



UNIVERSITA' DEGLI STUDI  
DI ROMA TOR VERGATA



BA MASTER OF SCIENCE IN  
BUSINESS ADMINISTRATION

**UNIVERSITY ROME TOR VERGATA  
SCHOOL OF ECONOMICS PRESENTS**

# **BUSINESS MODEL INNOVATION**

**A COURSE BY:**

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# 7<sup>th</sup> & 8<sup>th</sup> Rounds

## Design & Test

# Today

## NAUTILUS: The Innovation Management Methodology

- STEP 7 - DESIGN the Solution
- STEP 8 - TEST the Solution

break

## Case study session

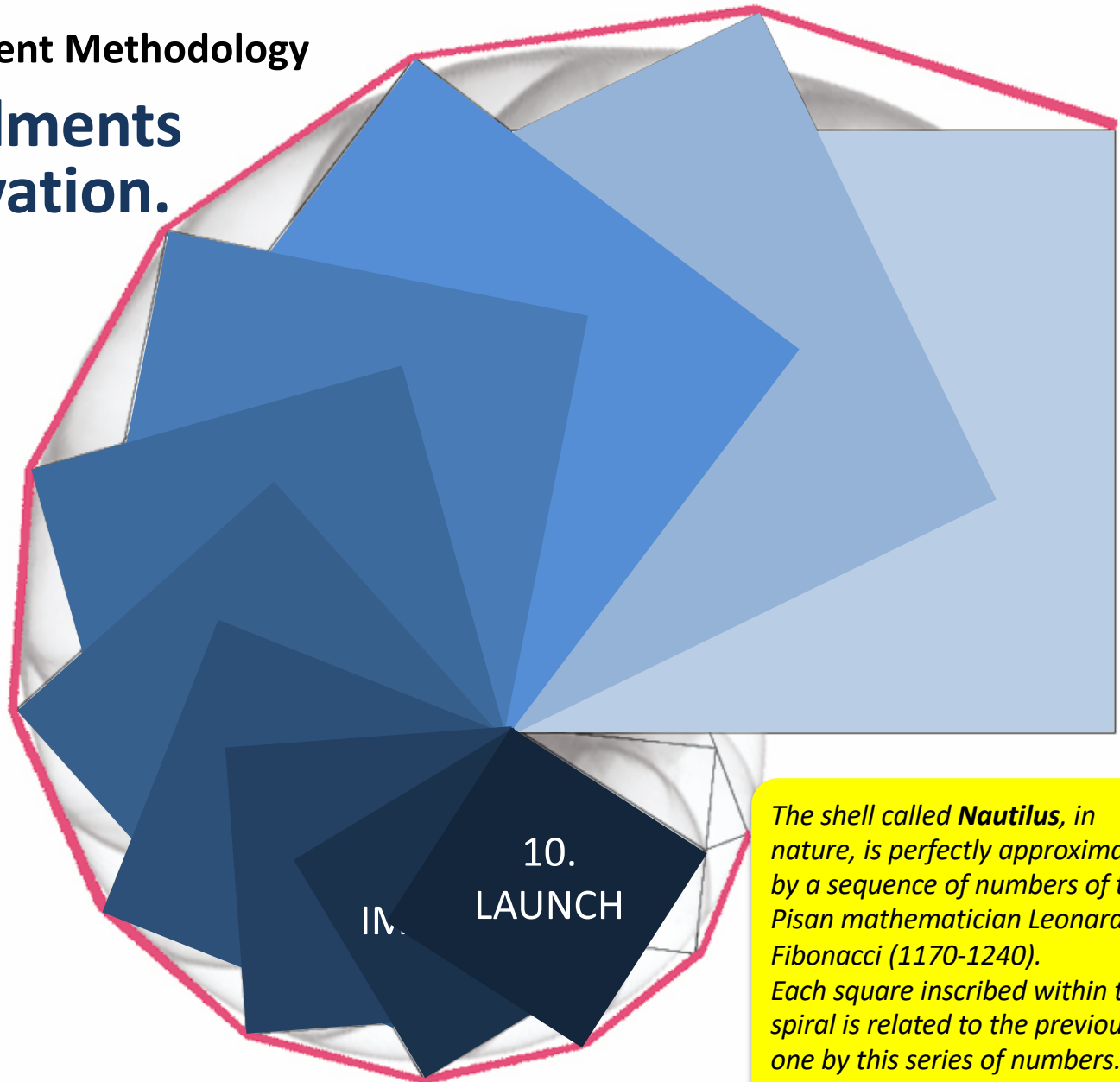
- Business Model Canvas & Design your solution

