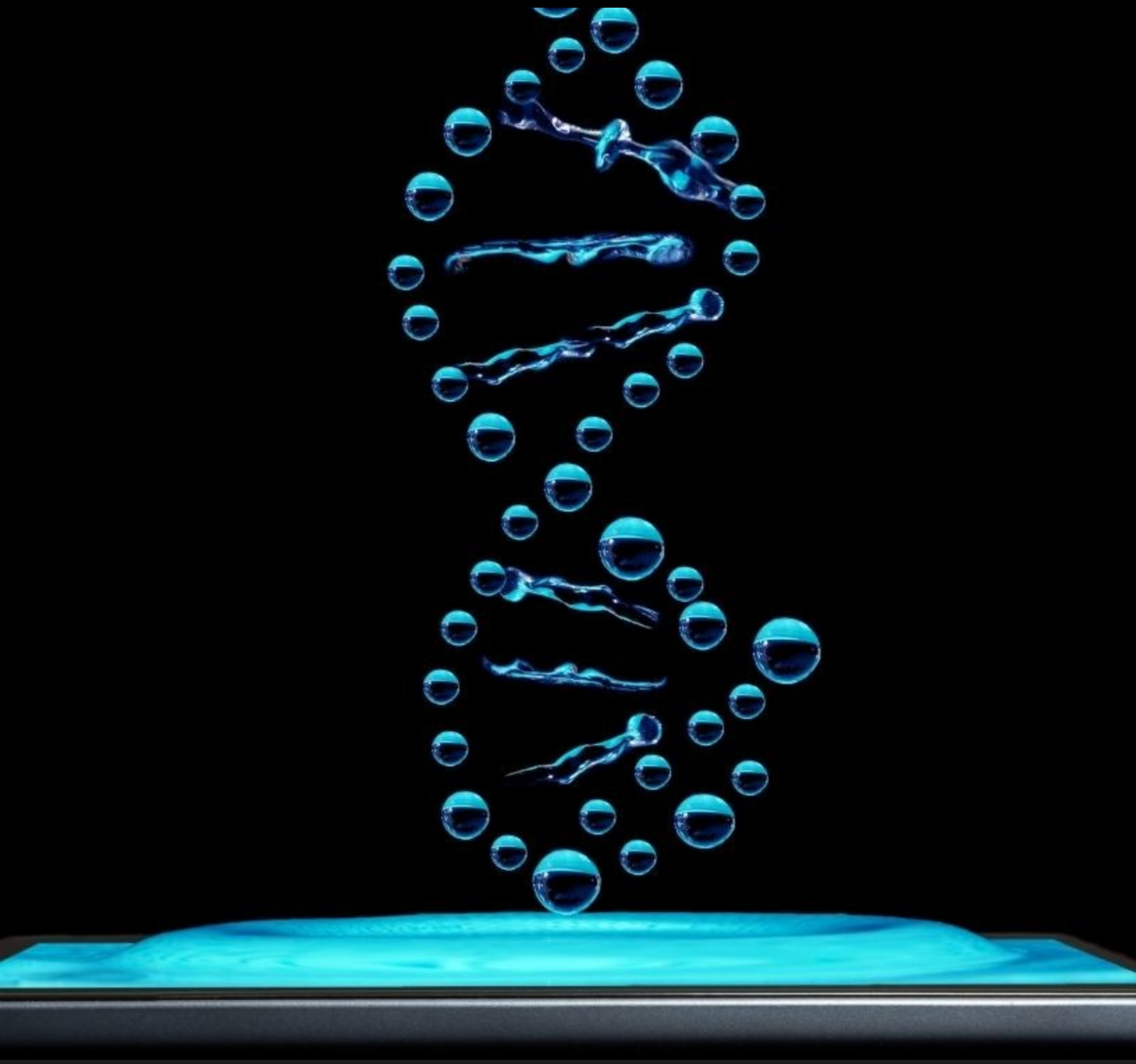
[x]Scion

Product Genome



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The Need for a Newer Approach to Product Management

The disruption brought on by the global pandemic highlights the need for new approaches to Product Development. Rapid, urgent development of innovative products that fully meet emerging needs of users is required to mitigate an initial disruption, position organizations to successfully navigate uncertainty, and optimally prepare for the eventual recovery.

