

# Testing the Waters Before Jumping In: Six Tests for More Effective Innovation and New-Product Development

Boro Petkoski • Vladimir Dukovski

Faculty of Mechanical Engineering, Ss. Cyril and Methodius University,

Karpos II bb, 1000 Skopje, Macedonia

bpetkoski@yahoo.com • dukovski@mf.edu.mk

# Overview

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- Testing to assess market acceptance
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# Introduction

- The ultimate test of an innovation – an new product or service – is its success in the market.
- But, waiting for the full-scale commercial launch to see how a product performs in the market can be very risky.
- Around 2/3 new products fail after launch.
- New product failures can be very costly for a company and for an economy as a whole.
- \$135 billion of marketing spending was wasted on unsuccessful products in 2004.

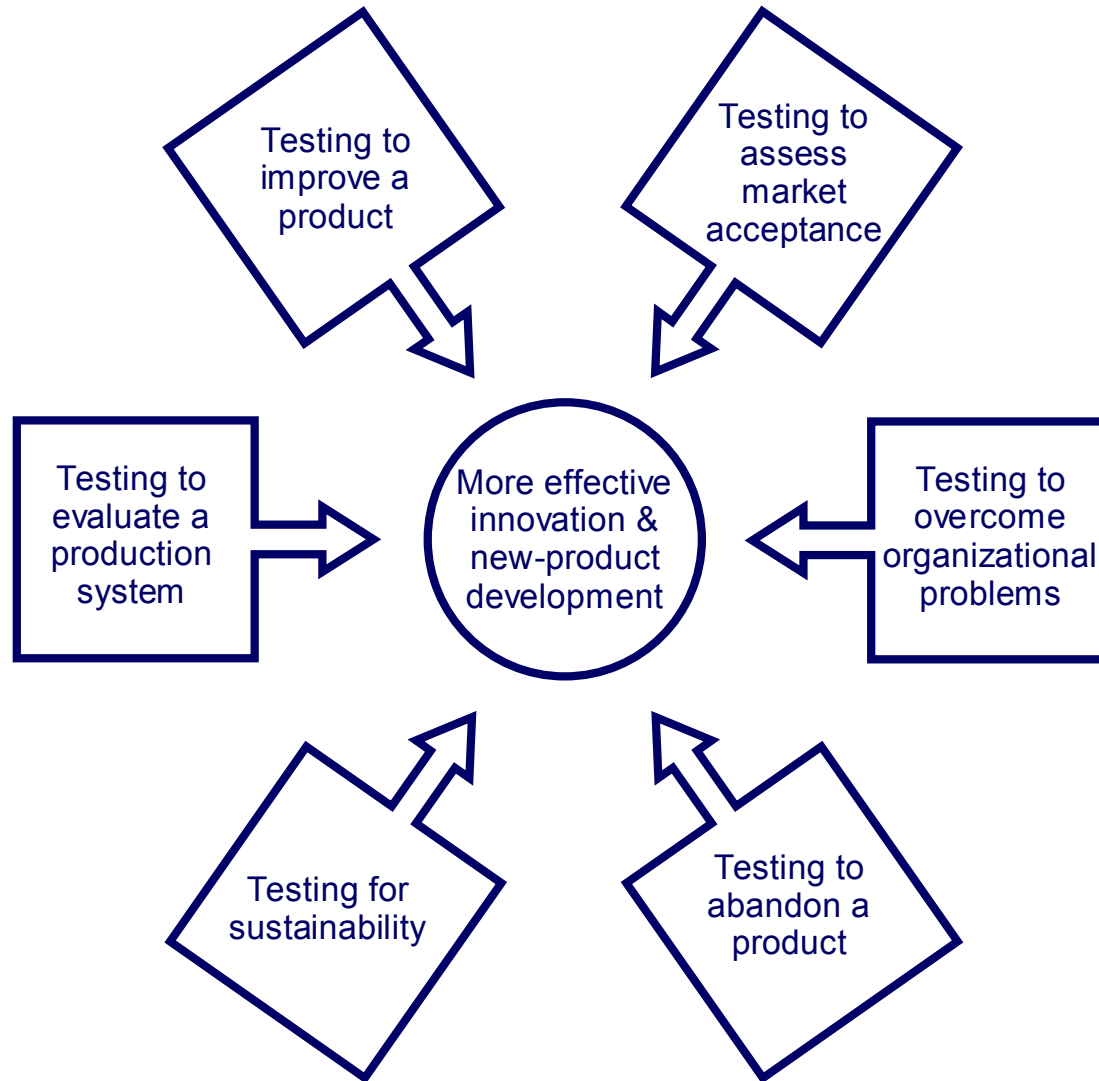
# The cost of new product failures

- Kimberly-Clark spent \$100 million to develop and another \$35 million to introduce Cottonelle Fresh Rollwipes, a moistened toilet paper.
- Ford lost \$350 million on the Edsel automobile.
- RCA lost \$580 million on the SelectaVision videodisc player.
- Texas Instruments lost \$660 million before withdrawing from the home computer business.