# NAUTILUS<sup>©</sup>

The Innovation Management Methodology

## the Ten Commandments for effective innovation.

A 10 step proven  
Methodology to achieve  
business growth and  
success through an  
effective and guided  
Innovation process.



*The shell called **Nautilus**, in nature, is perfectly approximated by a sequence of numbers of the Pisan mathematician Leonardo Fibonacci (1170-1240). Each square inscribed within the spiral is related to the previous one by this series of numbers.*

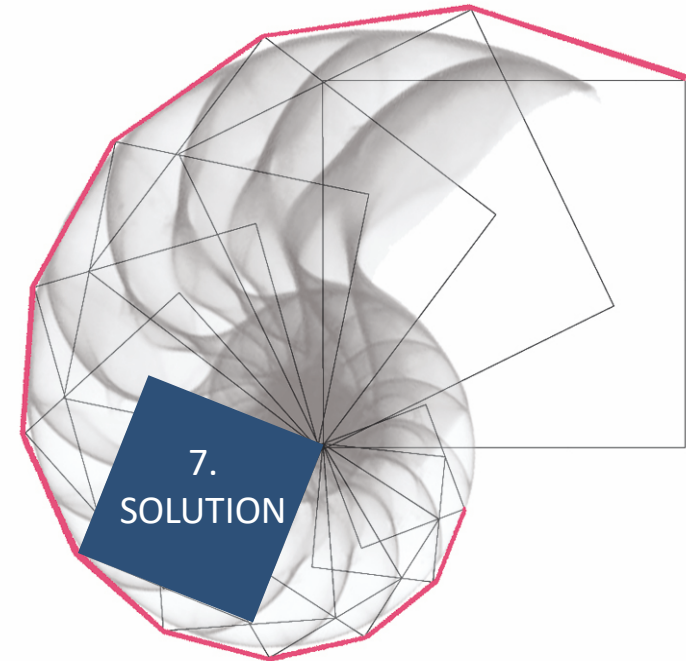
## STEP 7 DESIGN THE SOLUTION

### ACTIVITIES

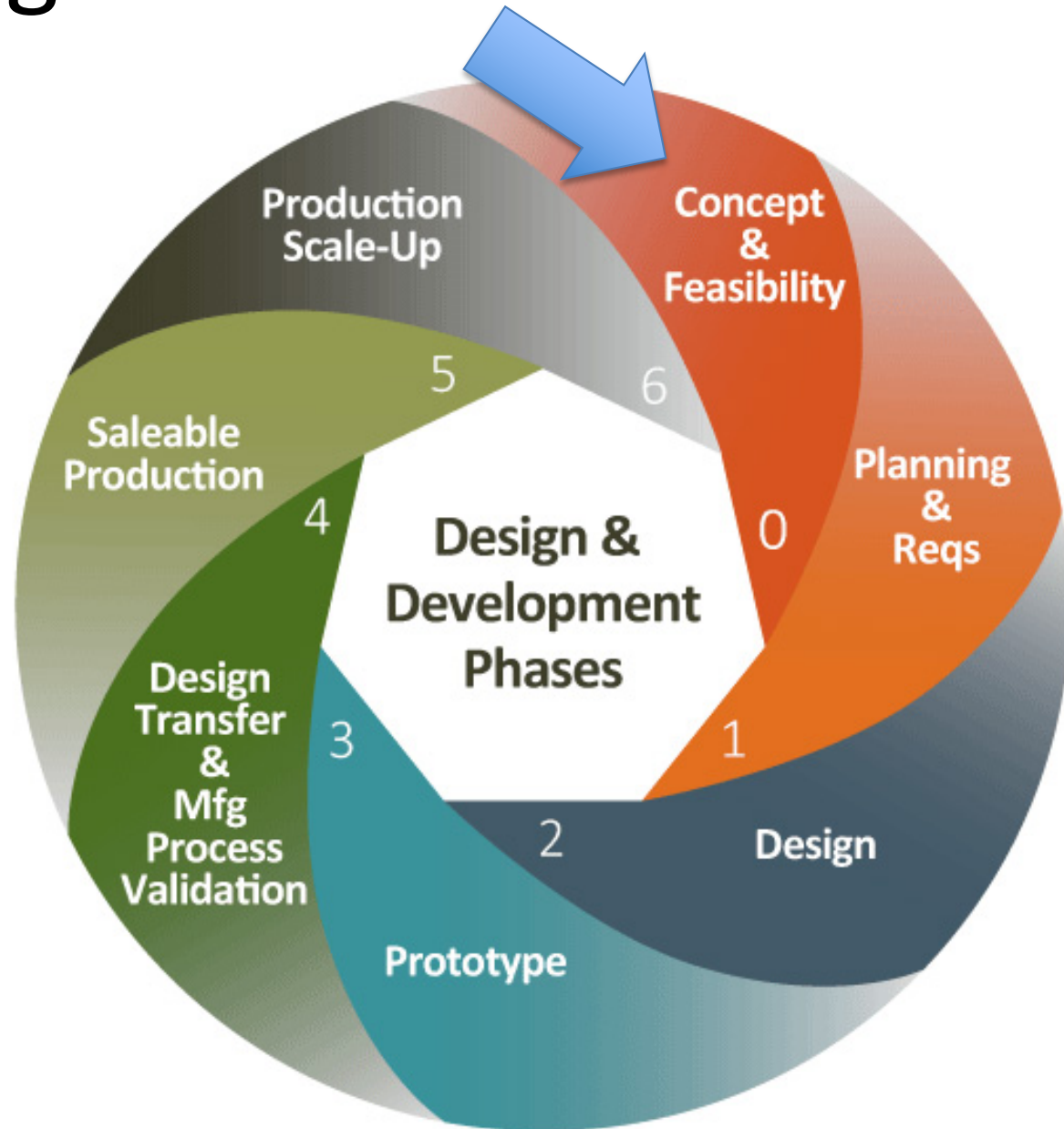
- **Analytical Design and Technical Feasibility of the Solution**
- **Estimate Solution costs**
- Explore funding and financing alternatives
- Update Business Case and prepare Development Plan for the Solution

### DELIVERABLES

- High Level Design of the Solution
- Solution Development Plan
- Updated Business Plan
- If is possible, develop a first prototype



