

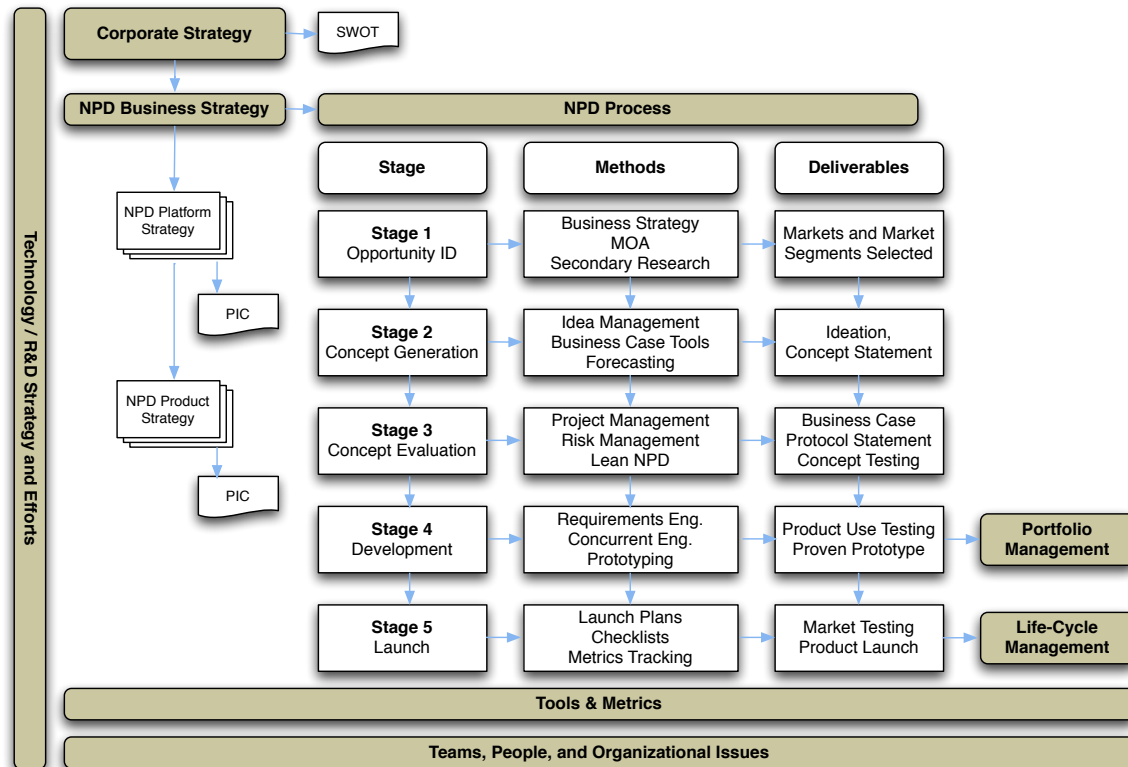
NPPDP

New Product Development Professional

EARN A SEAT AT THE BOARDROOM TABLE



NPD Framework



How do organizations increase profit?

- Mergers & Acquisitions
- Increase revenues
- Reduce costs (re-engineering)
- **Develop new products (NPD)**

