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## On Adaptive Extended Different Life Cycle of Product Design Strategy\*

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### Abstract

The article uses research ways of following the whole lifespan of product and enterprise's development course to research strategy of company's product design and development. It announces enterprises of different nature, enterprises at different developing stage will adopt different mode strategy. It also announces close causality between development course of company and central technology and product. The result indicated in different developing stages such as company development period, crisis predicament period, lasting steadies period, improving by payback period, issues steadies secondary period, declining go and live period, enterprise should pursue different mode product tactics of research and development such as shrinking strategy, consolidating strategy, innovation keeping forging ahead strategy. Enterprise should break regular management mode to introduce different research and development mode to promote enterprise's competitiveness effectively.

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*Keywords:* design strategy; product life cycle; product development; competitive power

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### 1. Introduction

Enterprises should adjust one's own tactics of research and development of products in right time in different periods. Enterprises can be born, survive and develop in social economic environment in capacity of economy entity, it is mainly nature, manpower and social base resource characteristic having the advantage of being unique held. Enterprises could realize with other humanized entities value according to these superior resources[1].

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1.1 In period of growing up of enterprises

Enterprises should adopt the tactics based on one's own advantage specialty to seek to survive; the tactics have the advantage of being characteristic foundation, guard type and characteristic of trial.

In self-protection consciousness function of enterprise instinctive survive, enterprise in developing issue is suitable for adopting following tactics of product research and development in market and technology. Because enterprises face the dangerous market environment and the rival's extrusion on initial stage of starting an undertaking, they still are in childhood puberty in managing, management, technology, etc.. Enterprises want to survive, they must adopt safe tactics of insurance to reduce the risk taking behavior to follow the paces of pioneer's famous-brand enterprises could make enterprises obtain the chance of surviving[2].

1.2 Enterprises crisis period

In this period, enterprise's own product quality, engineering level is in unstable state, and is pinched with strength rival, enterprise is in most difficult period concerned to survive. Enterprises should adopt meeting an emergency stronger management and tactics of product research and development in time at this moment to slow down new product research and development efforts, appropriate slowing down market exploring and technology, expansion pace that capital drop into, stabilize core technological product quality, for the focal point of work to stabilize confidence, stability business administration, user of goal, render service to pursue and shrink the battle line type tactics of product research and development.

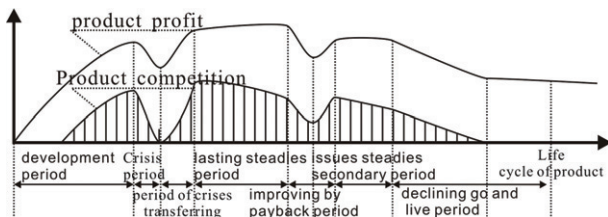


Fig. 1 Period of growing up of enterprises

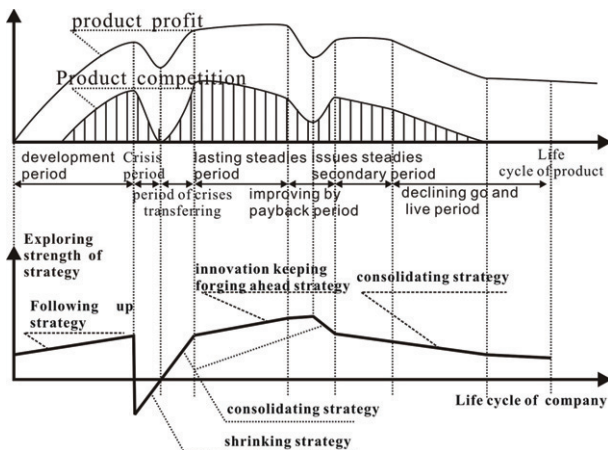


Fig. 2 Tactics of product research and development

### 1.3 *The period of crises transferring of enterprises*

In the period of crises transferring of enterprises, the properties and quality of product tend towards stability after improvement of research and develop, the sales volume of the products rises progressively, the service system of the company and marketing channel are be completed day by day, enterprise should add one more fire at tending to ascendant trend at this moment to put out new series of product style rapidly on the basis of steady products quality to abundant system of product rapidly, to consolidate company manage situation taken a turn for better, pursue, to consolidate product research and development tactics of piling up. Make contribution to the products system that existing quality is reliable, strengthen the construction of company's service system and marketing channel, steady sell and second operator's team directly to households, strengthen input power of new product research and development for infrastructure, high-quality human resources, all these pursue steps of consolidating are tactics of piling up[3].

