



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

**An Autonomous Institution**

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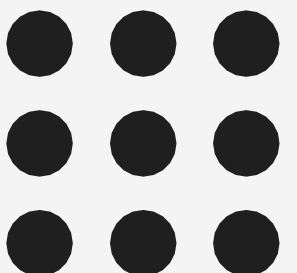
**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**COURSE NAME: 19OE116 - PRODUCT DESIGN AND DEVELOPMENT**

**III YEAR / VI SEMESTER**

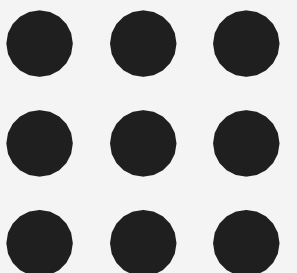
**Unit 2 - Concept Generation and Selection**

**Topic 4 – Search and Externally & Internally**





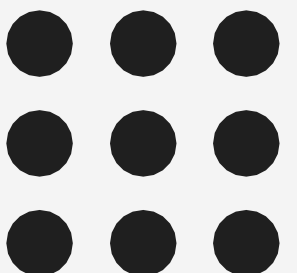
**Concept Generation and Selection are pivotal stages in the product development process, ensuring that the most effective and innovative solutions are identified and refined.**





**Concept Generation involves creating a broad range of ideas to address a specific problem or need.**

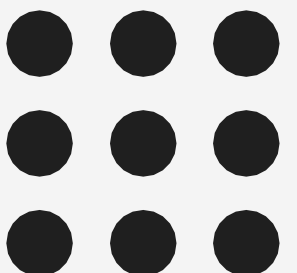
**This phase emphasizes creativity and diversity of thought, encouraging teams to explore various possibilities without immediate judgment.**





**Concept Selection follows by evaluating the generated ideas to identify the most promising ones.**

**This phase employs systematic methods to assess each concept against predefined criteria, ensuring that the selected solution aligns with project goals and stakeholder requirements.**

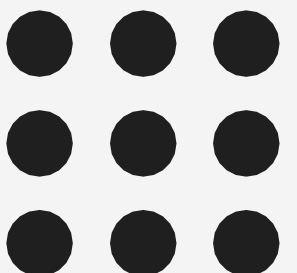




**Commonly used tool in the Concept Selection phase is the Pugh Matrix.**

**This method facilitates the comparison of multiple concepts against a baseline (datum) using a set of criteria.**

**Each concept is scored relative to the baseline, aiding in identifying strengths and weaknesses.**

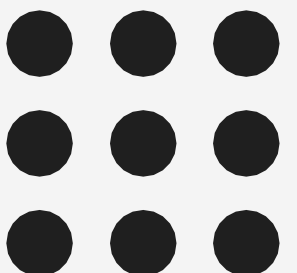




**Important to note that Concept Generation and Selection are iterative processes.**

**Teams often revisit and refine concepts based on evaluations, ensuring continuous improvement and optimal solutions.**

**By systematically generating and selecting concepts, teams can develop innovative products that effectively meet user needs and stand out in the market.**

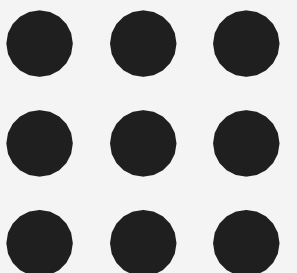




**Internal sources involve ideas generated within the organization, leveraging in-house expertise, resources, and experience.**

### **Sources of Internal Concept Generation:**

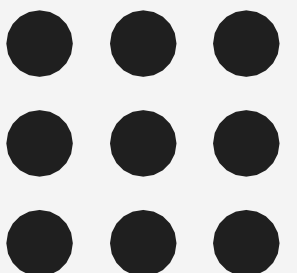
- . Brainstorming Sessions: Team discussions to generate new ideas.**
- . R&D (Research & Development): Innovations and discoveries from in-house research.**







