Understanding System Model & Life Cycle Analysis

By Professor R .M Belokar 5.08.2020 PEN 461 .TM

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                    System


        Input        Process       Output


        ↑        Feedback      ↑              ↓
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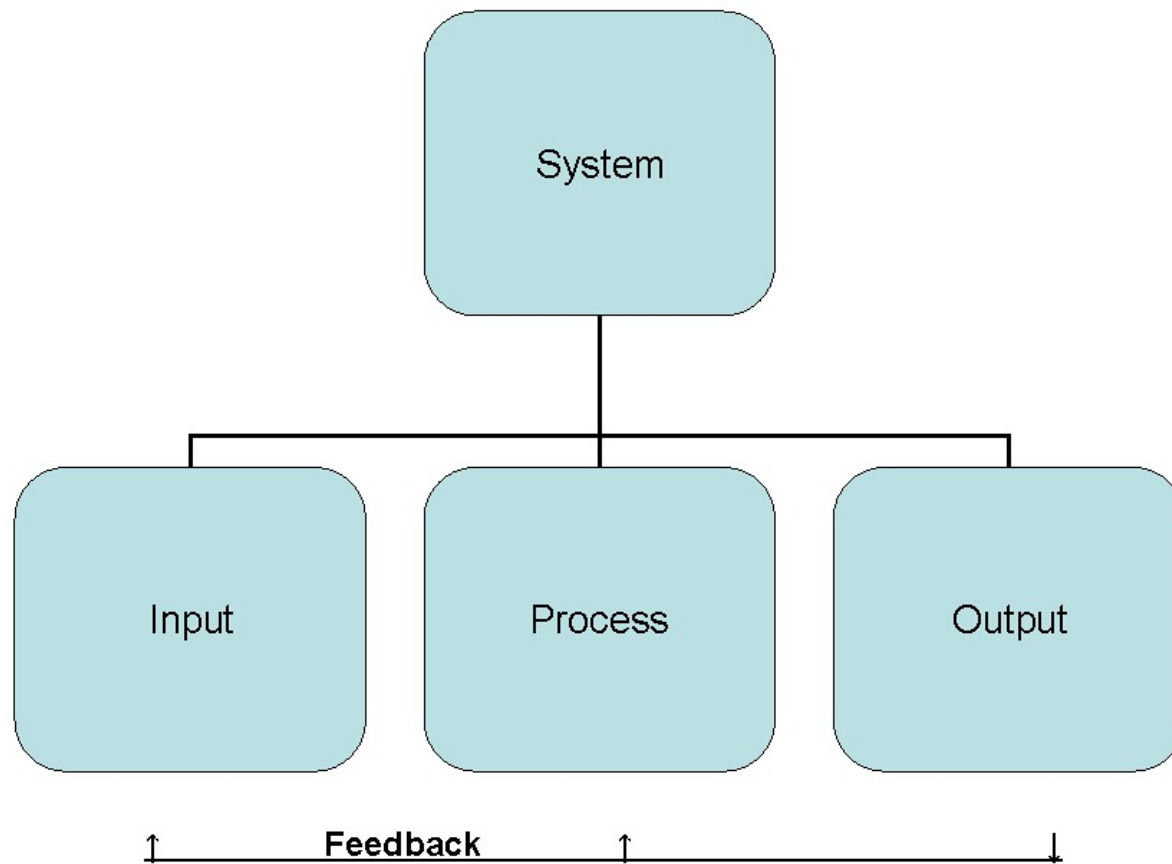
Reference RM Belokar research work 2008

The Universal Systems Model

Goal | Input(s) | Process | Output(s)

What should the process do to be successful?