### 1.4 *The period of developing in harmony relatively stably of company*

When company enter the period of familiar steady, under the balanced state inside company of internal appeal of resource and resist outside compete for pressure foreign to resist strength each other, they should keep the steady input to the expenses of product research and development, keep high-quality intelligence resource, dredge interesting relationships of social economic system, improve system of product and service, the company is in the developing period of relatively stable coordination.

Lasting relief developing goal user's needs is enterprise job in familiar steady issue. In this period, because enterprises attract at external competition pressure and inside in the state of the tension dynamic equilibrium of resource, so enterprises should think of danger in times of safety, pay close attention to the influence of crises such as the inherent product quality, service quality, accident that hide, etc. constantly, strong competing pressure from foreign pressure.

The enterprises should take capital operation, stock being listed, operation of changing profession to expand etc. many kinds of management to disperse the risk of single management mode to comply with the economic, social situation changed fast, search market value interests crest order with sharp market eyes, rely on swift of current situation to seek enterprise resource and interests of survival and development high-efficiently. So in the period of steadily maturity of enterprises, enterprise should pursue innovation aggressive tactics being full of spirit of changing, looking for novelty, asking different to make enterprise ask for developing opportunity.

In military the best defend is to attack. It is the same as enterprise. Enterprise want to keep one's own position and share among market at enterprise manage, changing in the outside society, economic, technological system in the progressive environment constantly, the tactics method that enterprises cling to old practices and refuse to accept new things, seek survival complacently and conservatively and steadily will certainly make enterprises in the relatively backward condition in the technology, idea finally, thus lose inherent market share and existence resource. Enterprises want to guarantee position and share of existing market, it only adopts attack tactics rich innovation aggressive spirit, and enterprise could survive and develop[4].

Losing of the communication trade of the leading enterprise NOKIA Company is 6 billion dollars in 2009, share of intellectual mobile phone reduced from 45% to 38%, and the Apple occupied 23% of the share of intellectual mobile phone by a iphone cell-phone series alone. The basic reason causing NOKIA market share to drop by a large margin lies in its intellectual mobile phone products lack innovative thought in technology of touch-sensitive screen, on appearance model, personality service design. It does not have the advantages of technology, designing, man-machine operating aspect at all in the face of extremely rich humanization, competition products of technological aesthetic feeling. It relies on old stuff, steady technical design products route is unable to equal to young product with glimmer, design inspiration, intelligence of brilliant ray. It was attacked by the rival and plundered, it is an unavoidable thing to lose share. NOKIA depend on the means of the Apple infringing one's patent to attack to the Apple momentum.

They will not make any effect. It is predicted the Apple intellectual mobile phone named iPhone will be also expanded to 33% on the mobile phone market share in the future. NOKIA want defeat the rival, recapture market share. It only depends on pursuing innovation aggressive tactics of product research and development to put out occupation mode to be novel, have more abundant functions careful, model grace, technology advanced, quality steady reliable fashion route mobile phone products and service. It may reinvent brilliantly.

## 2. Special tactics of product design

### 2.1 Assaulting tactics mode

Figure 3 is the assaulting tactics mode.

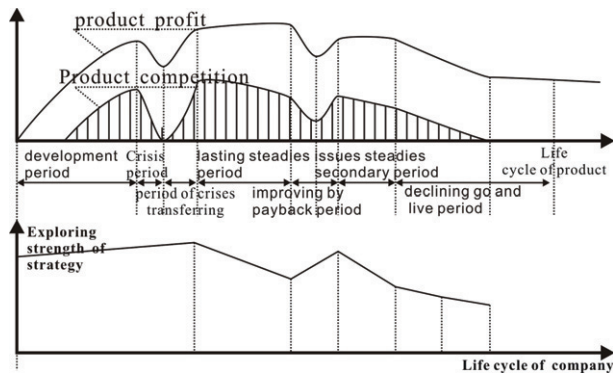


Fig. 3 The assaulting tactics mode

In the early days of growth, enterprises invest the huge fund to hold a campaign of advertising, expand manpower and factory building, purchase the apparatus, make enterprise's popularity leap up rapidly in a short time, the sales volume of the products increases fast too, the scope of the enterprise is expanded rapidly. But because of the defect of product quality, fund fracture, social economic outburst, enterprise of critical incident of chain manage improperly various factors will inevitable appear while enterprises are developed. It will cause enormous obstacle and crisis to enterprise developing.

