

Product Development, Research and Commercialization



Resource Person

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Study guide:
Product development, research and commercialization



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Research, Product Development, and Commercialization

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Research

- The broad definition is Creative and Systematic work undertaken to increase the stock of knowledge or add more information through documentation, discovery, interpretation, systems for the advancement of the human knowledge.
- Basic steps of research
- Background
- Research problem/concern
- Literature review
- Methodology and design
- Collection of data
- Design according to the set of rules and procedures, code of conducts, ethics etc.
- Results
- Develop knowledge
- Conclusion

Who is a researcher?

A researcher is a person, who studies a subject especially to discover new information or a new understanding.

Researcher should have,

- Intelligence
- Honesty
- Curiosity,
- Initiative,
- Sufficient knowledge
- Good communication ability
- Requires critical analysis
- Logical reasoning
- Common sense
- Open mindedness
- Accuracy and precision

Types of researches

1. Basic research / fundamental research
2. Applied research

Basic research / fundamental research

- Designed to enhance knowledge
- Answer the questions like what, why and how
- No commercial objective
- Target is advancement of knowledge
- Knowledge is property of society/scientific community
- Success determined by publications/ awareness
- Funding bodies are NGOs/No conditions
- No immediate invention
- No immediate innovation

Applied research

- Focus on real life problems
- Has commercial objectives
- E.g.: new product/ Process development
- Knowledge is a property of the inventor
- Success determined by the outcome
- Target inventions/innovations

Research and research commercialization

Research cycle could be divided into two main parts

1. Research part
 - a. Identifying the problem
 - b. Reviewing the literature
 - c. Setting research questions, objectives, and hypothesis
 - d. Methodology and study design
 - e. Development of the product
 - f. Writing the report/publication
2. Commercialization part
 - a. Successful product development
 - b. Test marketing
 - c. Product launching
 - d. Manufacturing
 - e. Commercialization
 - i. Production facilities
 - f. Marketing
 - i. Consumer need analysis
 - ii. Pricing strategy
 - iii. Promotional activities
 - iv. Distribution system

Identifying a research problem

Identification of a research problem depend on; curiosity on existing situation; knowledge on the subject matter; previous experience on similar situations; own intellectual; orientation

There are two types of problems

1. Non research problem
 - a. No any extra solution required
 - b. Cannot be solved by research

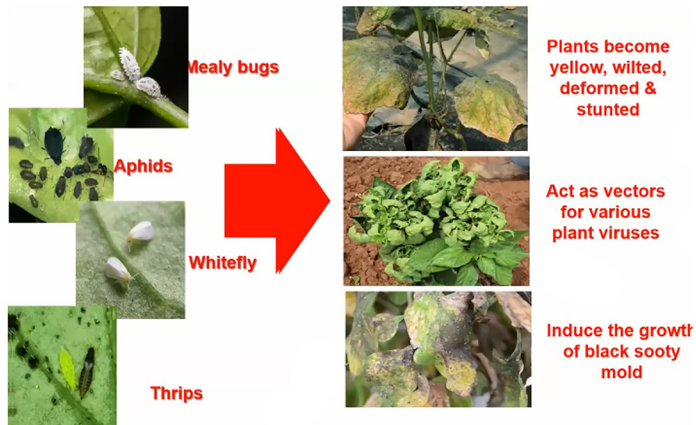
Examples:

- High demand for public universities over Pvt. Universities
- High prices of accommodations in Nuwara-Eliya during April

2. Research problem

- A phenomenon that has not been closely studied
- A contradiction between two or more perspectives
- A situation or relationship that is not well understood
- A troubling question that has yet to be resolved

Example for identifying the research problems practically



Pre development of the concept

Problem: 80% yield loss from mealy bugs, aphids, whitefly and thrips.
Also chemical based applications are toxic. Hence not a solution.

Concept pre development: (strategic planning/ methodology/ design)

- Collect traditional knowledge
- Identify constraints
- Identify potential solutions
- Formulate environmental friendly commercial viable solution

Research methodology- Process

1. Systematic survey
2. Agronomic protocols
3. Raw material standardization
4. Product formulation
5. Product standardization
6. Patenting
7. Commercialization