Acts on the inputs to create the outputs
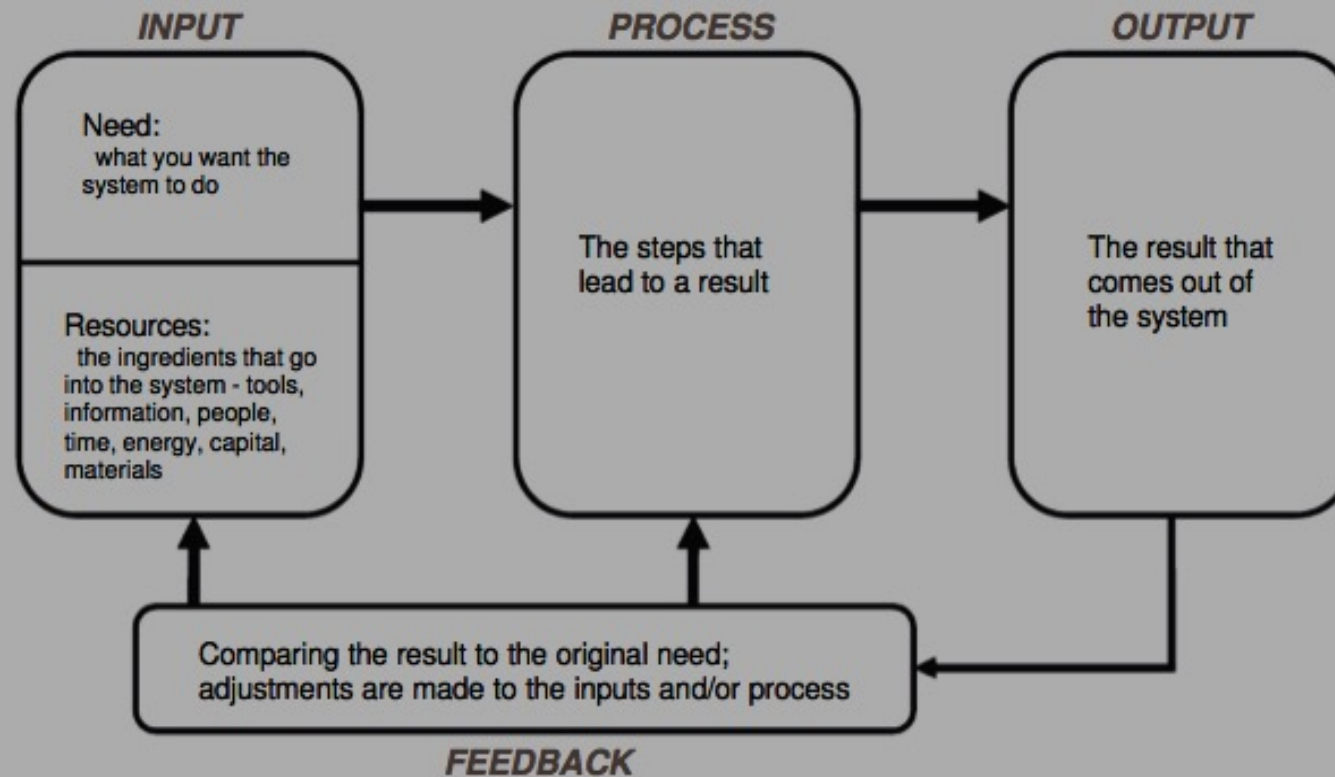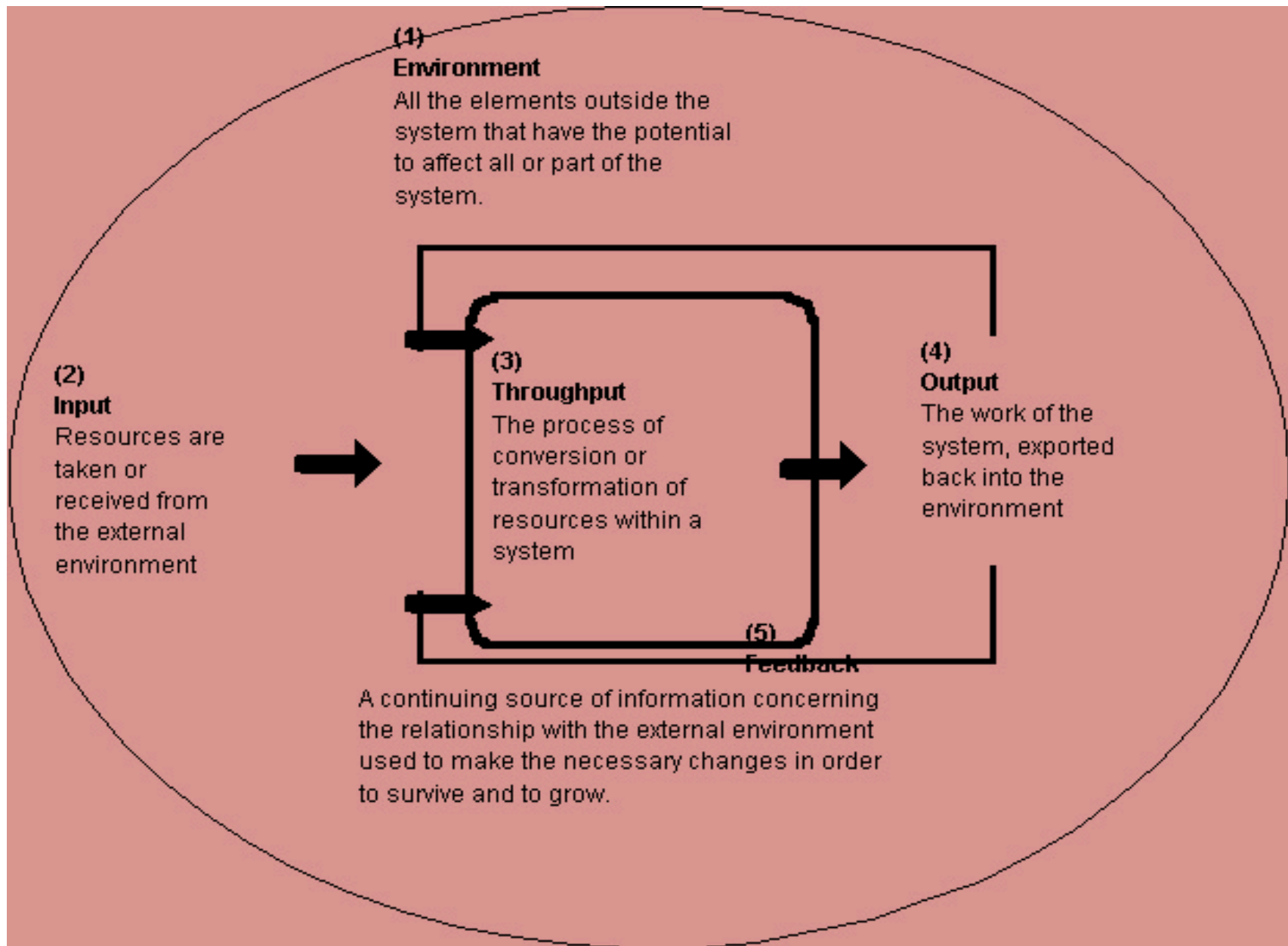