# Failure due to lack of testing

- “New product and service introductions have a startlingly high rate of failure, largely because they weren't tested properly before launch.” (Clancy & Krieg)
- Empirical evidence shows that systematic testing before a full-scale commercial launch can significantly improve a company's effectiveness in innovation and new-product development.
- To improve effectiveness in these areas, a company can conduct six distinct types of tests.

# Six Tests for More Effective Innovation and New-Product Development



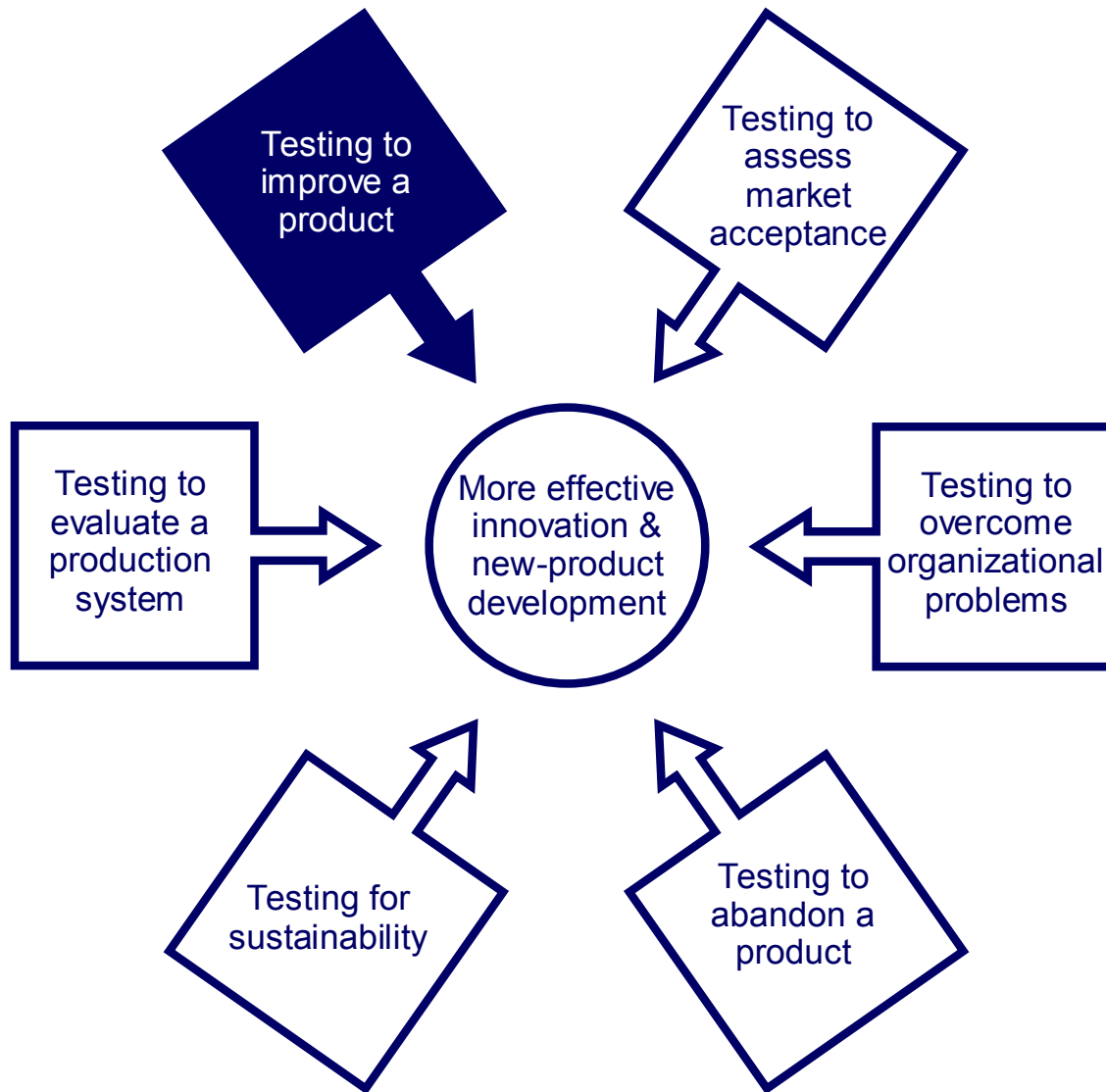
# Six Tests for More Effective Innovation and New-Product Development

- 1) Usually the most common type is testing to improve the product and to eliminate flaws and weaknesses.
- 2) Another frequently used type is testing to assess the acceptance of the new product in the market.
- 3) Testing is essential to evaluate the performance of the production and distribution system.

# Six Tests for More Effective Innovation and New-Product Development

- 4) Companies, however, can also use testing as a managerial tool to overcome organizational problems, such as resistance to change, communication barriers, play-it-safe behavior and inter-functional conflicts.
- 5) An often overlooked type is testing to abandon a product, when it makes more sense to terminate further development, because the product is unlikely to succeed in the market, and to refocus on other, more promising projects.
- 6) An area of growing importance is testing for sustainability, enabling companies to seize on the growing opportunities to develop environmentally-friendly products that eliminate waste, use resources more efficiently, improve the bottom line and make the company more competitive.