Enterprises everywhere collectively spend billions of dollars developing new products. We know that many initiatives fail for several reasons. There are rigid Project Management structures with a focus on cost, time and hardwire scope where metrics measure time and cost rather than business outcomes. There are communication gaps across multiple silos within enterprises and inflexible processes that are deeply entrenched with no feedback loops. As a result, teams end up building the wrong products or products that fail to optimally meet customer needs. Often products do solve customer needs to an extent, but they are too complex to use. In our experience with larger B2B enterprises, we often come across products that were decommissioned due to poor user experience and usability issues.

The Bottomline Impact

$ 15 Million Average cost of launching a new product.
-Forbes Magazine

95% New products fail.
-Harvard Business School's Clayton Christensen

42% Small businesses failed because the product launched didn't address a valid customer problem.
-A sampling by CBI Insights

Disconnect Between Activity and Customer Needs/Business Outcomes

Often, we find enterprises lack a holistic Product Strategy. Teams are in motion, but they aren't going anywhere. For example, teams can be focused on outputs like how many features they release or how many products they deliver, but products alone don't have inherent value. Products are only valuable to the extent that they meet customer needs. Without a Product Blueprint anchored in a clearly defined business outcome and based on meeting customer needs, teams can spend time and money busily spinning their wheels while failing to make progress in pursuit of a sound, business objective.

Rigid Project Management Approach

Project Management approaches work well for the clearly defined execution and delivery of rigidly specified output. Think of constructing a house. The steps are clear and sequential; prepare the site, pour the foundation, complete the framing, install rough HVAC and plumbing, etc. The execution follows a blueprint that is finalized before construction starts and the objective is to complete the project on time and under budget. While a Project Management approach works well in contexts that have a clearly defined and rigid scope like building a house, it can lead to problems when applied to digital transformation initiatives.

Large enterprises can end up devoting resources to building products that do not meet the needs of users or successfully deliver business value. How does this happen? Budgets are allotted to teams to meet clearly defined delivery objectives, but often the objectives are not validated, little-to-no customer or market research is done and there are no feedback loops. The delivery requirements are met but the product does not meet a need. Money and resources are wasted and opportunities are missed.

Sales-led or Technology-led Product Development

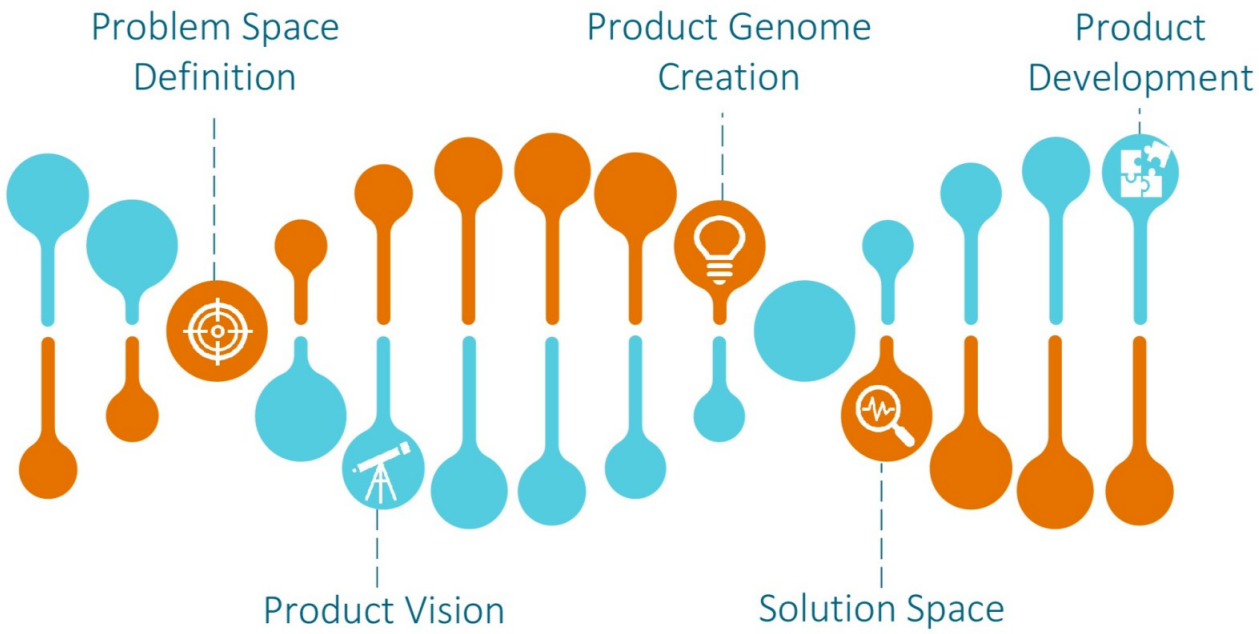
When Product Development efforts are Sales-led or Technology-led rather than Product-led, it is common to end up with a product that isn't a good fit for end users. The Sales Team might sell something that has yet to be developed and then enter into a contractual agreement that promises delivery with the business constraint of delivering at a cost that ensures profitability but ignores the customer or user perspective. Likewise, technological capability might lead to the development of a product that utilizes the latest and best developments in technology but doesn't effectively meet user needs or brings complexity that detracts from the user experience.