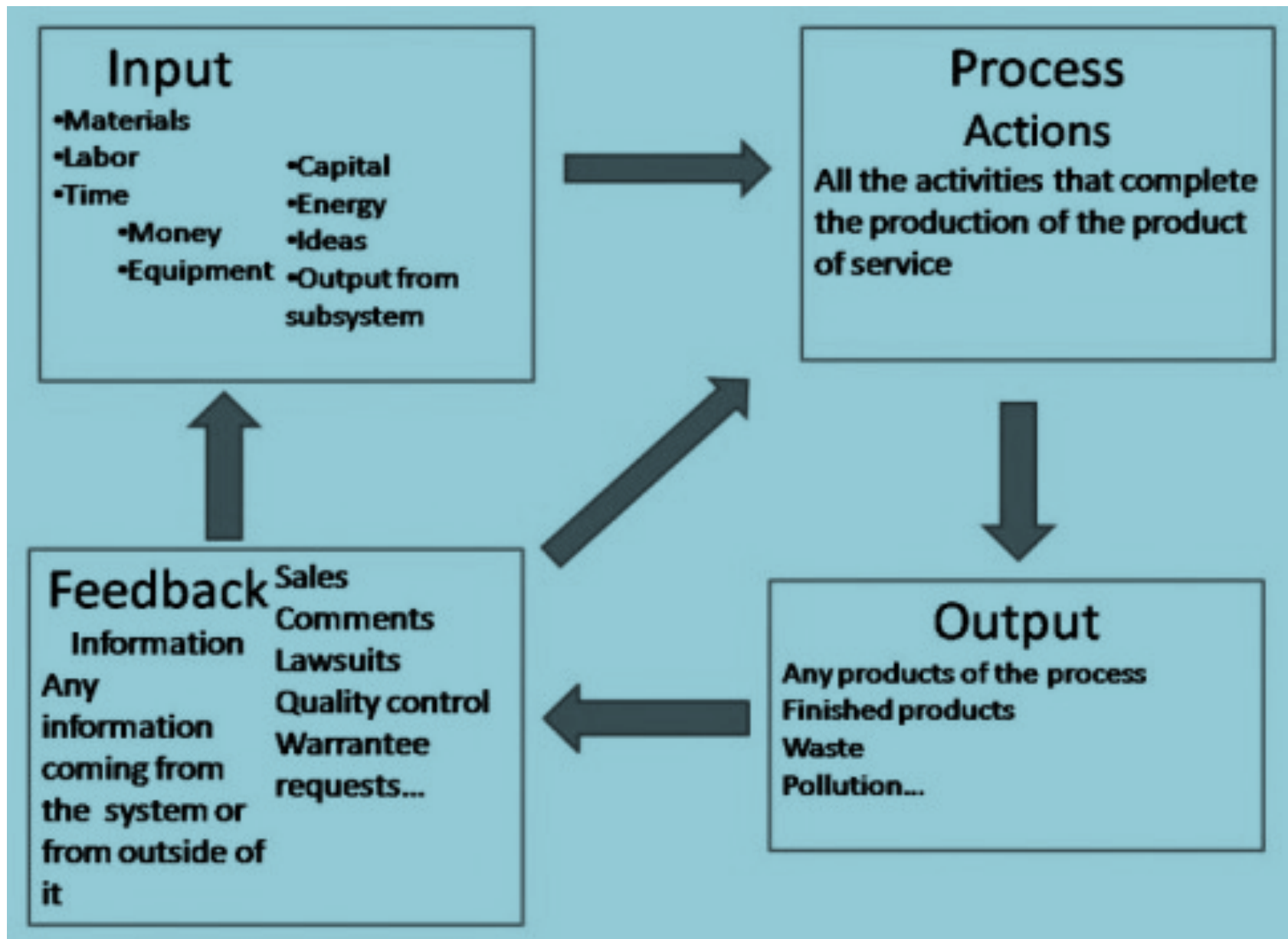
Feedback
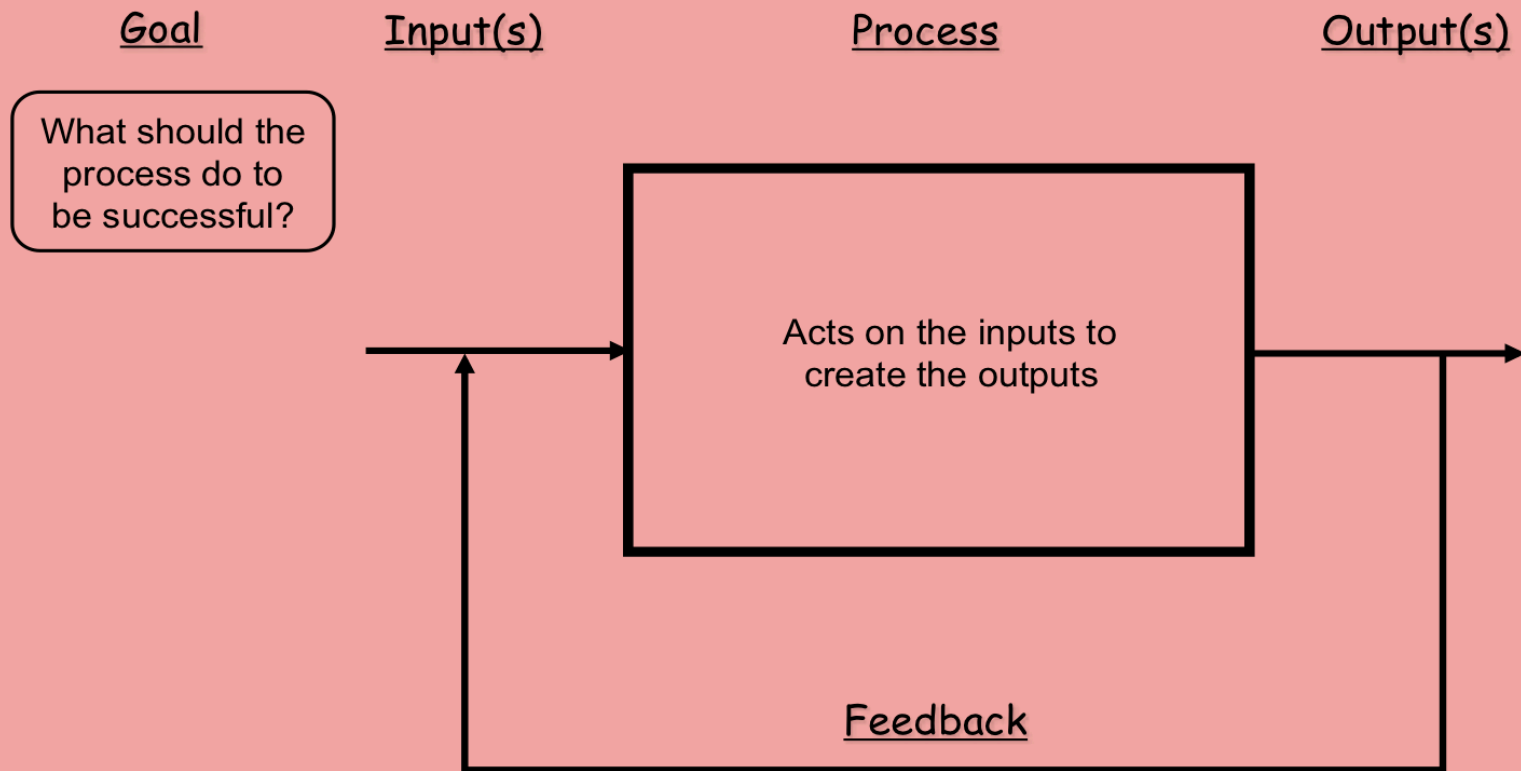
D. Miley Jun-10 R1.0