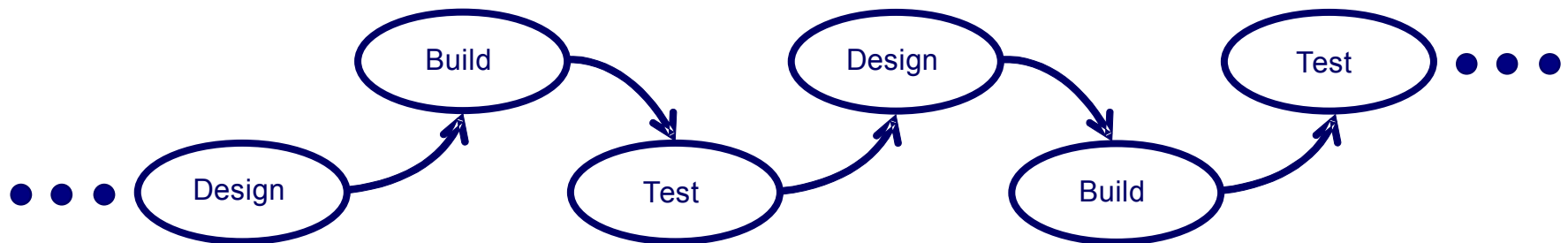
# Testing to improve a product



# Design-Build-Test Cycles

- A company may view the development of a new product as a sequence of design-build-test cycles.
- Aim of the test: to improve the product and to eliminate flaws and weaknesses.
- The lack of thorough testing prior to launch may ultimately result in the failure of a new product.

## Design-Build-Test Cycles



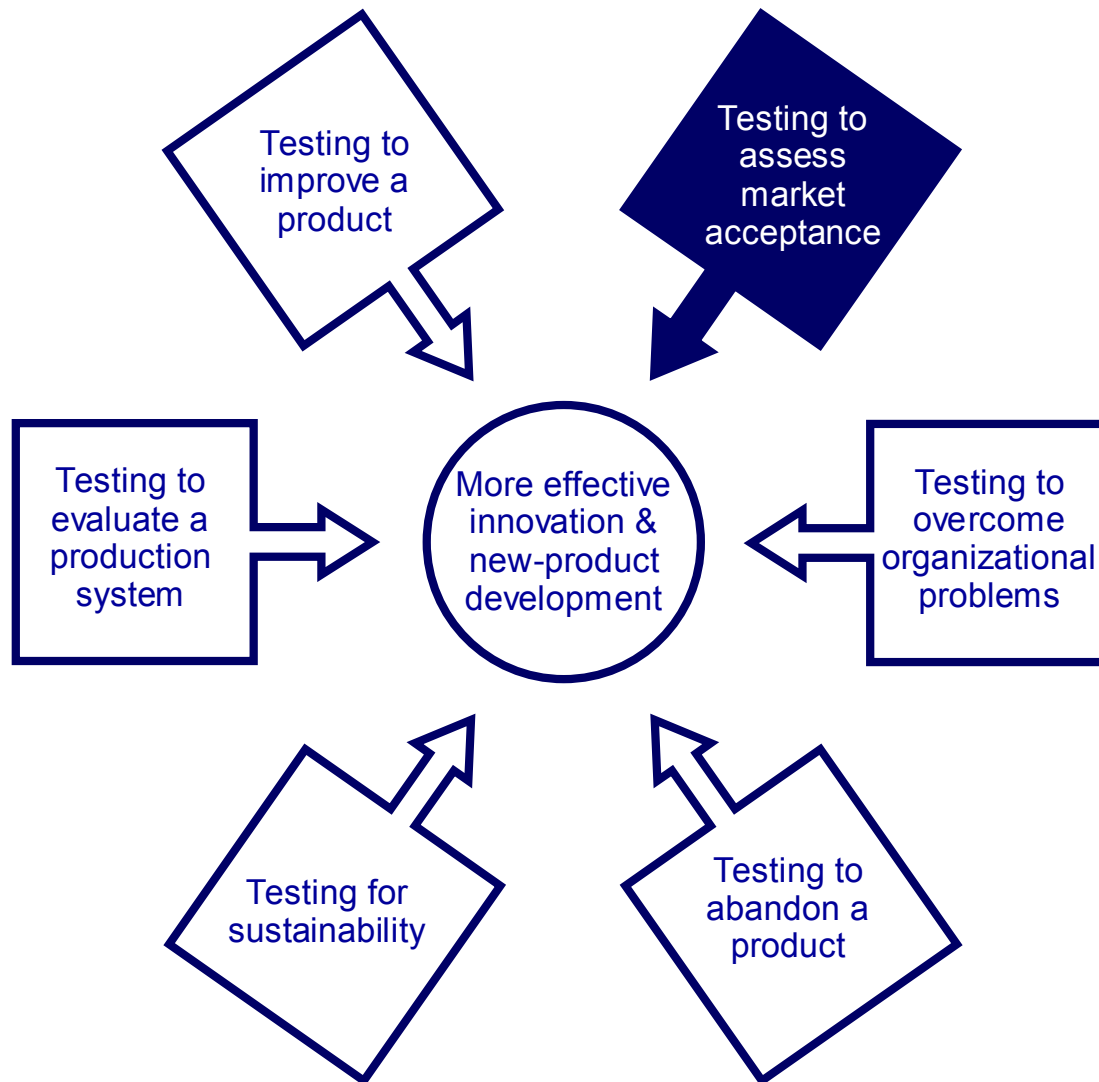
# Failure in the absence of proper of testing