Product development

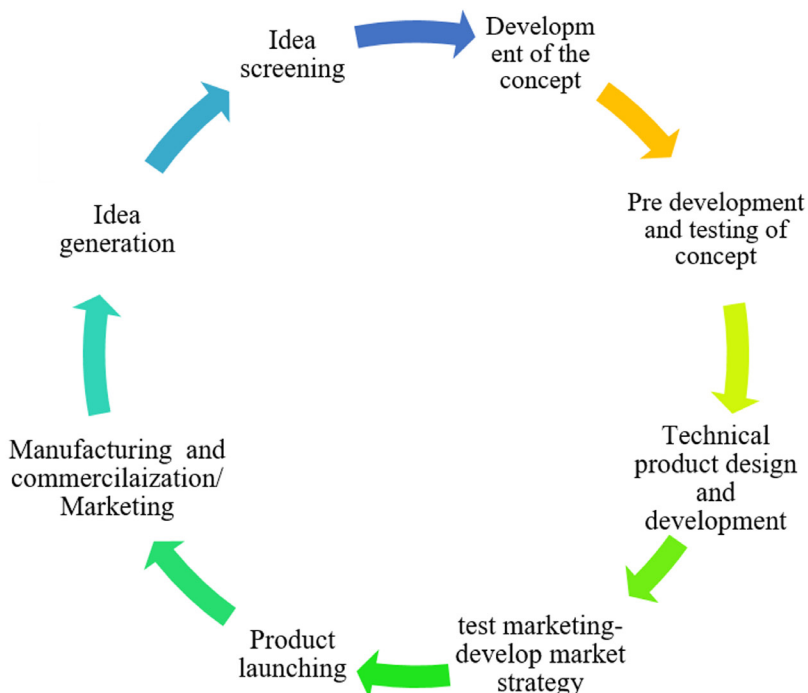
Product development is an entire process of development of product initial idea/concept to market release of a product. In other words, it includes all steps of a product development process.

Why we require research and development in product development?

Research is vital to nay successful product development process, because,

1. To identify problems which are high worth to solve
2. To identify and understand customer uses
3. To identify competitor products
4. To analyze competitor characteristics
5. To understand of a better way to full fill customer needs

Process of new product development



Idea generation

Idea generation:

- Your own thinking
- Observing existing object/s
- Reading books, watching TVs, social media, internet etc.
- Observing existing problems at your home/institute/university/society
- Discussing with friends/colleagues/teachers/supervisors
- Market requirements-shortages/improvements of existing products/unavailability of products

Then discuss your idea to identify your target market, Assess your market's spending habits and preferences, review consumption trends, project your target market, analyze the competition, and outline your strengths, weaknesses, opportunities and threats.

Always be open minded-:

Idea screening

Prioritize ideas by looking at:

1. Customer benefits
2. Target market size and growth forecast
3. Market competitiveness
4. Market trends
5. Technical feasibility
6. Availability of raw materials

Select the best appropriate idea based on all above factors

Development of the concept and costing

Once a good idea selected, develop concept. It could be prototype of the product.

1. What look like my product
2. How to operate it?
3. How consumers react the product?

4. How much does it cost?
5. What is my target market?

Marketing research

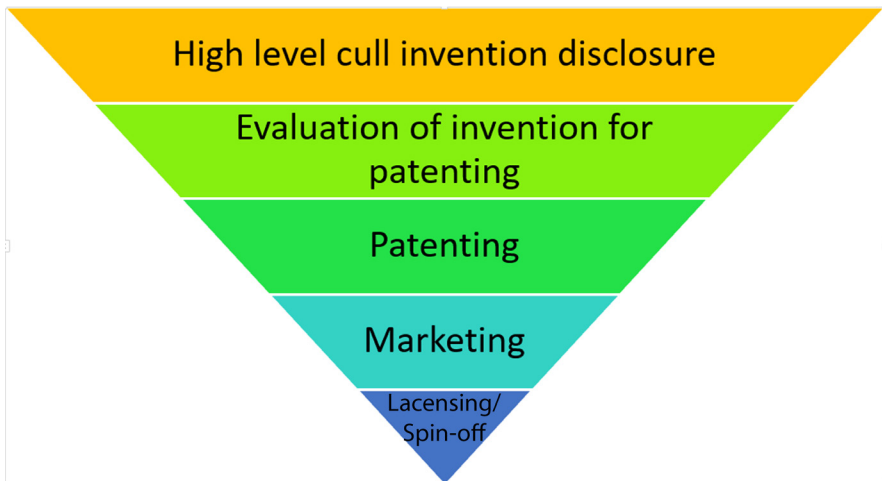
1. Product research
2. Sales research
3. Advertising research
4. Motivation research
5. Branding research

Research commercialization

Requirements for research commercialization

1. Expertise in multidisciplinary nature
2. Laboratories with high throughput facilities
3. Supportive technical and non-technical staff
4. Funding organization
5. Incubation facilities
6. Research commercialization facilities

Research commercialization process



Infrastructure facilities

Research institutes

- Research labs
- Researchers with expert knowledge
- Funding organizations
- Pilot plant facilities
- Specializing university undergraduates/postgraduates
- Customer base

Universities

- Research labs
- Academic with expertise
- Undergraduates with desire to do research
- Supportive technical and no technical staff
- Incubator facilities

Possible Mechanism