The common pitfall in Sales-led and Technology-led approaches that lead to inapt products is that the products are pre-defined with little input and feedback from customers. These inapt products highlight the need for a Customer-led Product approach that focuses first on understanding user needs and then developing products that uniquely meet their needs.

Product Genome

Product Genome is xScion's holistic approach that views Product Management in a structured way with a focus on defining the customer problem space. It is a blueprint of a product's value that provides a clear understanding of the problem a product addresses with a focus on discovering customer needs. The systematic approach and customer focus ensure that the most useful product is built in the most predictable and responsive manner, reducing time-to-value. Like de novo genes in nature, the Product Genome approach provides flexibility to incorporate emerging customer needs and adapt to changes arising from dynamic competitive, market and customer environments.

We believe that for digital initiatives, transformations and products, organizations should comprehensively identify customer needs and problems before jumping too quickly to solutions. Product Genome defines the problem space by continuously exploring and discovering customer needs so that the apt product yielding the highest value can be delivered.



Why Product "Genome"?

For the Product Genome, the coded DNA is what defines its customer-centricity and infrastructure. The uncoded DNA housed within the Product Genome's customer-centricity and infrastructure allows Product Managers to draw from industry-wide best practices and frameworks customized for a given situation. The Product Genome doesn't rely on any single framework, but rather takes an integrative approach drawing from existing frameworks and methodologies such as Design Thinking, Lean, Six-Sigma, DevOps, Scrum, SAFe, Kanban and Test-Driven Development. It then defines the customer problem space by exploring and discovering customer needs to ultimately deliver high value products that solve customer problems.

The Product Genome provides both the structure and the space to effectively understand customer problems, the business and information context, as well as the flexibility to use the best and most applicable practices and frameworks to explore and develop new solutions. This pragmatic and broader approach not only ensures that optimal products are developed, but it also streamlines Product Development, reduces go-to-market time and delivers value quickly.

Delivering value often, early and iteratively is a critical aspect of Product Driven Development. This is a paradigm shift away from the notion of big bang deliveries with inadequate feedback loops. Building in iterations gives multiple opportunities to improve products while achieving better output rates. Delivering in smaller increments also significantly reduces costs and mitigates risks.

A genome is an organism's DNA that contains the genetic information needed to build and maintain the organism. The genome has structure, redundancy and plasticity that make it a dynamic system. The DNA in a genome is both coded and uncoded. The coded DNA carries detailed instructions that define what an organism is and tells it how to grow and function over time. The uncoded DNA, which makes up roughly 90% of the total DNA, is more of a mystery. In recent years evidence has emerged indicating there are genes in waiting, called de novo genes, that give organisms the capacity to solve new problems. The genome can adapt to survive and flourish in changing environmental conditions.