Universal System Model of Technology

Every technology, no matter how simple or complex, fits into this descriptive model

INPUT

Need:
what you want the system to do

Resources:
the ingredients that go into the system - tools, information, people, time, energy, capital, materials

PROCESS

The steps that lead to a result

OUTPUT

The result that comes out of the system

Comparing the result to the original need; adjustments are made to the inputs and/or process
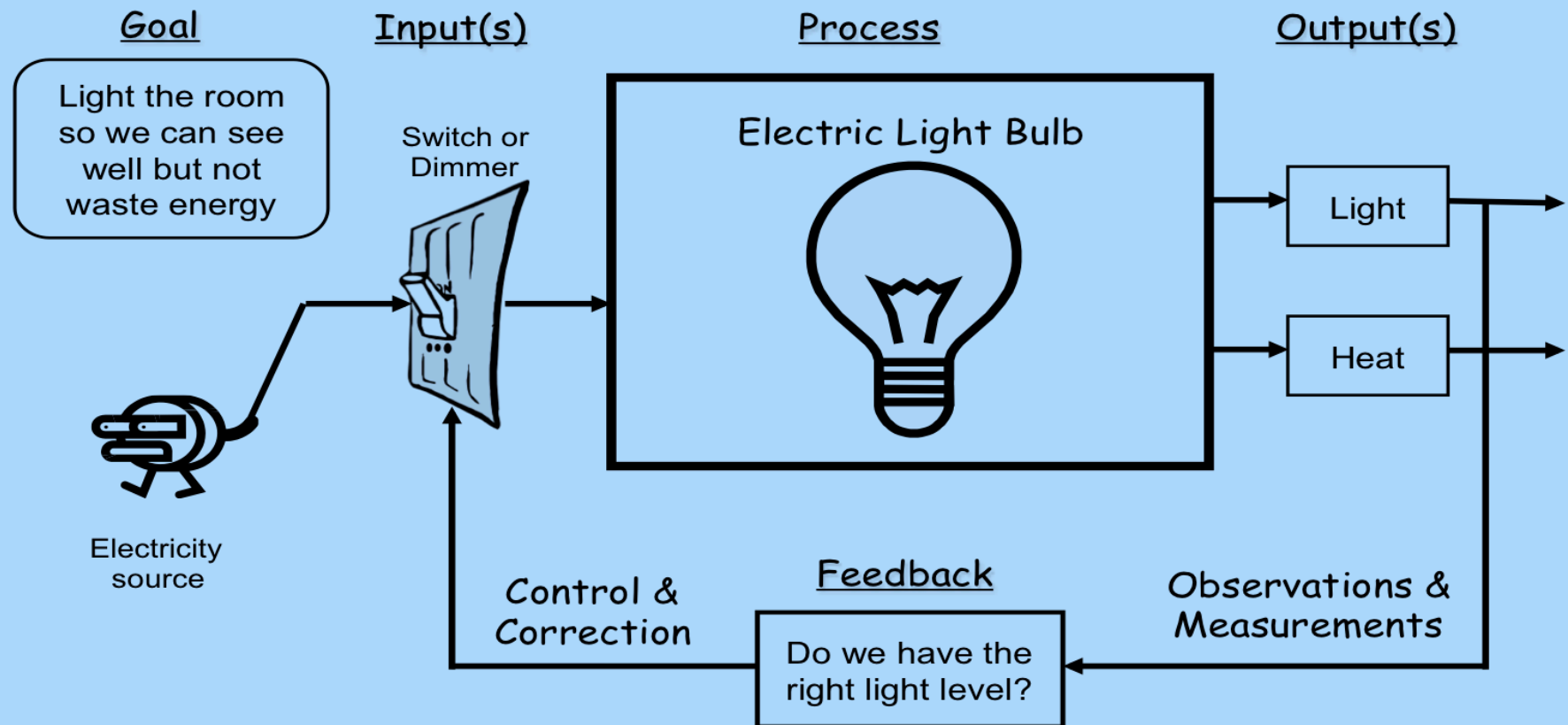
FEEDBACK

Adapted from the work of Jay Forrester, Massachusetts Institute of Technology; James Snyder, West Virginia Dept. of Education; & James Hales, Fairmont State College

(1)
Environment
All the elements outside the
system that have the potential
to affect all or part of the
system.

(2)
Input
Resources are
taken or
received from
the external
environment

(3)
Throughput
The process of
conversion or
transformation of
resources within a
system

(4)
Output
The work of the
system, exported
back into the
environment

(5)
Feedback
A continuing source of information concerning
the relationship with the external environment
used to make the necessary changes in order
to survive and to grow.

Input
- Materials
- Labor
- Time
  - Capital
  - Energy
  - Money
  - Ideas
  - Equipment
  - Output from subsystem

Process
Actions
All the activities that complete the production of the product of service

Feedback
Information
Any information coming from the system or from outside of it

Sales
Comments
Lawsuits
Quality control
Warrantee requests...

Output
Any products of the process
Finished products
Waste
Pollution...

The Universal Systems Model
Light Bulb Example

Inputs =

5 M

+

T+T

+

I (Q+Q)

Risk(s) involved in maintaining

system performance.