- . Employee Suggestions: Ideas from engineers, designers, or marketing teams.**
- . Existing Product Improvements: Modifying or optimizing current products.**
- . Company Knowledge Base: Using past projects, patents, and technical reports.**

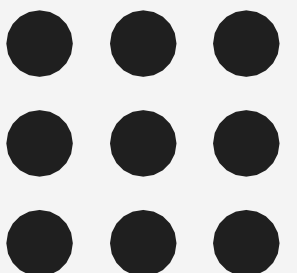






## Concept Selection Methods:

- . **Pugh Matrix: Compare internal ideas against a baseline design.**
- . **Weighted Decision Matrix: Rate internal concepts based on predefined criteria.**
- . **Prototyping and Testing: Validate feasibility using internal testing.**



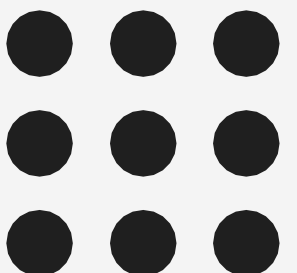


## **External Sources in Concept Generation & Selection**

**External sources bring fresh perspectives by incorporating insights from customers, market trends, and third-party innovations.**

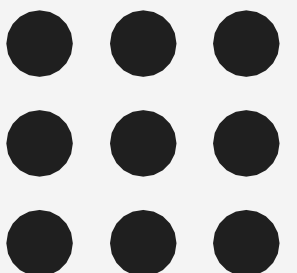
### **Sources of External Concept Generation:**

- . Customer Feedback & Surveys: Understanding user needs and pain points.**
- . Competitor Analysis: Learning from existing market solutions.**





- . Academic Research & Publications: Utilizing knowledge from universities and research institutions.**
- . Industry Trends & Market Reports: Studying technological advancements.**
- . Open Innovation & Crowdsourcing: Engaging external experts and the public.**
- . Supplier and Partner Input: Collaborating with vendors and manufacturers.**

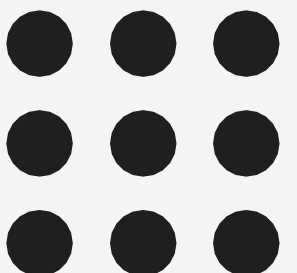




# External Sources in Concept Generation & Selection

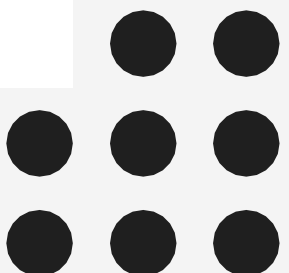
## External Concept Selection Methods:

- . **Customer Voting & Preference Testing:** Letting users choose preferred concepts.
- . **Benchmarking:** Comparing external concepts with industry standards.
- . **Cost-Benefit Analysis:** Evaluating financial feasibility of external ideas.



# Comparison of Internal vs. External Sources

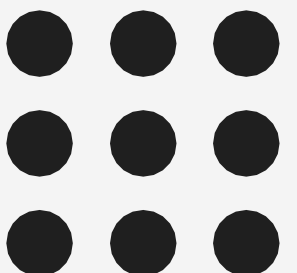
Factor	Internal Sources	External Sources
<b>Creativity</b>	Limited to internal expertise	Diverse and innovative
<b>Feasibility</b>	Easier to implement within the company	May require adaptation
<b>Cost</b>	Lower, uses existing resources	Higher if licensing or outsourcing is needed
<b>Risk</b>	Controlled development	External dependencies and risks
<b>Time</b>	Faster, as internal knowledge is used	May take longer due to external negotiations





**A balanced approach combining internal expertise and external insights leads to the most effective concept generation and selection process.**

**Organizations should leverage internal R&D while integrating customer feedback, market trends, and external innovations for a well-rounded product development strategy.**





**Thank You...**