The potential use cases for the Product Genome are as broad as the dictionary definitions of the word "product" itself. Some examples include enterprise automation, business process management implementations (using tools like Pega, Appian or Salesforce), enterprise application development (to support e-commerce or health payer claims systems), platform implementations and even migrations to AWS or Azure Clouds. You can think of products that help enterprises improve processes, manage and leverage their data or automate customer interactions. Any adoption or integration of new technology, tools or processes can benefit from the Product Genome approach.

Example: Genome Effects on the Atlantic Cod's Survival

Ocean temperatures in the Arctic get too cold for most fish to survive, but the Atlantic cod has a protein in its blood and tissue that binds to tiny ice crystals and keeps them from growing, allowing the Atlantic cod to survive in the cold (Nature). For years, biologists presumed that all genes evolved from existing genes, but through their study of the Atlantic cod, independent researchers from both the University of Oslo and the University of Illinois found evidence to suggest that the genetic adaptation arose from the uncoded DNA in the cod's genome. The Atlantic cod genome provides the genetic structure and redundancy that allows it to function and grow, but it also provides unstructured and undefined genetic material that can develop into useful, often crucial, adaptations in response to changes in the natural environment.

The structure, redundancy and plasticity of the genome that allow the Atlantic cod to thrive in its unique environment are what the Product Genome recreates for enterprises. Product Genome represents a systematic and disciplined approach that provides structure, a culture of collaboration between cross functional teams for redundancy and customer-centricity with constant feedback loops for plasticity. Like the genome in nature provides a blueprint for an organism while responding to changes in the environment, the Product Genome provides a blueprint for a product while being fully responsive to emergent customer needs and changing competitive environments.

Unlocking the Inherent Value of Products

Value Delivery is not a linear process, but a complex network of teams, functions and activities that need to be aligned to and driven by products. The five core pillars of Product Value Delivery start from the first engagement with the customer and continue to the ultimate Product Delivery.

1: Customer-Centric Approach

As a discipline, Product Management is broad and leverages many practices, but the true benefit is derived from its customer-centricity. A customer-centric approach starts with a focus on the customer from the earliest stages of planning and continues throughout the process. With a Product Mindset, everything is centered on the customer, researching their challenges, understanding their problems and then utilizing various practices like Design Thinking or Empathy Mapping to best meet customer needs. The approach ensures products are built that are truly useful and solve a specific customer problem.

The whole idea behind having a Product Management function is to instill a customer-centric approach that empathizes with customer needs, issues and problems. The key here is to listen to customers so the apt product gets built. Customer feedback loops enable continuous improvements in products and make them more usable.

2: Product Frame of Mind

A Product Frame of Mind is characterized by a focus on customer needs and business outcomes rather than output. It is important to start by analyzing and clearly defining the problem space before developing the solutions. Engage customers to create personas and apply brainstorming techniques to start defining the problem space. Then refine the problem statement using Customer Journey Maps and Empathy Maps.

Turn intuitions and insights gained through the customer engagement and problem space definition process into hypotheses to evaluate specific product features and the user experience. Challenge ideas and assumptions throughout, be creative and develop Lean Roadmaps geared toward successful business outcomes.

3: Iterative Value Delivery

Delivering value often, early and iteratively is a critical aspect of Product Driven Development. Iterative Value Delivery is a paradigm shift away from the notion of big bang deliveries with no feedback loops. Building in iterations provides multiple opportunities to improve the product and achieve better output rates. Delivering in smaller increments helps reduce costs and mitigates the risk of devoting time and resources to the wrong product.

Teams work in short, incremental microjourneys where each iterative step delivers a usable product. The first step delivers a Minimum Viable Product (MVP) to the customers who then provide feedback, establishing a continuous feedback loop that is the basis for Product Development. By working in this manner, teams deliver value iteratively, delivering an improved, fully functional product with each iteration.