Innovation and NPD

Innovation: the act of creating a new product or process

NPD: the overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product

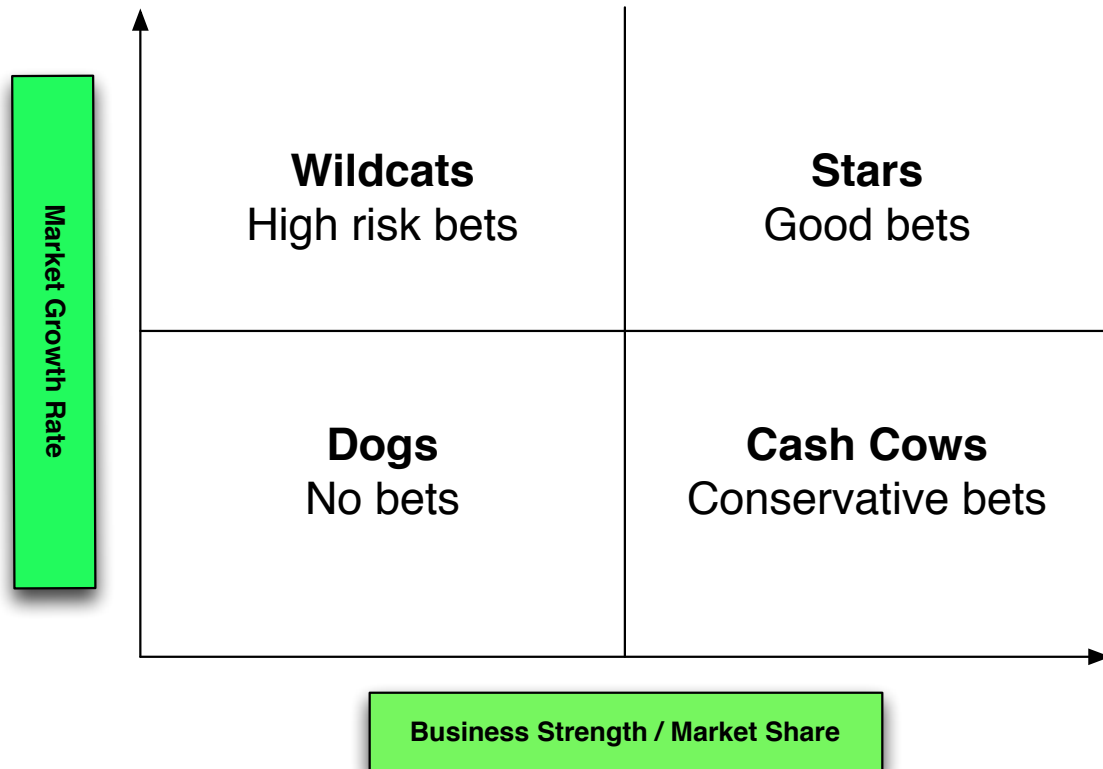
Innovation = NPD

Product Lifecycles (after commercialization)

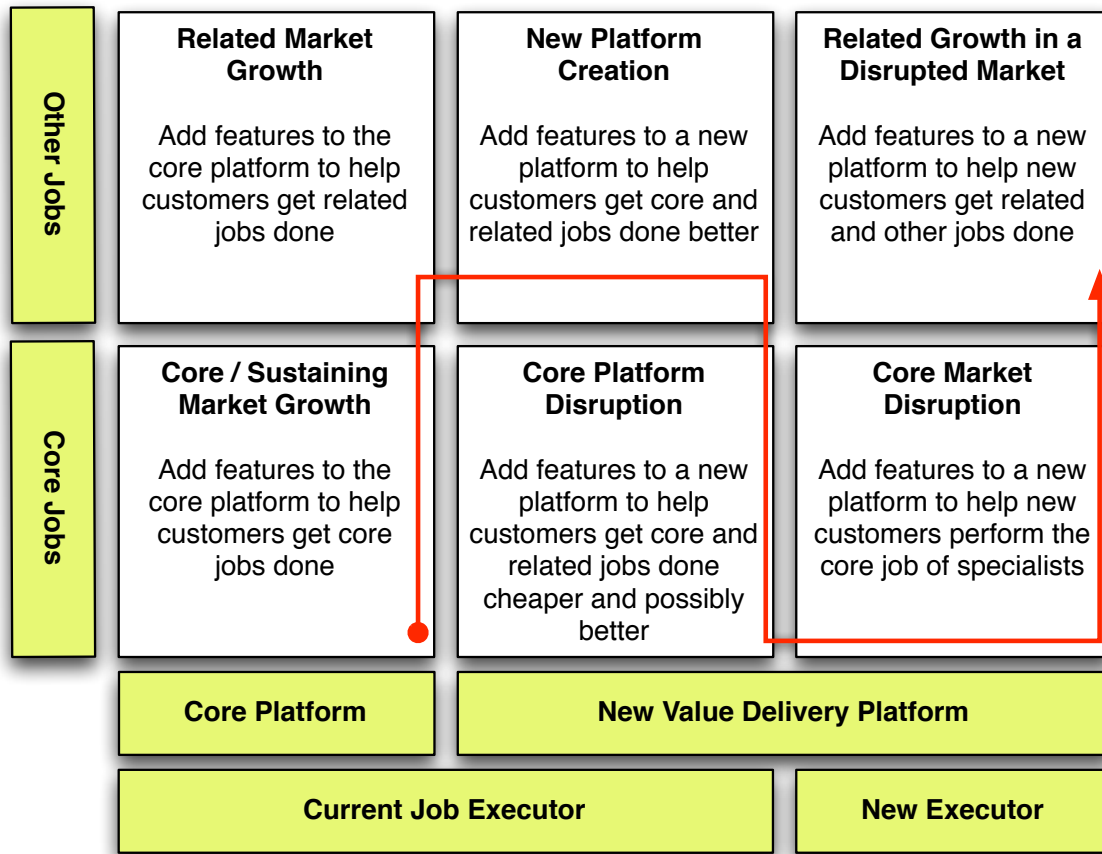
- Introduction
- Growth
- Maturity
- Decline

Market Strategy

- Answers the following:
 - What products will be offered? (Breadth and depth of product line)
 - Who will the target customer be? (Market boundaries, segments to be served)
 - How will the products reach the customers? (Distribution channels)
 - Why customers will prefer our products to the competition's? (Differentiating attributes)
- Market portfolio assessment:



- Organic market growth path:



Technology Strategy

- A plan to acquire technology to maintain or gain competitive advantage
- Requires focus to select technology areas to create superior capability
 - Know how
 - Know why
- Defines the source of the technology
 - Internal vs. external
 - Role definition and integration
- Defines the timing and frequency of implementation decisions
 - Leader vs. follower
 - “Rapid inch-up” vs. “great leap forward”
- Cost should not be considered when initially evaluating a technology
- Consider sustainable vs. disruptive technologies:
 - **Sustainable technology:**
 - Based on existing or familiar technology
 - Improve the performance of established products per mainstream customer needs
 - Discontinuous, or radical, or incremental
 - e.g. GPS navigation

NPD Process Framework Recap

Stage	Purpose	Tasks	Deliverables	Research Methods
1. Opportunity Identification	- Recognize new product opportunities by focusing on the market	- Determine fit to NPD strategy - Market opportunity analysis (MOA) - Segmentation - Determine preliminary technical feasibility - Identify show stoppers	- Selected markets and segments - PIC	- VOC / customer visit - Secondary research
2. Concept Generation	- Create new product ideas	- Ideation - Competitive analysis - Preliminary arena work (technical assessment, market/customer assessment, product line determination)	- Preliminary business case - Concept statement (form, benefit, technology)	- VOC / customer visit - Ethnographic research - Surveys
3. Concept Evaluation & Testing	- Pre-technical evaluation, screening and sorting of concepts - Prove that market exists - Gauge customers' reaction	- Concept testing - Determine product attributes - Collect business case info (financial/sales forecasts) - Project planning for development	- Business case - Protocol statement - Project/resource plan - Full screen	- Concept testing - Focus groups
4. Development	- Build prototypes and perform use testing to validate design	- Prototyping - Product use testing - DFX - Preliminary launch planning - Ops planning - Handle regulatory issues	- Proven prototype - Comprehensive business case	- Product use testing (focus groups) - Alpha/Beta testing
5. Launch / Commercialization	- Go to market	- Market testing - Execute plans (DFX, ops, launch) - Manage launch - Distribution channels	- New product introduction	- Market testing

Product Superiority

- Seen as the number one factor for a new product's success
- Composed of 6 criteria:
 - Unique benefits for the customer
 - Product quality
 - Reduced customer's cost
 - Product innovativeness
 - Product superiority in the eyes of the customers
 - Solution to a customer's problem
- These criteria should be top priority questions in a project screening checklist

NPD Process Gates

- Decision making points; good decision making is the agility of thought and the rapid assessment of opportunities and their consequences
- Gates follow stages:
 - Gate 1 – Direction (markets/segments)
 - Gate 2 – Idea Review
 - Gate 3 – Full Screen of Idea
 - Gate 4 – Solution Review
 - Gate 5 – Decision to Launch (market testing plan)
- Gate criteria (typical for gates 1 – 3):
 - Strategic fit
 - Clearly defined market need
 - Project feasibility
 - Size of opportunity / market attractiveness
 - Product advantage / customer value
 - Environmental, health and safety considerations