- North American telecommunications company introduces a do-it-yourself broadband Internet access product (requires the customer installs the modem on her computer).
- The company mails tens of thousands of packages to customers throughout the country, containing a modem, cables and an installation manual.
- But, most customers are unable to install the modem using the enclosed installation manual!
- Thousands of disgruntled customers call the company's call center for assistance with the installation, but most of the call center employees are not qualified to provide this type of support over the phone!
- The company has to employ new people qualified to provide installation support over the phone.

# Success through systematic testing

- European business unit of top-ten global telecommunications company by revenue decides to introduce do-it-yourself broadband Internet product.
- User-friendly installation manual critical to success of the new product, so the development team rigorously tests the manual with trial users.
- Trial users provide feedback how to improve the manual, which is incorporated in the final version of the manual.
- When the first do-it-yourself broadband product is launched, over 80% of customers have no problems with the installation.
- Because of the well designed installation manual, fewer customers phone the call center for support.
- The new do-it-yourself product becomes the company's best-selling broadband product.

# Testing to assess market acceptance



# Testing to assess market acceptance

- Companies successful at developing innovative new products run pilot tests to assess how the market will accept the new product.
- They launch the new product on a limited scale to gauge the reaction of the customers, before going ahead with a full-scale commercial launch.
- After the test confirms a positive market reaction, they move ahead with a full-scale launch.
- This approach helps a company avert costly failures.
- It also provides a learning opportunity to fine tune the product offering.