By taking an Iterative Value Delivery approach, teams deliver initial value to users more rapidly followed up with continuous improvements at each stage. The feedback loop between customers and developers is shortened so that each subsequent release incorporates feedback from the previous steps.

Iterative Value Delivery gives organizations more flexibility in reacting to shifts in the competitive landscape. If the environment shifts to the point that the product is no longer a good fit, organizations can respond with readjustments or even cancel the product to avoid investing further resources going down dead ends.

4: Lean Roadmaps

A Lean Roadmap is an outcome-based guiding document that lays out and articulates the strategy for how to achieve the envisioned outcome. It points the way toward the outcome but doesn't prescribe what (the proposed product), how (the specific route) or when (a timetable).

The Lean Roadmap is a strategic communication tool that serves as a statement of intent and direction for the product. From the start, the roadmap is created collaboratively with the Product Teams, which facilitates buy-in and provides a coherent unifying story that unites the different functions working separately on various tasks. The outcome, which is what drives the Lean Roadmap, is identified in the initial stages of the product journey through the exploration of the customer and their needs. Outcomes should be framed in a measurable way to assess how well they are achieved.

Generally, to evaluate success, the question, "what is measurably different for the user because of this product?" needs to be answered. With the outcome set, a Lean Roadmap provides flexibility and responsiveness due to the iterative value delivery approach and its continuous feedback loops. The Lean Roadmap provides the best approach to efficiently deliver value to customers in ever-changing competitive environments. Along with a flexible and resilient Business Architecture, Lean Roadmaps facilitate building a responsive Enterprise Product Practice.

5: Culture of Change

A Culture of Change and collaboration fosters creation of transformative products. The Product Manager is well positioned to lead the creation of the right culture starting with bringing together a guiding coalition of empowered, cross-functional Product Teams that span across the strategic and tactical levels focusing on the customer with full intensity.

For the guiding coalition to function at a high level, a focus is needed on information flow, visibility and communication. As an example, KPIs (Key Performance Indicators) should be expressed in terms meaningful across functions and based on the business outcome that allows everyone to see and understand the big picture and their role in the process.

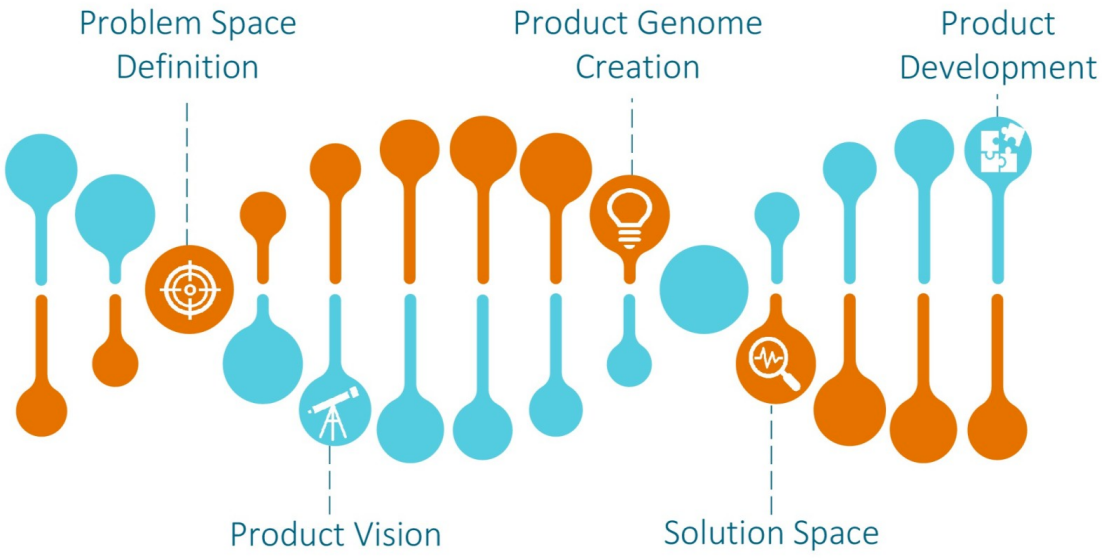
Product Teams need a growth mindset where innovation and creativity are encouraged and it is safe to fail. A willingness to experiment and take risks, based on what is learned from the users, is necessary for successful iterative value delivery. Rather than being focused on executing a well-defined plan, Product Teams are driven by customer feedback loops. Teams need to approach the customer with an open mind, curiosity and a listening posture to truly hear and learn from customer feedback. Responses are framed as hypotheses to be tested rather than immediate solutions. Failures are not taken as setbacks to be avoided, but as opportunities to learn, improve and ultimately deliver the best possible product more quickly and efficiently.