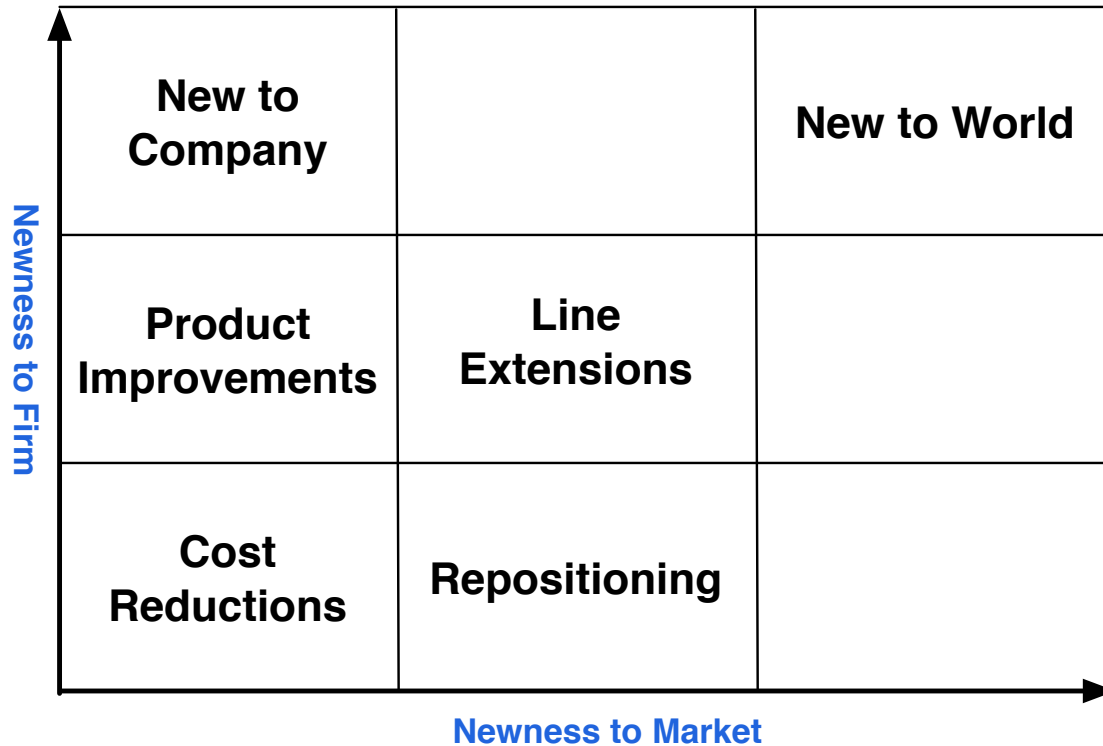
Stage 3 Tools

- Project management
 - Defines the goal of the project
 - Plans all the work to reach the goal
 - Executes project and supports teams
 - Monitors and tracks progress while completing the project satisfactorily
 - Evaluates the process, product, and lessons learned
 - Includes:
 - The triple constraint
 - Scope, budget, schedule
 - Have to balance any two against the constraint of the third
 - Work breakdown structure (WBS)
 - Breaks down the project into smaller and more manageable work packages of tasks and activities
 - Scheduling
 - **Gantt charts:** a visual representation of the time span of activities
 - **Critical path:** the longest path from start to finish of the project without any slack (slack is when an activity can start at a later date without affecting the completion time of the project)
 - **Schedule compression:** effort to shrink the original schedule to meet a market window or customer due date. The effort is made to minimize the impact on scope, cost, and quality
 - Budget planning
 - Using the WBS to estimate each work package and summing them up to obtain the project cost
 - Parametric models with historical data used to estimate costs based on similar project characteristics
 - Inflation hedge on lengthy projects
 - Monitoring and control
 - **Reports:** usually a readout of project status to management
 - **Reviews:** mostly an interactive view of the project status with project members
 - Project items reviewed include:
 - Scope
 - Performance
 - Budget/costs
 - Schedule
 - Business and financial impact
- Risk management
 - Risk identification

- Business risks: competition, funding, regulations, ...
 - Technical risks: hazards, patents, stability, ...
 - Risk quantification
 - Risks graphically represented on a probability/impact chart
 - Risk mitigation/contingency planning
 - Mitigate (reduce the likelihood) of high probability, high impact risks
 - Include risks that affect the triple constraints
 - Risk documentation
- Lean NPD
 - Lean is:
 - Creating better products faster and for less money
 - Not laying off people to save money and expect to get the same amount of work done
 - Relentless focus on customer value
 - Not skipping steps to save time
 - Test first, then design
 - 5 Lean principles
 - **Value:** relentless focus on what adds value to the customer
 - **Value stream mapping:** know where value is created. Shows bottlenecks and queues, but doesn't tell why they're there; would need to implement **root cause analysis** to determine the why
 - **Flow:** eliminate waste to improve value stream flow to the customer
 - **Pull:** the customer pulls the product from you (not the other way around as in "push")
 - **Perfection:** pursue through continuous improvement
 - Root cause analysis
 - Identifies root causes and core problems
 - Any symptom not solved at the root cause level will return
 - Any symptom with multiple causes will return unless all causes are eliminated
 - Project economic model
 - Enables tactical tradeoffs among the triple constraints
 - Often find that the cost of delay is surprising
 - Creates convergence on the understanding of the impact of delay and design decisions
 - Doesn't have to be perfect
 - Challenges in applying lean to NPD:

Manufacturing	NPD
Variability is bad	Variability creates knowledge
Learning is from mistakes	Learning is the goal
Process steps repeated frequently and exactly	Process steps repeated less frequently and with intended variation
Product is physical (visible)	Product is informal (invisible)
Linear flow	Nonlinear and multidimensional
Small group of similar specialists	Large, diverse group of various experts

Griffin and Page strategy types



Most useful project-level success metrics by strategy type

- New to world (prospector)
 - Customer acceptance
 - Customer satisfaction
 - Profit goals
 - IRR or ROI
 - Competitive advantage
- New to company (analyzers / fast follower)
 - Customer satisfaction
 - Market share goals
 - Revenue goals
 - Profit goals
 - Competitive advantage
- Product improvements
 - Customer satisfaction
 - Market share or revenue growth goals
 - Profit goals
 - Competitive advantage
- Line extensions (Defenders)
 - Customer satisfaction
 - Customer acceptance
 - Market share goals