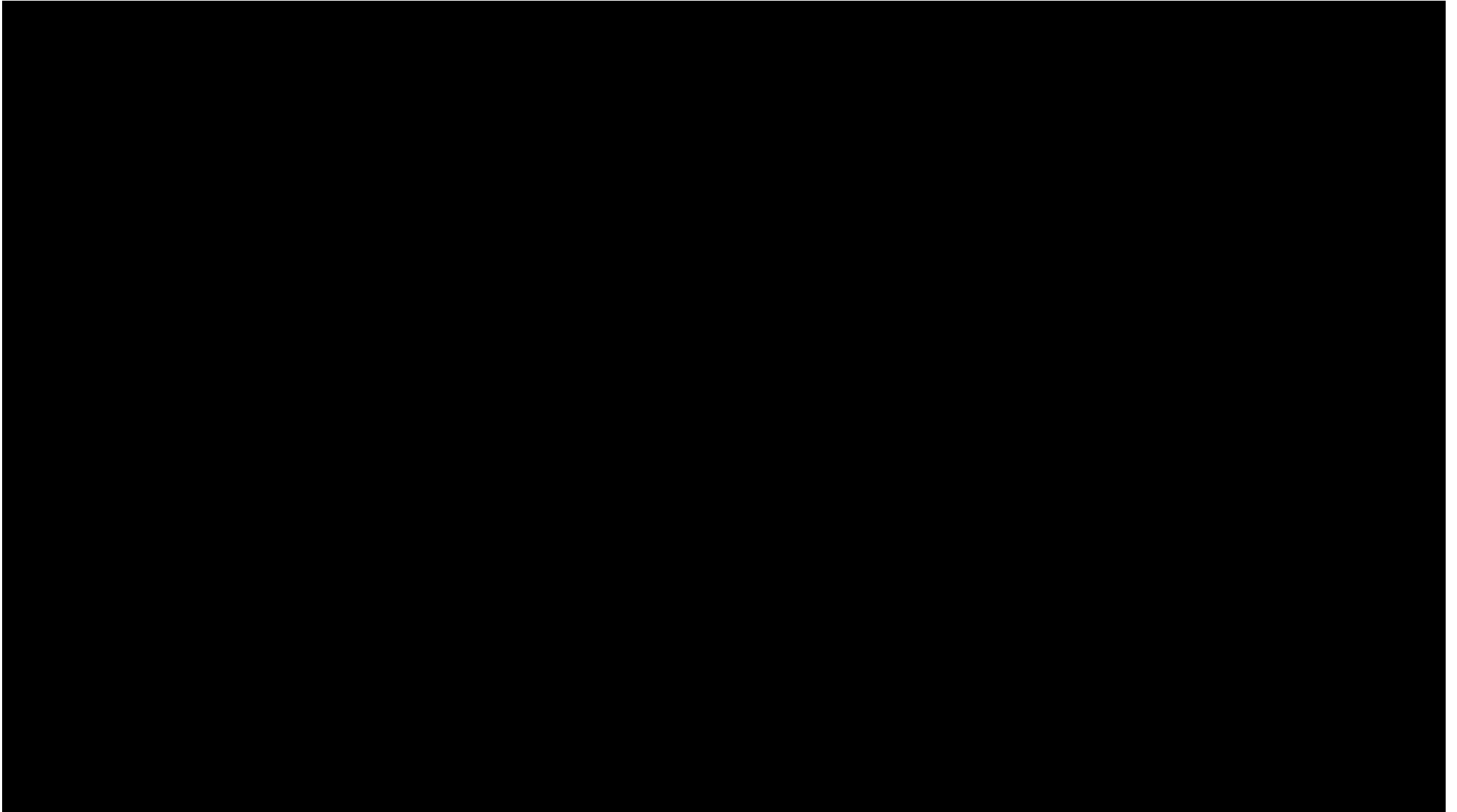
# Design and Technical Feasibility



# Which Prototype?

- **A Proof-of-Principle Prototype**  
serves to verify some key functional aspects of the intended design, but usually does not have all the functionality of the final product.
- **A Working Prototype**  
represents all or nearly all of the functionality of the final product.
- **A Visual Prototype**  
represents the size and appearance, but not the functionality, of the intended design.
- **A Form Study Prototype**  
is a preliminary type of visual prototype in which the geometric features of a design are emphasized, with less concern for color, texture, or other aspects of the final appearance.
- **A User Experience Prototype**  
represents enough of the appearance and function of the product that it can be used for user research.
- **A Functional Prototype**  
captures both function and appearance of the intended design, though it may be created with different techniques and even different scale from final design.
- **A Paper Prototype**  
is a printed or hand-drawn representation of the user interface of a software product. Such prototypes are commonly used for early testing of a software design, and can be part of a software walkthrough to confirm design decisions before more costly levels of design effort are expended.