Product Genome Key Elements

The Product Genome's comprehensive constructs (i.e., the questions, tools, practices and processes) approach Product Management in a structured way that contains a detailed blueprint of a product, its value and how it is developed. The Product Genome's DNA is both coded, which represents a systematic, consistent customer-centric approach to Product Development, and uncoded, which represents a blank canvas that provides an environment for exploring customer problems, developing customized frameworks and delivering unique product solutions that fully meet customer needs.

Within the structured, systematic Product Genome approach, customer-centric discovery and learning drives the development of customized, innovative processes and products. Ultimately the Product Genome approach leads to the development of a customized product that most efficiently and effectively solves the customer's problem delivered in a way that allows for continuous improvement and continuous value delivery.

The Product Genome approach covers a broad spectrum that can help productize initiatives, simplify the Product journey and keep Product Development on track through a focus on business outcomes rather than timelines. Product Genome draws from a menu of tools and practices including customizable frameworks, standardized Agile artifacts, specialist workshops and industry-wide best practices to understand the problem space and answer the questions, "why do it?" and "how to do it?".



1: Problem Space Definition

The Product Genome approach starts with defining the problem space, leveraging activities like voice of customer analysis and conducting market research to generate customer feedback. Building User Personas, mapping out customer journeys and developing Empathy Maps are tools to better understand the customer and their feelings associated with the product. Value proposition workshops can be helpful during the problem space definitions phase. If the product is partially developed, user experience and technology audits carried out by experts can help identify important issues to help better understand the problem space.

Market Validation occurs early in the Product Development process before significant time and money are devoted to pursuing a specific product. It involves direct contact with end users through interviews or surveys that introduce a product concept and elicit feedback as to whether it is worth developing the concept.

User Research is conducted to ensure the right product is developed. Both quantitative and qualitative data can be collected to learn about the customer, their needs, how they go about tasks and their thought processes and how a product can effectively address their needs and deliver value.

Voice of Customer Analysis is an analysis of customer feedback generated through Market Validation and User Research used to understand customer problems, needs and pain points.

Persona Creation helps understand the characteristics, motivations, behaviors, roles and responsibilities of a typical user or customer. It helps to frame the problem space from the perspective of a typical user.

Customer Journey Mapping visually depicts the customer's steps, touch points and end-to-end interactions with the product to help understand the customer's experience. The mapping provides an opportunity to take a macro view of the entire customer experience and identify opportunities for streamlining and improvement.

Value Proposition Workshops identify the product's value proposition, or the benefits a customer can expect from using the product. The value proposition helps develop a deep understanding of the customer's problem and the key benefits the product provides to customers. Workshops to develop value proposition are deep dives into understanding the customer, their needs and what product best meets their needs. These workshops are especially relevant for large enterprises with multiple business units and organically evolved techno-functional silos.

UX/Design Audits are typically conducted on a product that has been in use and help Product Teams refine their understanding of the customer and problem space. Audits can be conducted by internal teams, but an outsider's perspective can provide valuable and new insight. UX/Design Audits assess the user experience and provides data indicating where users are running into problems. The data is analyzed to provide actionable recommendations to enhance product usability.

2: Product Vision

A well-defined product vision identifies the user, the reason behind the product and the key differentiating factors. Building the product vision requires an inclusive team of stakeholders to map out a viable and responsive strategy that guides the development of the product. The product vision includes developing success criteria, metrics and OKRs (objectives and key results) to serve as guardrails and to validate the work as the product is developed.