Out of control?
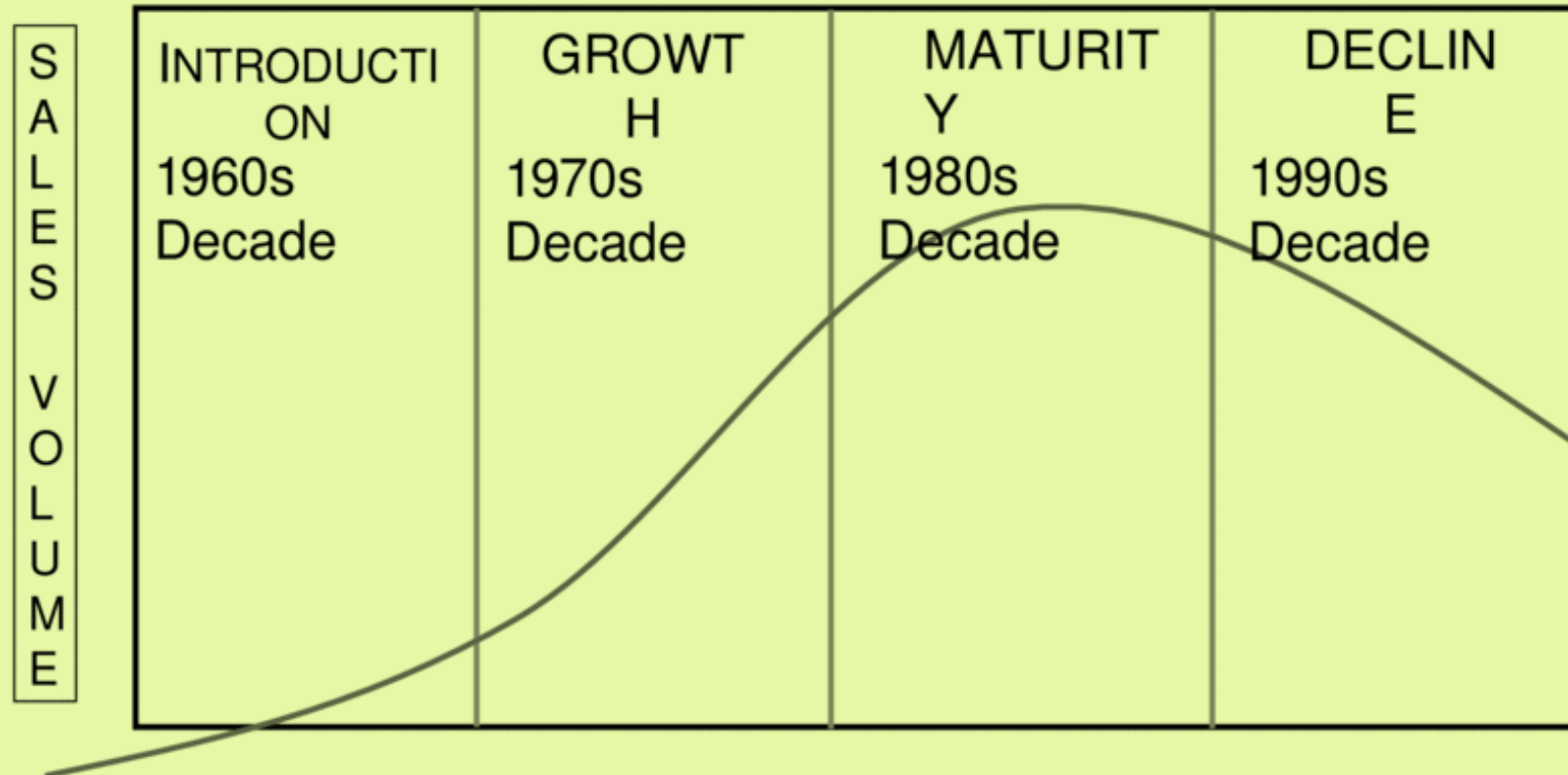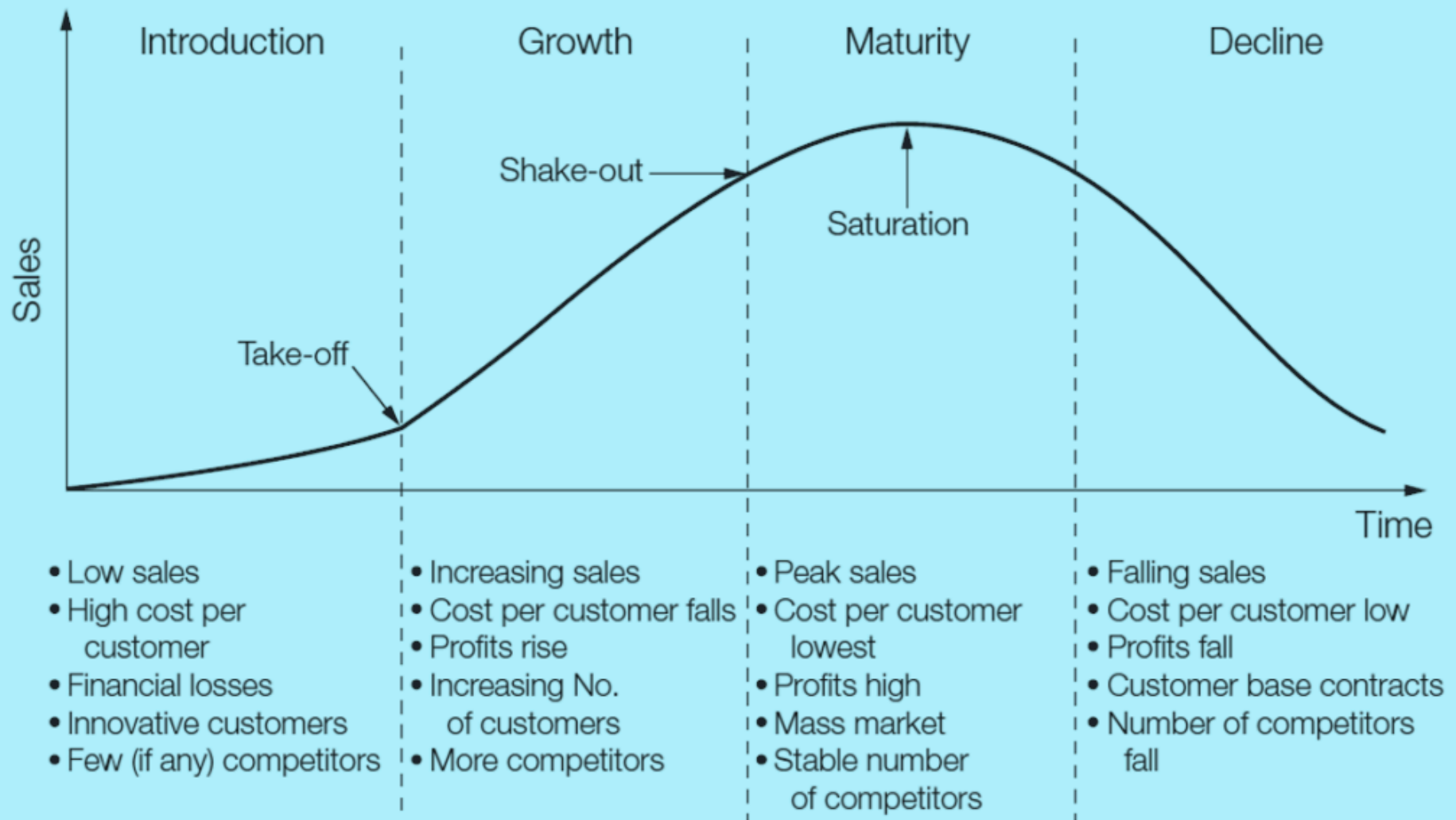5M+ I+ Q,Q + T,T
Life cycle >>>>>.......