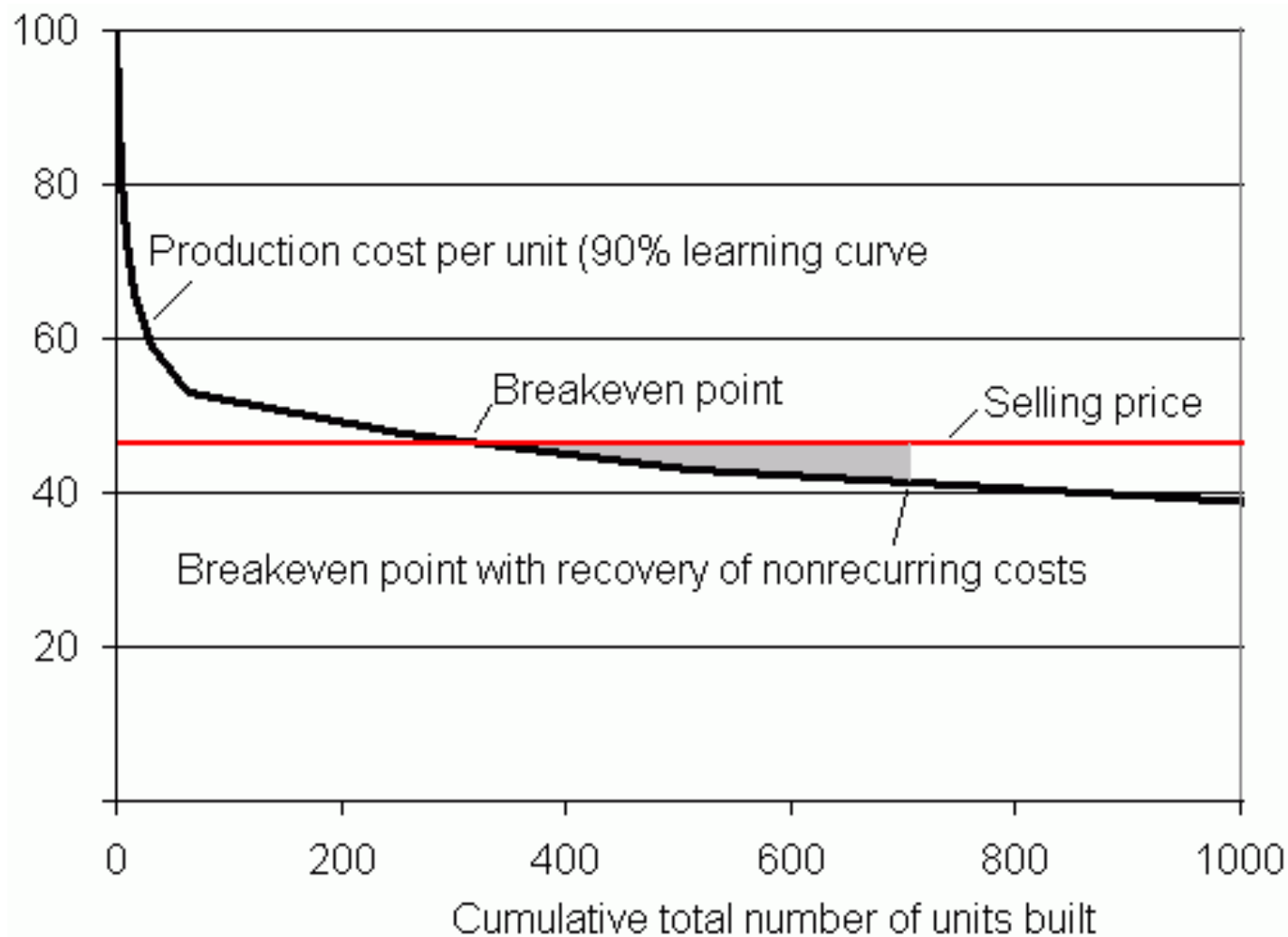
# What does Prototyping mean ...



# From Prototype to Production Costs

1. BOM (Bill of Materials).
2. MOQ (Minimum Order Quantity).
3. PO (Purchase Order).
4. Tooling.
5. Quality.
6. Packaging.
7. Shipping.
8. Storage.
9. Other fixed costs.

# Cost of Prototype vs. Production



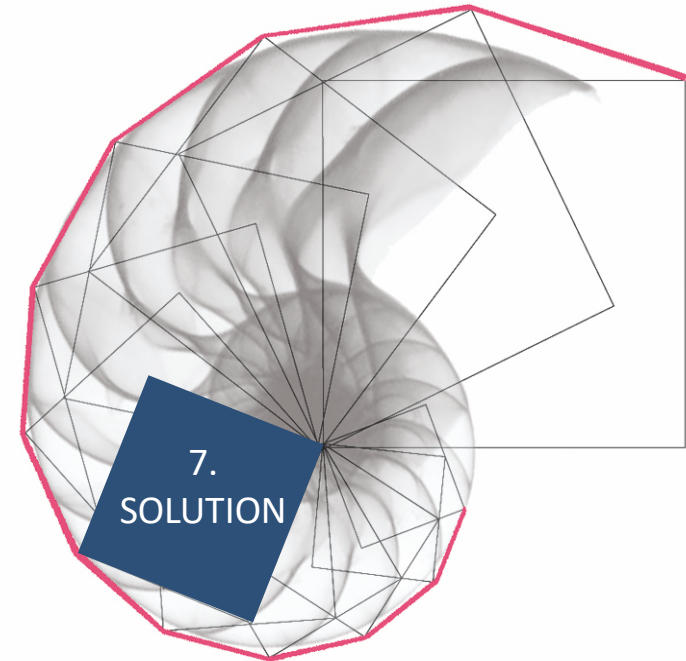
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# Internal vs External financing support

