How to Increase Activity of Factory

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Abstract

Since society developing and technology progressing, product's life period is going to short. Meanwhile market competition is getting more intense. Factory has to develop new products required by martket rapidly so that factory can get developing. This paper applies system dynamics model to simulate a process of new products developed in a factory, finds problems, put forward scheme of solving problems. The factory has carried out this scheme, the period of new products developed has been shorted 50 per cent. Some new products have occupied market rapidly.

1. Introduction

Since society developing and technology progressing, product's life period is going to short.Competition is getting more intense. Chinese economy is turning to market economy from plan economy. Factories have to produce more products required by market rapidly. Managers of factories have two ways to solve this problem. One is to buy patent and production line, it is limited by investment fund(investment fund is administrated by government department). Another is to develop new products by themself, it needs less fund. At the end of 1988, auther applied system dynamics model to study mechanism of developing new products of the factory. Auther applied system dynamics model simulate the process of new products developed in the factory. There were two problems in old mechanism. One was that the period of new products developed was too long so that not to satisfy requirement of market in time. Another was that rate of putting into production was low.

$$\text{rate of putting into production} = \frac{\text{number of putting into production}}{\text{number of new product designed}}$$

2. Old mechanism of developing new products

Figure 1 gives a simplified causal-loop diagram of old mechanism.

Loops are:

(1) designer's enthusiasm->+number of new product designed->+prize ->+designer's enthusiasm

(2) number of new product designed->+number of putting into production ->+profit->+investment->+number of new product designed
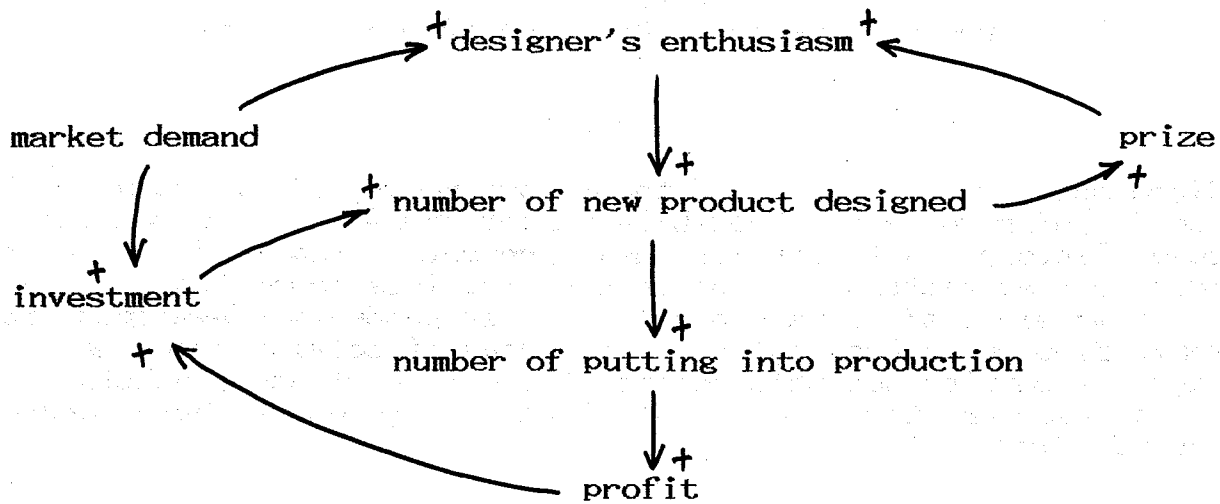
Fig.1. The feedback loops of old mechanism

Under old mechanism, prize was relatived with number of new product designed and it was lowwer.Therefore designers only care for number of new product designed and their enthusiasm were lowwer. It led to that the rate of putting into production was low and the period of new product developed was longer.

Under old mechanism, the rate of putting into production was about 10 per cent and the period of new product developed was three years.

3. New mechanism of developing new product

Figure 2 gives a simplified causal-loop diagram of new mechanism.

Loops are:

(1) designer's enthusiasm->+number of new product designed->+number of putting into production->+profit->+prize->+designer's enthusiasm

(2) number of new product designed->+number of putting into production->+profit->+investment->+number of new product designed

designer's enthusiasm +

market demand

+ number of new product designed   prize

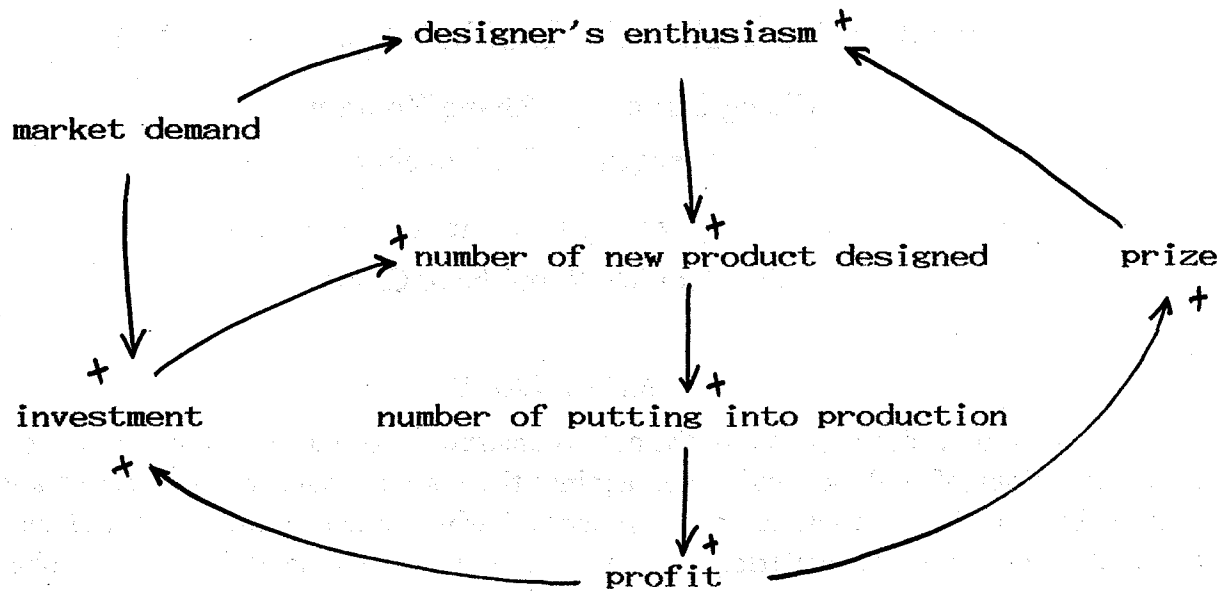investment   number of putting into production

profit

Fig.2. The feedback loops of new mechanism

Under new mechanism, prize is relatived with profit and it is higher.Therefore designers not only care for number of new product designed but also number of putting into production and profit, and their enthusiasm is higher. It lead to that the rate of putting into production is higher and the period of new product designed is shorter.

4. The effect
    At the beginning of 1989, the manager began to operate the new mechanism.Up to now ten kinds of new products have been developed in the factory.. Three of them have been putted into production and they have occupied market.
    The rate of putting into producyion is 30 per cent and the period of new product designed is one and half years. The fact prove that the new mechanism is better than old one.

REFERENCES

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