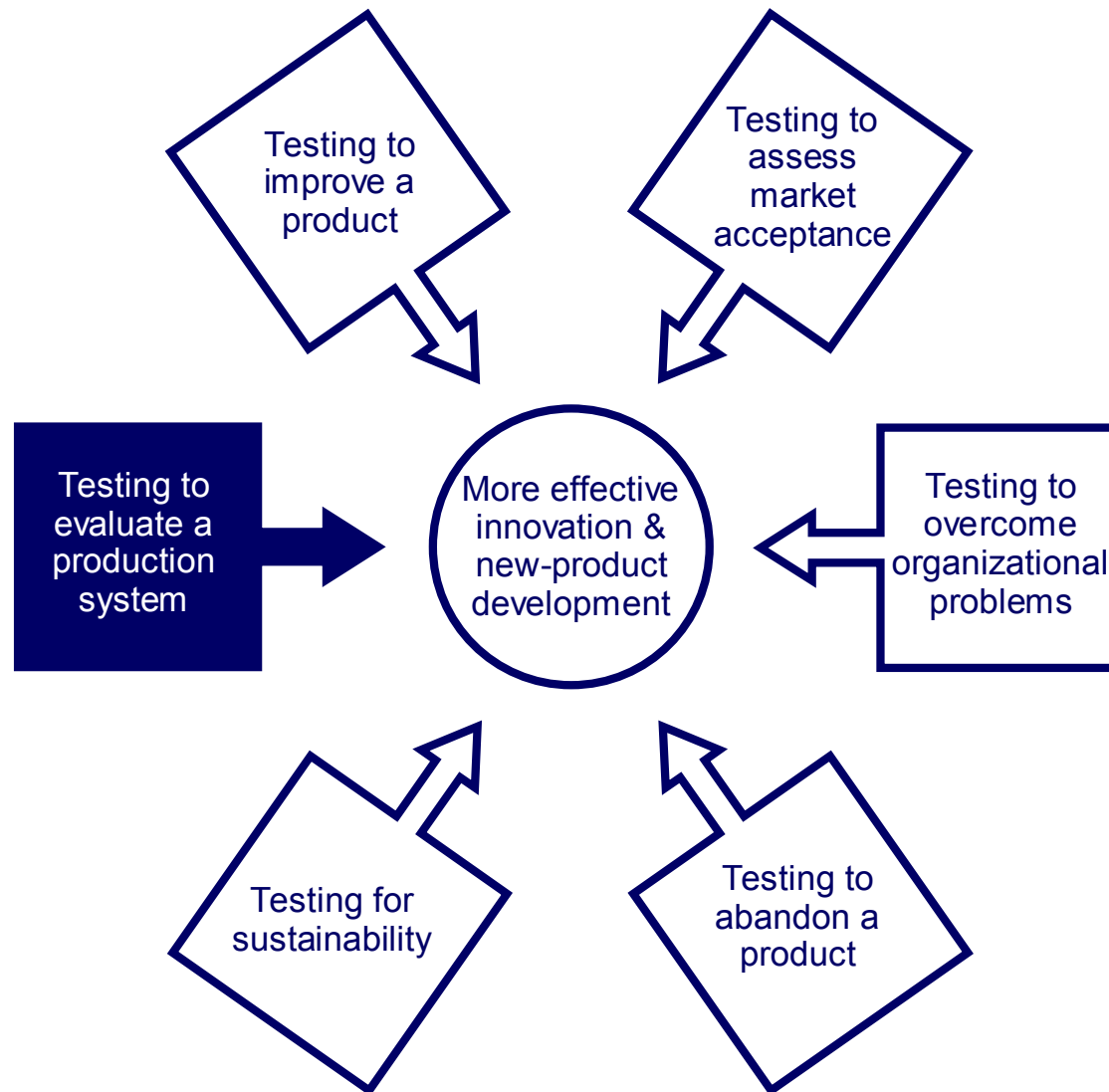
# Testing market acceptance = less risk

- Telecommunications company decides to introduce do-it-yourself broadband product, at a lower price than existing products.
- Not sure how the market will accept the new product, since there are no do-it-yourself broadband products in the market at the time.
- To avoid tarnishing the image of its existing broadband products, in case of a negative reaction from customers, it introduces the do-it-yourself broadband product, under a new brand, as a pilot test.
- The new do-it-yourself product turns out to be a huge success, becoming the company's best selling broadband product.
- The company introduces do-it-yourself versions of its existing broadband products a couple of months later.

# The risk of not testing market acceptance

- To counter the threat from Pepsi, the Coca-Cola Company decides in 1985 to change Coke's taste.
- Pre-launch market research shows that 60% of trial consumers prefer the new Coke formula to the old, while 52% percent prefer it over Pepsi.
- They abandon the original Coke soft drink and introduce New Coke in its place, with a sweeter, smoother taste.
- The company receives heaps of mail and 1,500 phone calls per day from angry customers.
- After three months, they re-introduce the old Coke with the original formula under the new name Coke Classic.
- New Coke sales decline, and the product is eventually abandoned.

# Testing to evaluate a production system



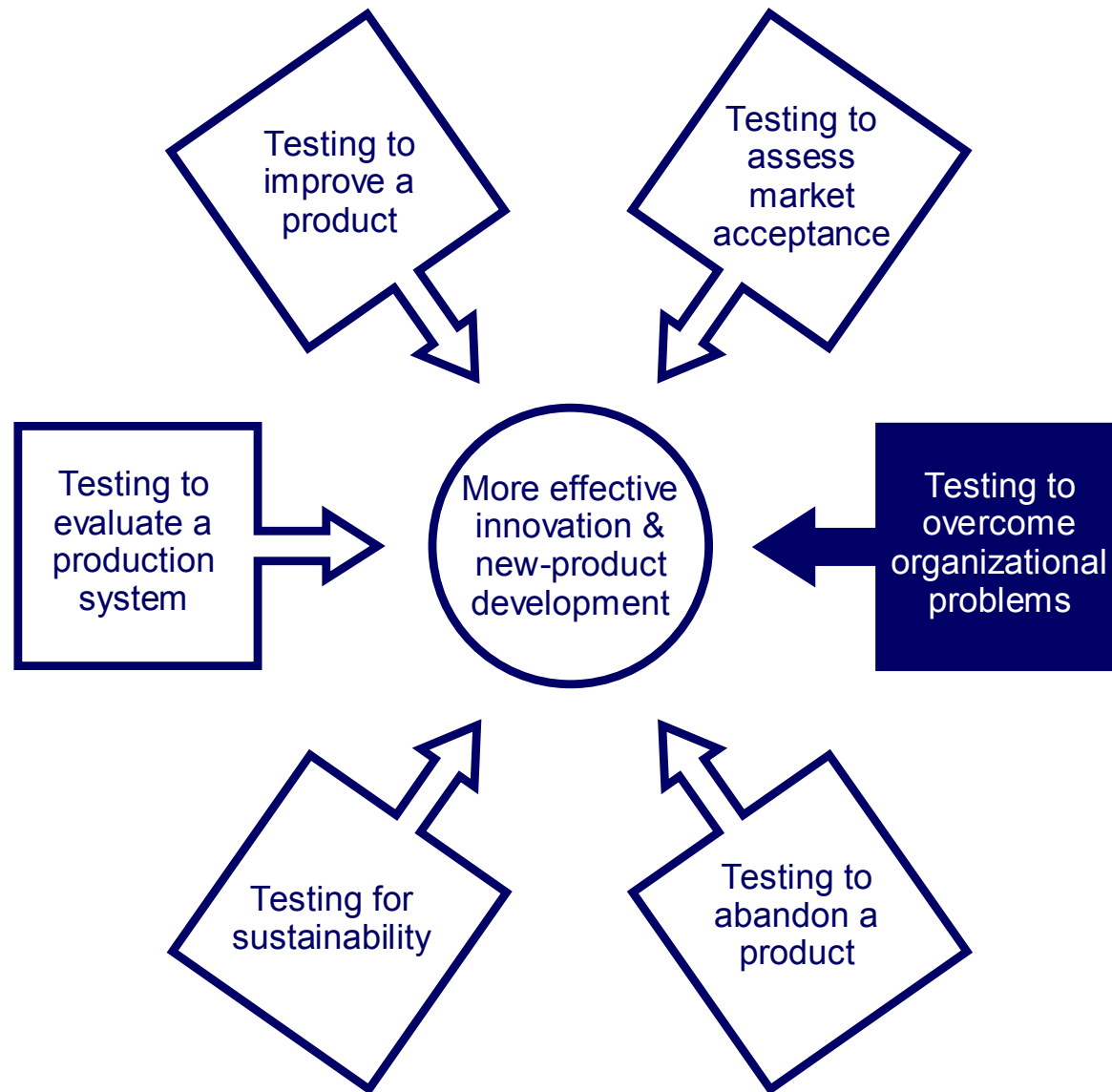
# Testing to evaluate a production system