## Internal

- Capital increase
- Bank loans
- Venture Capital
- Equity

## External

- World Funding (World Bank, US funding NIH, DOE, DOD, ...)
- European Funding Programs (H2020, SME Inst, ...)
- National (MIUR, MISE, ...)
- Regional (FESR, FEASR, ...)

# Step 7 in our examples



- High Prototyping costs for a low-price electric car production
- Scale of economy very important



- Very rigorous platform testing (limited user group)
- Content testing

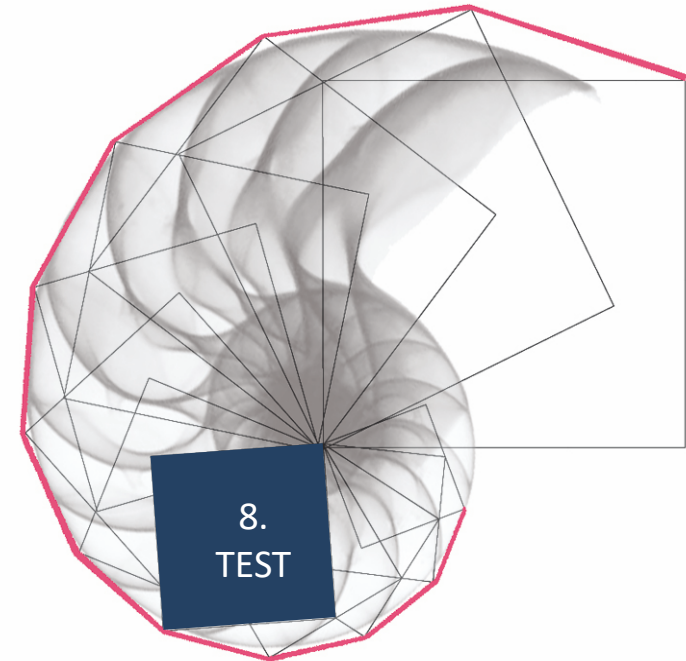
## STEP 8 TEST THE SOLUTION

### ACTIVITIES

- Detailed Design of the Solution
- Perform Solution Test using prototypes and/or 3D designs of products, or detailed descriptions of services preferably with actual users.
- Summarize positive aspects, negative aspects and suggestion for improvement.

### DELIVERABLES

- 3 to 5 Tested Solutions (Technically and Market validated)