PRODUCT LIFE CYLE FOR HMT WATCHES

	INTRODUCTION 1960s Decade	GROWTH 1970s Decade	MATURITY 1980s Decade	DECLINE 1990s Decade

STAGES →

SALES VOLUME

The 4 Life Cycle Stages and their Marketing Implications

Introduction	Growth	Maturity	Decline
• Low sales	• Increasing sales	• Peak sales	• Falling sales
• High cost per customer	• Cost per customer falls	• Cost per customer lowest	• Cost per customer low
• Financial losses	• Profits rise	• Profits high	• Profits fall
• Innovative customers	• Increasing No. of customers	• Mass market	• Customer base contracts
• Few (if any) competitors	• More competitors	• Stable number of competitors	• Number of competitors fall

Product Life Cycle

EZY BUSINESS

The phases that each product is expected to go through from its release on to the market until its removal from the market.
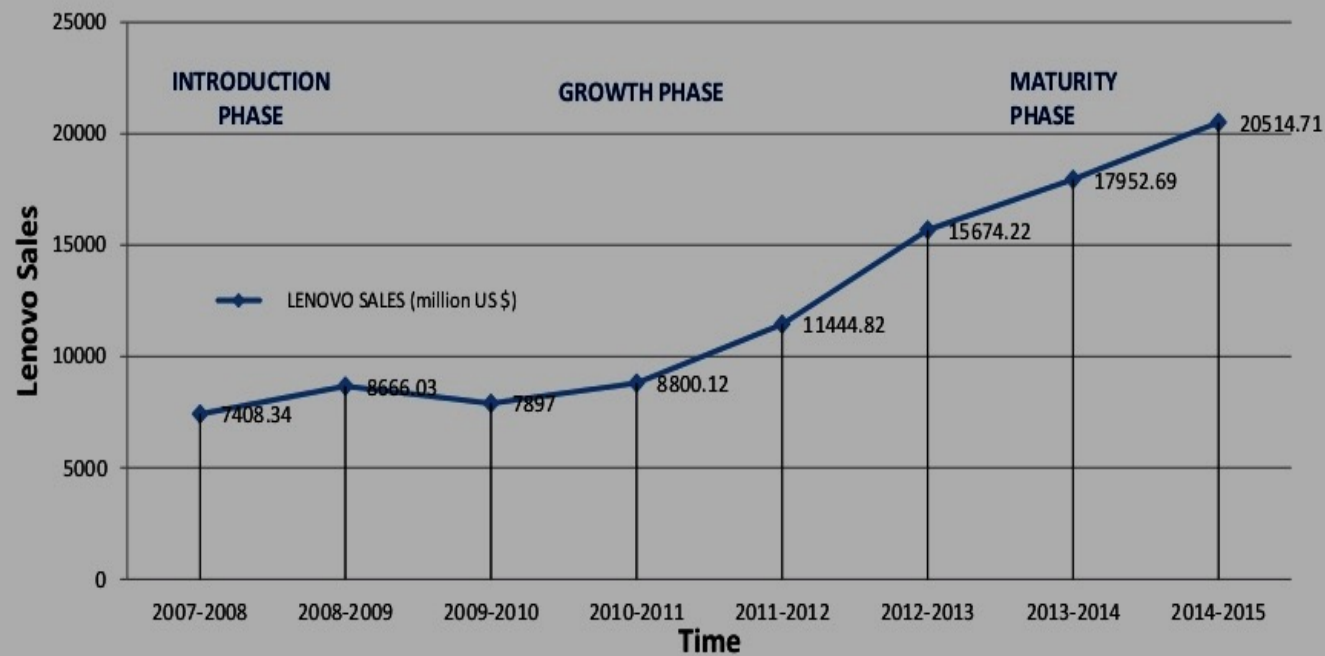
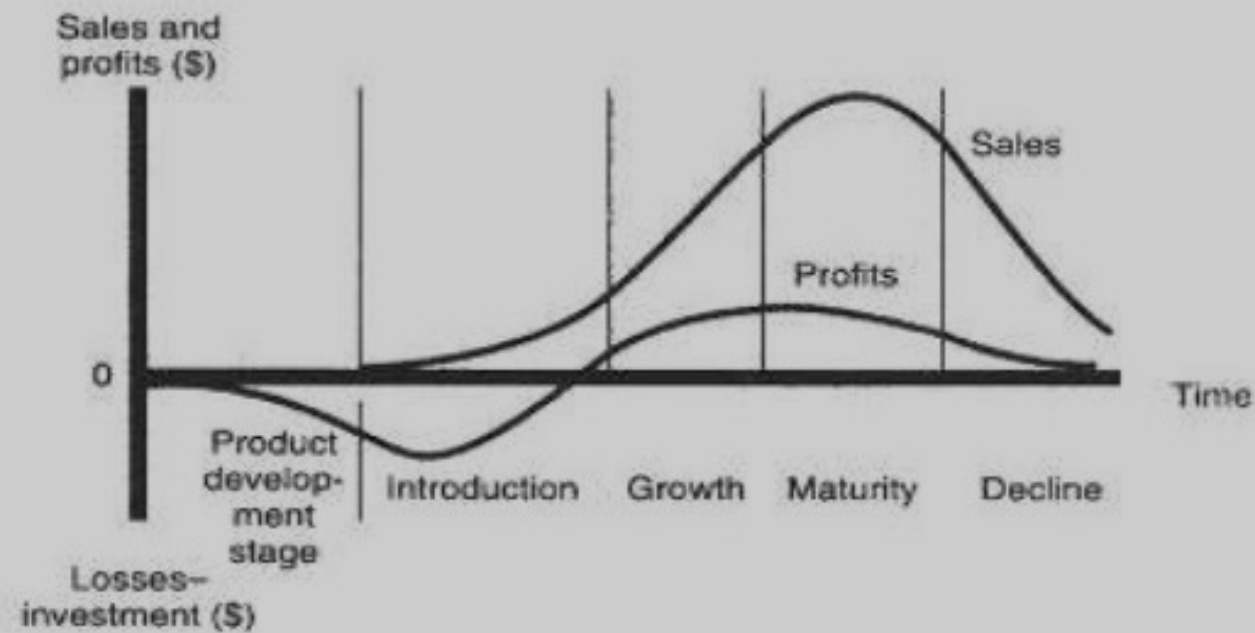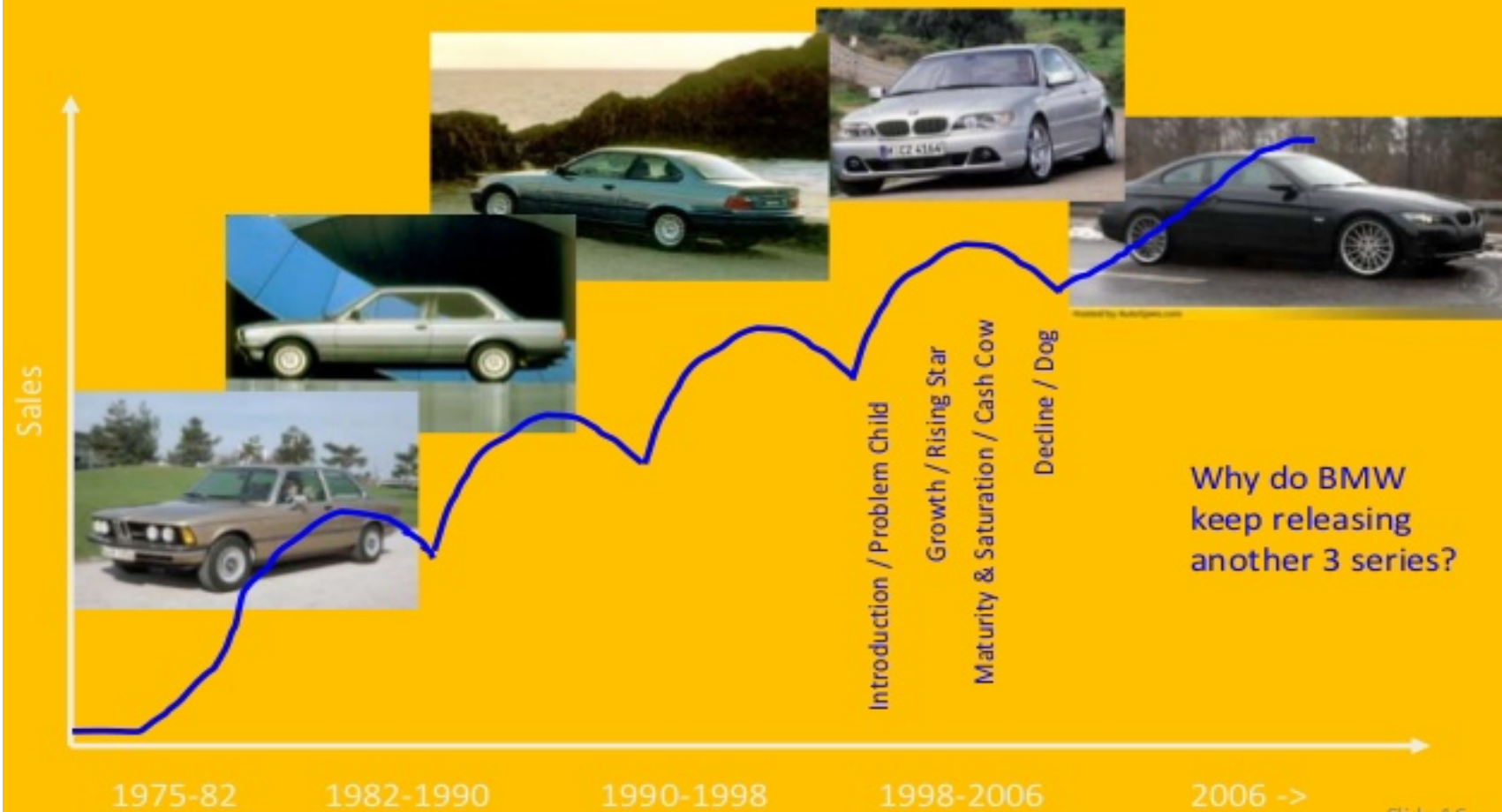| Forecast Sales Performance	Focus Marketing Priorities	Identify Investment Needs	Manage Product Portfolio