- Companies adept at innovation and new-product development thoroughly test their production and delivery systems before a full-scale commercial launch.
- The development process at manufacturing companies typically includes a pilot manufacturing phase.
- The individual components, built and tested on production equipment, are assembled and tested as a system in the factory
- The company produces a number of units of the product and tests the ability of the manufacturing process to perform at a commercial level.
- After debugging and fine-tuning the production process, it starts commercial production at low volume, and gradually increases it.

# Pilot production in the appliance industry

- A major development project in the appliance industry has three basic prototyping and testing cycles, the last of which is to evaluate and improve the production system.
- 1st cycle: the company prepares sample drawings based on the product concept, builds and tests a prototype and completes the final drawings.
- 2nd cycle: the company prepares tooling for the factory, produces samples from this tooling, assembles units from the sample parts, and conducts tests of the assembled units.
- 3rd cycle (pilot production run): the company incorporates revisions from the previous cycle into the final designs and tests the entire system by building pilot production units.
- Customers then evaluate these units, and the company makes final revisions and prepares for volume production of the new product.

# Testing to overcome organizational problems



# Testing to overcome organizational problems

- Apart from its role as a technical problem solving tool for improving a product or production system, testing can also serve as a managerial tool for overcoming organizational problems.
- Organizations can use testing to surmount resistance to change, communication barriers, inter-functional conflicts, organizational inertia, and play-it-safe behavior.
- In some development projects, testing may even be more valuable for overcoming organizational problems, than for solving purely technical problems.