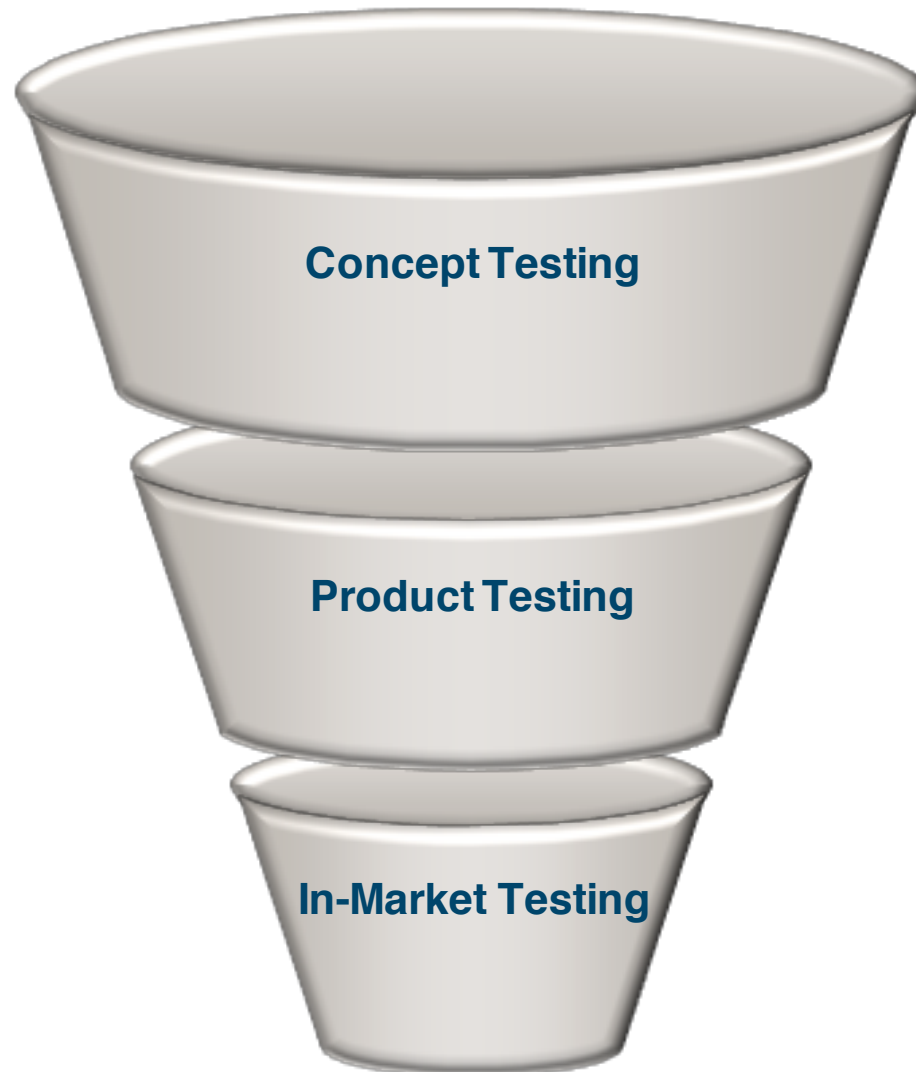


# Test Prototype Objectives

- Achieve product superiority over competitive products.
- Continuously improve product performance and customer satisfaction (i.e., to maintain product superiority, especially as consumer tastes evolve over time).
- Monitor the potential threat levels posed by competitive products, to understand competitive strengths and weaknesses.
- Reduce costs of product formulations and/or processing methods, while maintaining product superiority.
- Measure the effects of aging upon product quality (shelf-life studies).
- Implicitly measure the effects of price, brand name, or packaging upon perceived product performance/quality.
- Provide guidance to research and development in creating new products or upgrading existing products.
- Monitor product quality from different factories, through different channels of distribution, and from year to year.
- Predict consumer acceptance of new products.



# Types of Testing



Concept testing evaluates new concepts before the product is developed. Concept tests involve ideas for products, rather than actual products or prototypes.

Product testing evaluates new products and new product prototypes. It can be conducted in a laboratory or in-home but does not involve an actual marketplace.

In-market testing evaluates new products and services in markets or channels, where they are offered for sale to consumers to measure consumer response.

# Testing Parameters

Purchase interest:	How interested the respondent is in buying the product.
Purchase quantity:	The number of products a consumer would buy at their initial purchase of the product
Purchase frequency:	How often the respondent would be likely to buy the product.
Value for the money:	How the respondent perceives the product's benefits, compared to its price.
Uniqueness:	How new or different the concept is.
Overall liking:	How much the respondent likes the concept.
Believability:	How realistic the concept sounds; how true the claims seem to be.
Confusion:	How uncertain the respondent is about what the concept proposes.
Brand fit:	How closely the concept seems to match the respondent's idea of the brand image.
Purchase interest by variety:	How interested the respondent is in buying each variety or flavor of the product.

# Step 8 in our examples



- Concept testing using CAD
- Test user satisfaction with EEG (electroencephalogram).
- Test driving with selected users



- Mock-up interface for user testing
- Collect user suggestions
- Paired comparison

# Today's Case Study Objectives

- Case study session
  - Case analysis in groups