

## Collaborative Engineering

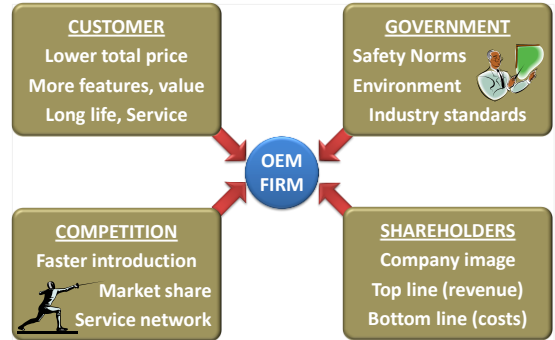
### Project Identification



- Innovation Characteristics
- Technology Push / Market Pull
- Market Research Planning
- 'Voice of Customer'

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## Why Product Innovation



## Why Product Innovation

### Product Innovation: the ring of confidence!

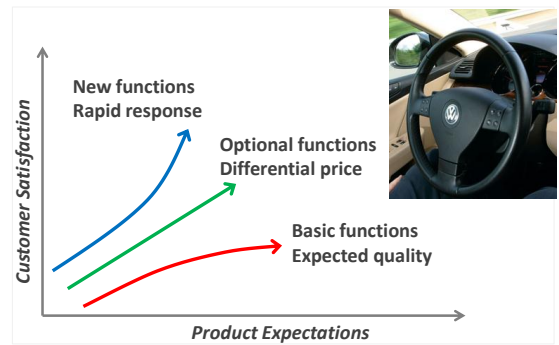
- Largest revenue from products introduced last year
- Highest customer satisfaction from new features
- Result: value addition (top line)
- Better external image



### Process Innovation: continuous improvement

- Reduce wastage of resources: material, labour, energy
- Result: cost reduction (bottom line)
- Higher internal strength

## Why Product Innovation



## Project Identification



## Project Identification – Approaches

### Technology push:

- R&D → Production → Test Marketing
- Example: Sony Walkman, Apple iPhone



### Market pull:

- Market Research → R&D → Production
- Example: GE Healthcare VScan Portable Ultrasound



## Project Identification – Types

Type	Better	Best
Problem	Solution	Prevention
Unreliability	Quantification	Reduction
Waste	Automation	Elimination

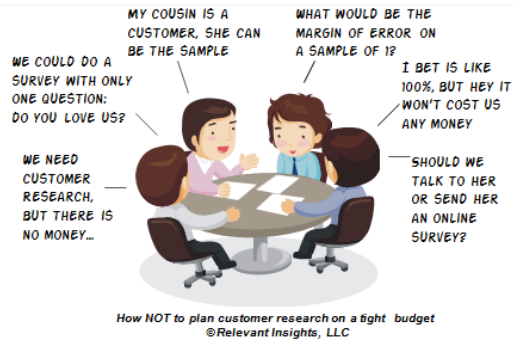
Example



## Market Research

- **Overall Goal**
  - Analyse customer feedback for existing products
  - Identify new product needs, new product features
  - Gather information about competing products
  - Test marketing of new products / prototypes
- **Overall Guidelines**
  - Collect information from all possible sources
  - Preserve the exact words of the customer
  - Focus on target market only

## Market Research Planning



## Market Research Planning

- **Methodology**
  - By observation:
    - Visual / Mechanical
  - By reporting:
    - Questionnaire: subjective / objective
    - Interview : personal / phone
- **User Level**
  1. Professional in the same area (ex. automobile engineer)
  2. Sufficiently knowledgeable to judge (distributor)
  3. Delegates purchase responsibility to others

## 'Voice of the Customer'

- **Clear statement of the need in minimum words:**
  - Must not be vague (difficult to evaluate alternatives)
  - Must not point to a solution (blocking of new ideas)
- **Examples:**
  1. Vehicle for rural needs
    - *too vague.*
  2. Three-wheel cycle for carrying hay stacks in small village
    - *points to a specific solution, limits application*
  3. Manually powered vehicle for carrying farm produce
    - *just right*

## SUMMARY

- Product innovation – essential for progress of civilization
- Project identification – technology push or market pull
- Market research planning – goal, methodology
- Preserving the 'voice of customer'