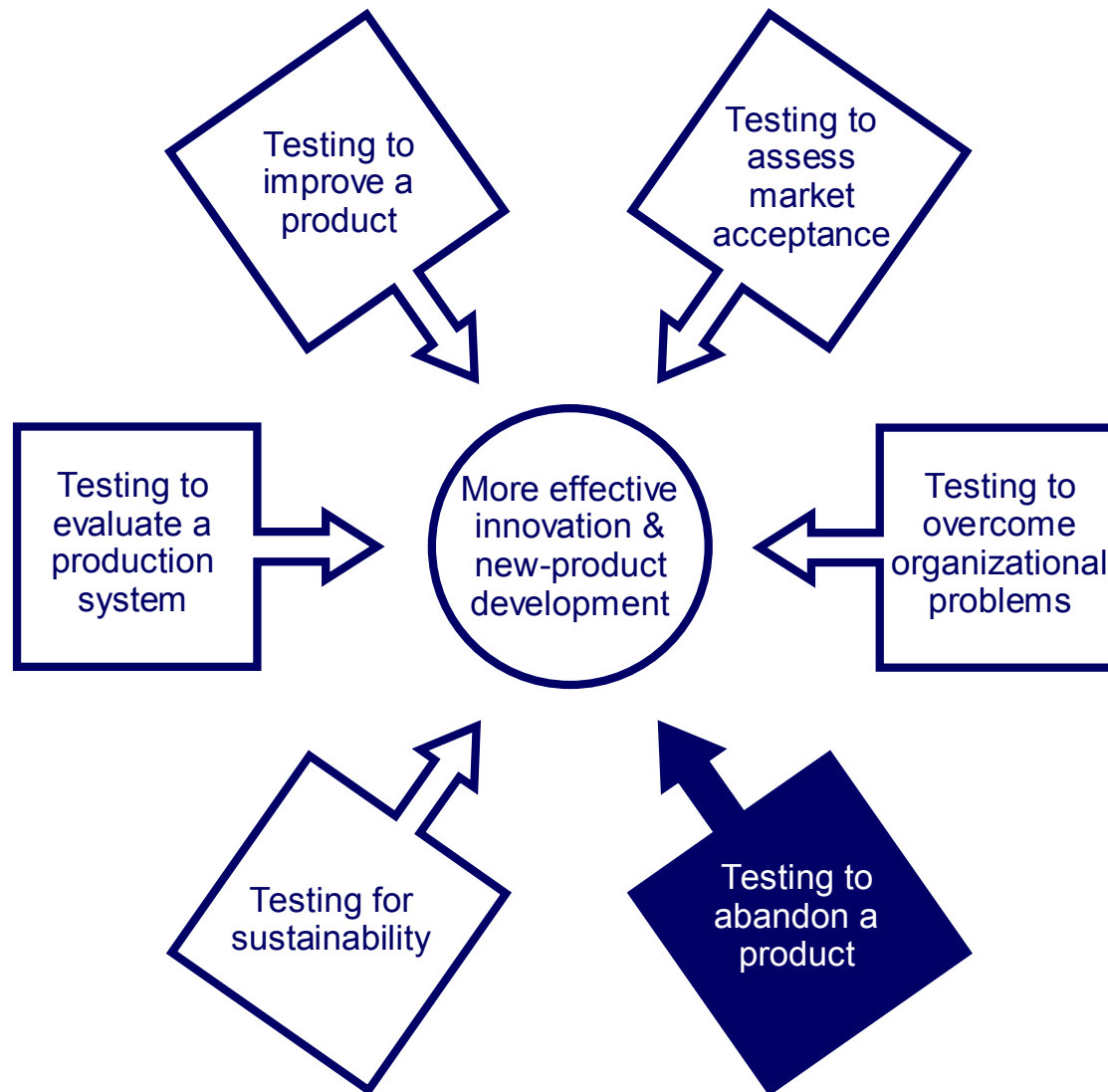
# Speed increase pilot test

- An European ISP decides to increase the access speeds of its broadband Internet products.
- Main concern: can the network support the surge in traffic due to the higher access speeds?
- Engineers do simulations and inform the marketing people that the network can support the speed increase.
- But, before the speed increase, the engineers have second thoughts, and inform the marketing people they can't guarantee that the speed increase is feasible.
- The engineers are unwilling to bear the responsibility if something goes wrong, even though the network can most likely support the speed increase.

# Speed increase pilot test

- The marketing people are infuriated and an inter-functional conflict starts to brew between the two departments.
- Proposed solution: a pilot test of the new access speeds - increase the access speeds gradually, without informing the subscribers; if the network does not support the speed increase, immediately decrease the speeds to the original levels.
- The engineers have nothing to risk and go along with the proposal.
- The pilot test confirms that the network can support the speed increase.
- The company introduces the new access speeds as planned and announces them publicly, with confidence in its ability to deliver.

# Testing to abandon a product



# Testing to abandon a product

- Despite solid market research and a professionally run new-product development process, a new product may be unlikely to succeed if introduced in the market.
- Then it makes more financial sense to terminate further development, rather than introduce a loss-making product.
- But, people tend to identify with the product they are developing and don't like to admit failure, so nobody wants to be the first to suggest abandoning the product.
- To avoid wasting additional resources on a product that's unlikely to succeed, it is very useful to have an objective arbiter that will substantiate the decision to terminate the development project.
- A pre-commercial test with trial users can substantiate the decision to abandon the product.