Product Life Cycle:

Launch Phase

After initial research and development, the product is launched to the market. The sales of the product slowly increase, as awareness of the product grows.

Growth Phase

The product has been on the market for an adequate period of time to capture the commercial potential and for the sales performance to accelerate.

Units Sold

| Launch | Growth | Peak | Decline |

Time Elapsed

| Advertising Tactics | Price Changes | Quality Changes | New Markets | Product Differentiation |

Peak Phase

The commercial success of the product begins to plateau as the product becomes outdated and the market becomes saturated.

Decline Phase

The sales performance of the product begins to drop and the business either re-invests or removes the product from its portfolio.

Lenovo Product Life Cycle

Lenovo Financial Information

Product life cycle of Royal Enfield

Sales and profits ($)

Sales

Profits

0

Time

Product develop-ment stage
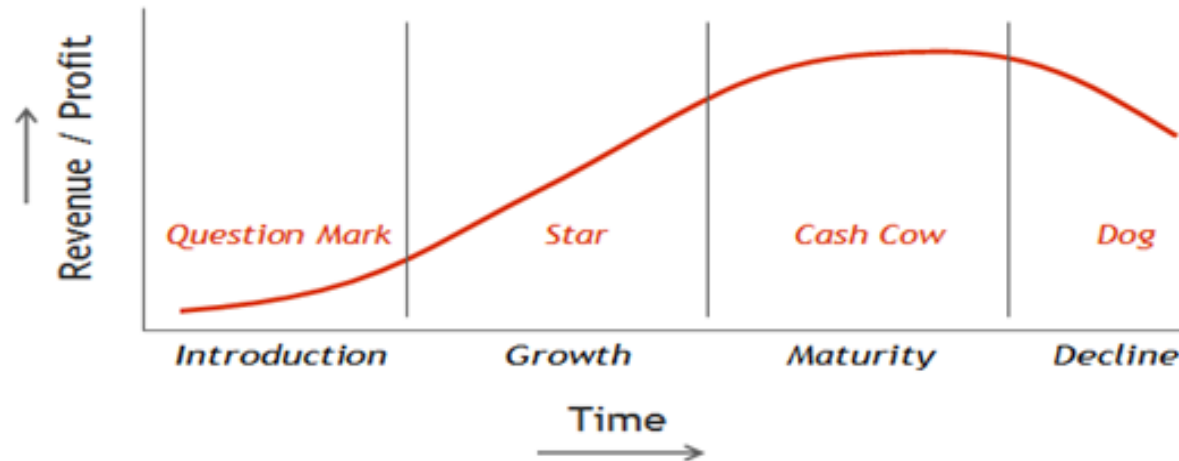
Introduction

Growth

Maturity

Decline

Losses– investment ($)

Product Life Cycle – BMW 3 Series

BCG positions throughout the product life cycle:

The Boston Matrix

Market Growth

Ade Aminu | Product Life Cycle and Boston Matrix | Copyright 2006 Biz/ed

BCG Growth-Share Matrix (otherwise called BCG lattice, BCG investigation, or Boston Box) was created by Bruce Henderson in the mid-1970s for Boston Consulting Group. The model is helpful in brand advertising, key administration and generation administration and business portfolio examination. (Boundless, 2016)
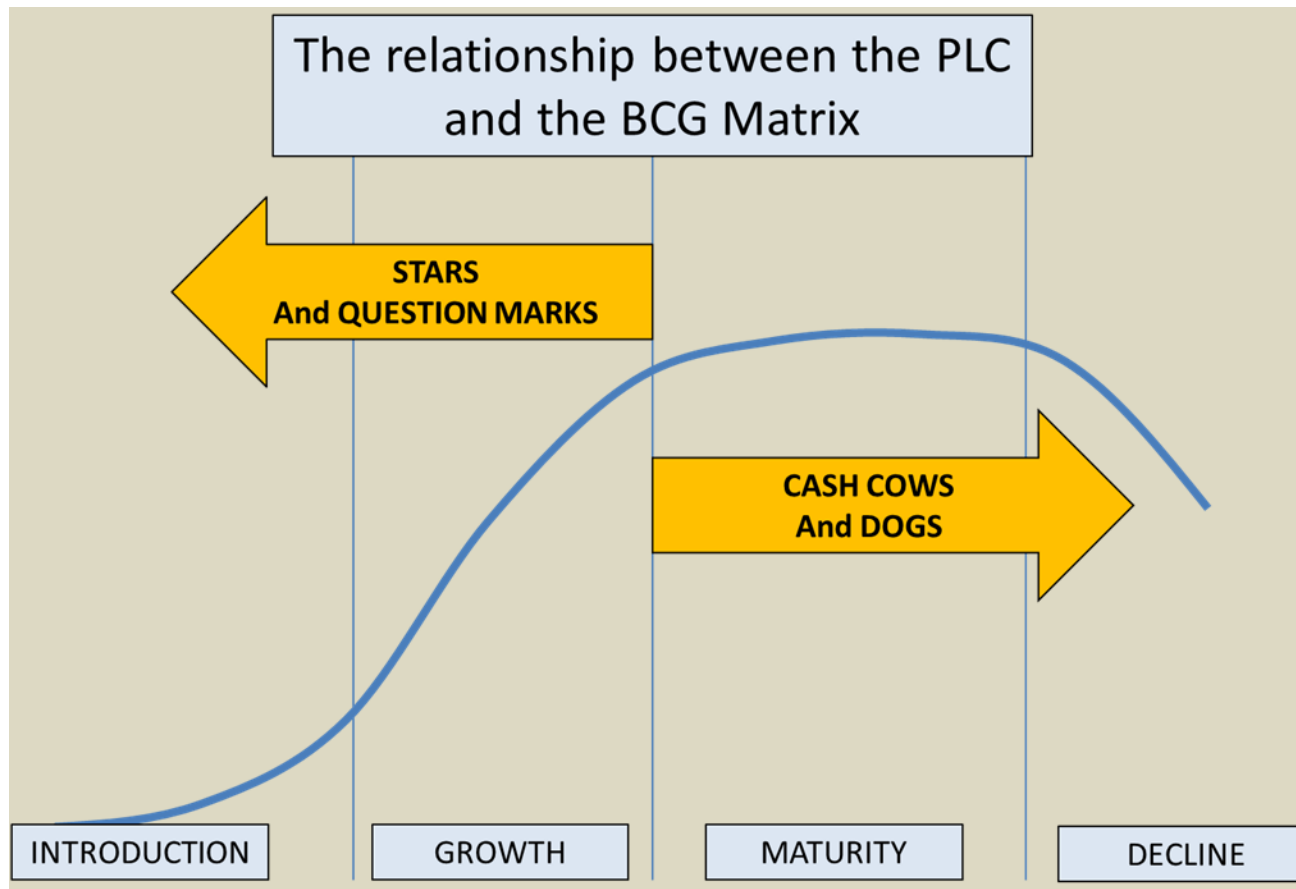
Items are characterized into four particular gatherings, **Stars, Cash Cows, Question Marks and Dog.** (Katherine Arline, 2015)

Four Elements:

There are four pieces of the matrix which are **Stars** that be seen as market driving items, **Cash cows** producing a critical level of salary yet are not costing the association much to keep up, **Dogs** that are likely making a misfortune or a low benefit, best case scenario and lastly Questions Marks that are in a high development advertises however does not appear to have a high share of the market. (bcg, 2016)

Uses of BCG Matrix

Star	Problem child
High market growth	High market growth
High market share	Low market share
Cash neutral	Cash absorbing
Hold	Build
Cash cow	**Dog**
Low market growth	Low market growth
High market share	Low market share
Cash generating	Cash neutral
Harvest or milk	Divest

The relationship between the PLC and the BCG Matrix

STARS And QUESTION MARKS

CASH COWS And DOGS

INTRODUCTION | GROWTH | MATURITY | DECLINE

Va-A P,   N-Va- A P
Types of Sub-systems