Product Vision Definition is necessary to establish the purpose for developing the product and what the enterprise hopes to achieve. The product vision unifies stakeholders behind a shared vision and purpose while establishing strategic direction to guide in the prioritization and focus of resources and efforts.

Product Positioning establishes and articulates an understanding of how the product solves the user problem and why it is the best solution. Built through a deep understanding of the user persona drawn from user research and customer journey mapping, Product Positioning helps determine the most compelling way to present the product to end users.

OKR Definition and Elaboration establish business outcomes, qualitative measurable objectives and key quantitative metrics. OKRs provide strategic guidance and keep all teams pulling in the same direction with teams collaboratively establishing, tracking and continuously evaluating goals based on achieving measurable outcomes.

Business Value Definition and Acceleration ensures Product Development is driven and measured by the value to the business. Business value can be many things and is context specific. It can be market oriented, for example improving a consumer product or service; it can be oriented toward internal capability building, for example reducing or eliminating the need for low value activity; or it can be compliance oriented, for example being able to meet regulatory requirements more efficiently. With a focus on well-defined business value and key value indicators determined, teams can more easily deliver value early, measure success and add value based on customer feedback.

3: Product Genome Creation

The Product Genome is the comprehensive blueprint of the product and its value. It incorporates the Product Vision, including well-defined business value and mapping to guide the product in the right direction. It includes an evolving product backlog baseline driven by data, hypothesis formulation and user generated findings and results in a user validated design prototype. The coded DNA of the Product Genome is the Product Management methodology and approach that provides the structure, and the uncoded DNA is the undefined space allowing for scaling and evolving with continuous improvement throughout the development cycle.

Product Backlog Baseline represents a collective agreement among teams of the required items on the to-do list of tasks (the backlog) required to execute a strategic plan or roadmap. The Product Backlog Baseline is dynamic and is re-prioritized over the course of Product Development as new requirements are discovered during the iterative build process.

Customer Journey Maps depict the customer's steps, touch points and end-to-end interactions with the product. The maps provide a macro view of the entire customer experience, identify opportunities for streamlining and improvement and ensure that customer-centric efforts are grounded in the actual customer experience.

Business Capabilities Mapping maps what a business does to execute its strategy and achieve a specific outcome. Mapping business capabilities serves as a reference point for planning by connecting strategy, capability and processes in a tangible way that increases visibility across the enterprise. A flexible Business Architecture with well-defined value streams and processes is the key tie-in between Business and IT. Its importance in the times of quickly evolving value delivery models cannot be overemphasized.

Lean Product Roadmap is a strategic communication tool that serves as a statement of intent and direction for the product. From the start, the roadmap is created collaboratively with the Product Teams, which facilitates buy-in and provides a coherent unifying story that unites the different functions working separately on various tasks. The outcome is identified in the initial stages of the product journey through the exploration of the customer and their needs. Outcomes should be framed in a measurable way to assess how well they are achieved. Roadmaps that are flexible and open equip teams to cater to ad hoc needs, unplanned work and emergent value delivery paradigms.

Product ERDs, or Entity Relationship Diagrams, are visual ways to view and understand the entities in the Product Development process, their attributes, how they are interrelated and how they work together.

Prototype Design leads to a tangible embodiment of the Product Vision that is easier to understand and easier to communicate feedback. The prototype allows for early validation of the product vision, reducing risk and allowing for important discussions and decisions early in the development process.

4: Solution Space

The Solution Space indicates how the product is designed and the people, processes and technology that will be used to address the customer's problem. It lays the groundwork for development starting with "just enough" to establish customer feedback loops that drive the development process. The Solution Space has the Problem Space as its foundation. The Problem Space contains the customer needs and answers the "what" questions. The Solution Space is where the "how" questions are answered. How will the product be designed? What processes and technology will be used?

Current State Assessment is a "just enough" study of the people, processes and technology landscape that help lay the groundwork for Product Development.

Future State Recommendation is driven by gaps identified in the Current State Assessment and can involve consultation with experts for insight into the best processes, methodologies, frameworks and technology to use for product implementation. The role of optimized Business Processes and Information cannot be overemphasized in building apt digital products.