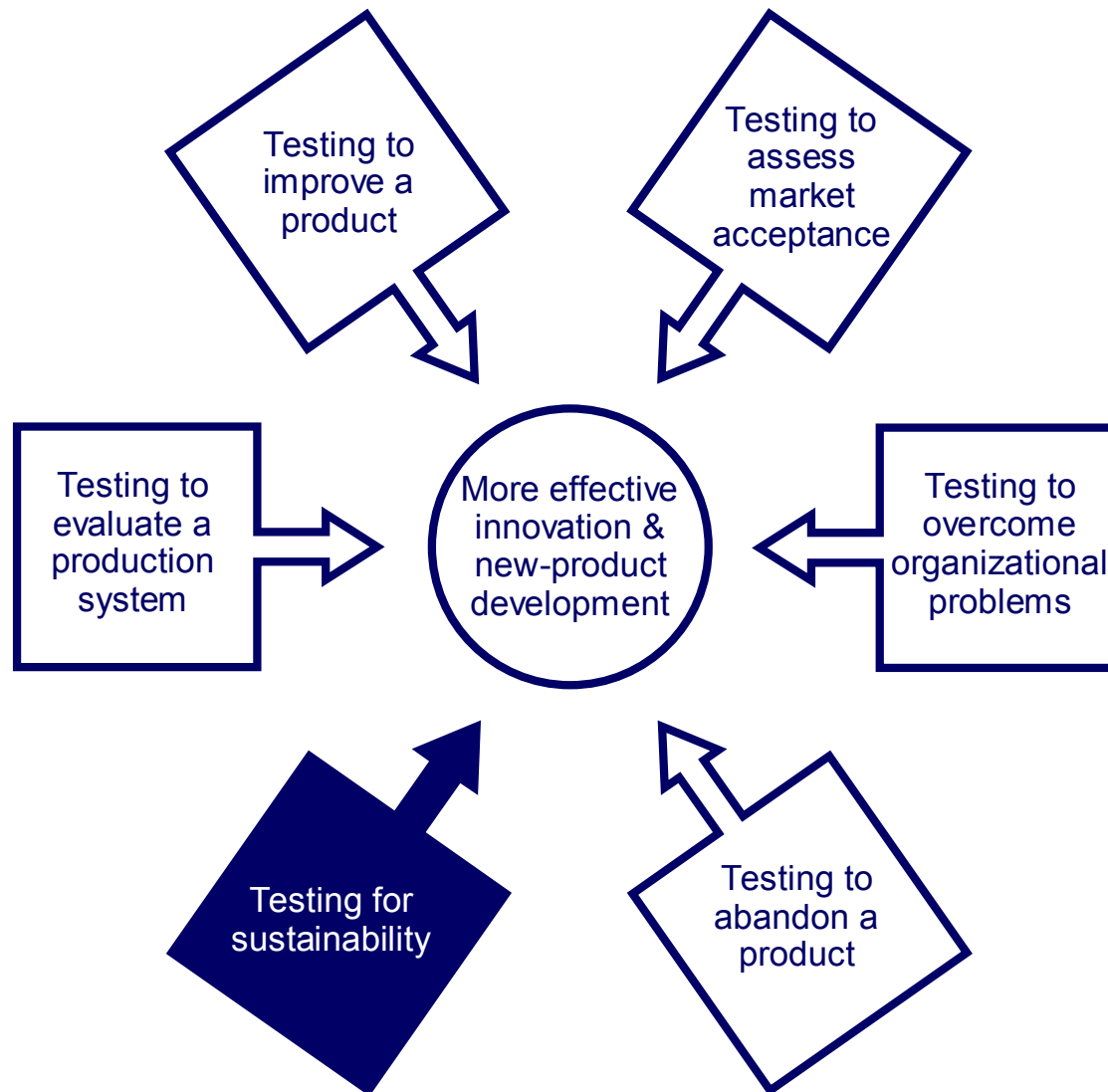
# Pre-commercial anti-virus test

- A European telecommunications company decides to introduce an anti-virus service for broadband Internet customers.
- The company chooses an innovative centralized solution, hosted and managed from one location.
- Customers don't need to install any software on their computer, because the solution filters the Internet traffic and eliminates viruses before they enter their computer.
- The service costs less than comparable packaged anti-virus software.
- But, technical problems appear: users can't access some harmless Internet content when the anti-virus service is active; chat and other applications don't work; some users can't connect to the Internet altogether.

# Pre-commercial anti-virus test

- Engineers work on the glitches, but most problems keep repeating in subsequent trials.
- Everybody on the product development team knows the platform doesn't work properly, but no one wants to be the first to propose terminating the project.
- Proposed solution: test the service with a limited number of broadband customers & use the customer feedback to decide how to proceed.
- As expected, most customer feedback is very negative, so the development team proposes abandoning the anti-virus service & reallocating the equipment for other purposes.
- The top management accepts the proposal, and the company refocuses on more productive projects.

# Testing for sustainability



# Testing for sustainability

- A sustainable economy can be maintained indefinitely into the future in the face of biophysical limits.
- Major opportunities exist for companies to develop environmentally-friendly products, which also improve profits and competitiveness:
  - the US economy is not even 10% as energy efficient as the laws of physics allow;
  - the waste heat produced by US power stations equals the total energy used by Japan;
  - only about 1% of all the materials used to serve the US is actually transformed into products and still in use six months after sale.
- Through fundamental changes in design, companies are developing ways to make natural resources (energy, minerals, water, forests) up to 100 times more productive than they are today.

# Sustainability & closed-loop manufacturing

- A sustainable practice companies are using to develop and test new products is closed-loop manufacturing, which can entirely prevent waste.
- Key principle: every manufacturing output should be either composted into natural nutrients and returned to the ecosystem or recycled and used in another production cycle.
- Xerox plans to save 1 billion dollars by re-manufacturing its entirely recyclable line of eco-friendly photocopiers.
- DuPont receives its polyester industrial film back from customers after they use it and recycles it into new film.

# Sustainability & closed-loop manufacturing

- Interface Corporation has designed, produced and tested a new floor-covering material called Solenium, which can be completely re-manufactured into an identical new product.
- Solenium lasts four times longer and uses 40% less material than ordinary carpets – translating into an 86% reduction in material intensity.
- Solenium is free of toxic materials, is practically stain proof, does not grow mildew, and has aesthetic advantages over ordinary carpets.
- It is so superior that Interface does not position it as an ecological product, but simply a better one.
- With vast untapped opportunities for companies to develop environmentally-friendly products that improve the bottom line, the importance of testing for sustainability is set to increase.

# Conclusion

- Systematic testing before a full-scale commercial launch can significantly improve the likelihood a new product will succeed in the market.

# Questions?