Continuous Feedback Loop Creation establishes a build, measure, learn cycle that starts with creating a prototype or building and delivering just enough of a product to users that they have an outcome and can get an idea of how the product serves their needs. Creating the feedback loop requires deciding on how to collect feedback. Customer interviews, surveys, product usage data and customer support tickets are common feedback mechanisms. Feedback processes and workflows should be defined including user feedback channels, how feedback is acted on and looping back to the user.

Agile Framework Recommendation helps determine a specific Product Development approach based on the Agile philosophy, which is a broad approach with an emphasis on iterating quickly and often so customer feedback drives Product Development. There are many Agile frameworks such as Lean Software Development, Extreme Programming, Scaled Agile Framework, Kanban and Scrum. Noting that one of the four values stated in the Agile Manifesto is "individuals and interactions over processes and tools," the Agile framework adopted is not something that is rigidly defined. Frameworks are used as starting points with teams modify to fit their unique context and often iterate on their own Agile processes. Agile experts and coaches are useful in guiding teams toward the right framework.

Product Socialization ensures the product vision, strategy and roadmap are evangelized across the Product Teams and throughout the entire enterprise. Experts can help with building effective channels to socialize products at all levels of the organization.

5: Product Development

Having a well-defined Agile Product Delivery process in place that uses templates and asset repositories helps to speed track development. A robust continuous integration/continuous deployment (CI/CD) pipeline allows for rapid deployment and scaling of quality code quickly, drastically improving go-to-market timelines.

Rapid Development Leveraging Product Asset Repo prioritizes rapid prototype releases and iterations driven by customer feedback loops rather than following a rigid plan. Leveraging the product asset repo encourages reusing existing code, saving time and reducing errors. Users test each prototype at each stage to validate features and work out any bugs to ensure their expectations are met.

DevOps Implementation follows the Agile principle of "early and continuous delivery of software" built on CI/CD practices that bridge development and operation activities. The pipeline includes continuous testing and continuous feedback generally following Develop > Build > Test > Deploy stages.

Achieving Value with Product Genome

Today's enterprises are challenged to function and flourish in a rapidly changing environment. Their efforts can be hindered by a disconnect from their customer needs or business value. To bridge this gap, xScion developed the Product Genome, a structured approach to Product Management that provides a blueprint of a product's value based on a clear understanding of the problem space and customer needs. Built within the structure is the flexibility to respond to emerging customer needs and adapt to changes in the competitive environment.

Product Genome is built on a foundation of Product Value Delivery that focuses on discovering and meeting customer needs using Lean Roadmaps and delivering value iteratively. This requires a Product Mindset and Culture of Change that is driven by identifying and responding to changing needs and conditions rather than carrying out a rigid plan.

Recreating the structure, redundancy and plasticity of genomes in nature, Product Genome's coded DNA is its customer-centricity and structured approach, while its uncoded DNA draws from industry-wide best practices and frameworks customized for a given situation. Product Genome is framework agnostic and takes an integrative approach that draws from existing frameworks and methodologies, such as Design Thinking, Lean, Six-Sigma, DevOps, Scrum, SAFe, Kanban and Test-Driven Development.

Product Genome ultimately delivers high value products that solve customer problems by exploring and discovering customer needs. This allows for reduced time-to-value and early delivery of the optimal product that fully meets customer needs at the time of delivery and has the flexibility and capacity to adapt as customer needs change. The Product Genome process ultimately leads to a unique product that most efficiently and effectively solves the customer's problem delivered in a way that allows for continuous improvement and continuous value delivery.

About the Authors

Anant Dhavale is an experienced, industry leading Techno-Business Consultant. He has helped some of world's largest Fortune 500 companies optimize their Processes, Products and Business Ecosystems. He specializes in Product Management, Business Architecture and Business Value Acceleration and frequently publishes thought leadership, including several articles, whitepapers and case studies on key topics and latest trends affecting the industry.

Kevin Heisey writes about Applied Economics, Management and Business. He has contributed to numerous books, academic and trade journals, and business blogs.

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