Because the loyalty of enterprise's brand in user's eye has not been trained out yet, enterprises are not abundant in experience of management and administration at young growth stage, economic benefits network to help one's own chance has not been taken shape. So once the crisis situation appears, young enterprises is generally very difficult to have enough fund, gyration leeway of experience and resource, saving means to make no public appearances quickly after leaping up rapidly.

So the assaulting management tactics is not suitable for enterprises with more extensive to run, it is suitable for enterprise interests community with small-scale having obvious profit goal to have flexible funds. They are drive under direct interest goal to organize strength of society, economy, technology, resource fast, play the effect of short, adaptable and fast assaulting management tactics, as much as possible to reduce all expense of intermediate link such as production, technology, quality ensure, brand construction, factory building apparatus, etc. .

They offer products and service rich in performance, price advantage to the market with great shock power to withdraw fund and sweep away profits after obtaining lump-sum interests fast, then go to look for the next interests goal. This kind of assault tactics of drawing interests fast only pays attention to the economic benefits goal, totally ensure regardless of product quality after sale, the future of service and

waste recovery and non-core interests community member on later stage. So this kind of means of managing is a upset to normal economic, social operation order in essence, it is a swindle predatory behavior to interests of user's colony.

2.2 Steady tactics mode

The tactics mode of managing in another kind of enterprises and product research and development is the sane tactics. Enterprises that adopt the sane tactics have reliable assurance in nature, manpower, society, and basic resource of capital; have long-term keeping steady planning of development at management tactics[5].

In the period of enterprises development, under support of stable reliable and rich resource, enterprises grow up fast. Meeting dangerous period, enterprises cannot shrink back, will still strengthen research and develop of products and service, expand manpower intelligence resources, put various social economic benefits network resources to use, strengthen enterprise technology, intelligence, capital input of survival and development, adopt surging attitude turn back enterprise developing unfavorable situation, make enterprises tide over the crisis to enter steady and ripe development period smoothly. Enterprises can run products, service, fund chain of enterprises steadily by reducing resource consuming and input appropriately at this moment, accumulate resources, weave the social economic benefits network. It is opportunity for development and crisis next time that come to do a good job of the preparation of various fields.

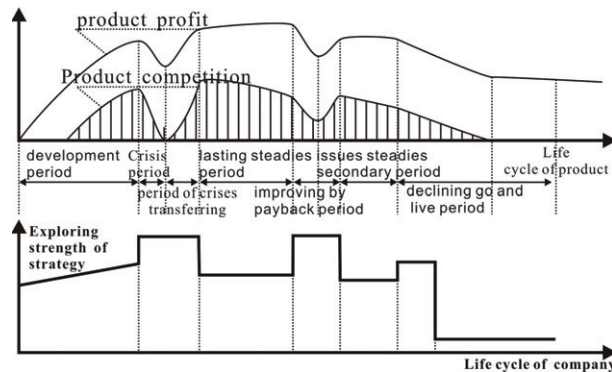


Fig. 4 Steady type tactics mode

It often needs rich capital and extensive social economic benefits support of network to run sane development tactics. This kind of tactics of product research and development can be pursued in large-scale state-owned enterprise, transnational group, and monopoly trade.

2.3 Take different technology to research and develop design, marketing tactics method in different developing periods of products systems of certain particular varieties

Product exists certain lifespan; it is similar to course of enterprise's development. Lifespan of product includes several period of stage of developing period, crisis predicament period, crisis transfer period, familiar steady period, decline and seclusion period, and payback period. To some products, new improvement and redesign is poured into decline of product during decline and seclusion period. Then it enters back to life period, carry on appropriate to improve in such aspects as some function, performance, appearance model, products system, thus make the products radiate out new competitiveness of market and constant vitality again, enter secondary steady period. Through two-improvement to get tricycle after redesign, this kind of product will be entered and scrapped in payback period unavoidably.

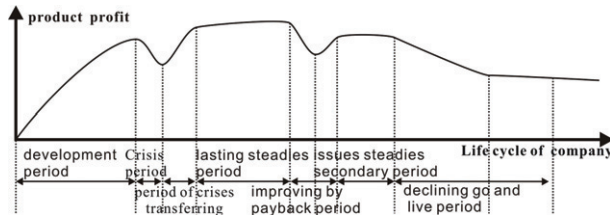


Fig. 5 Product life cyclic

Product variety system appears intersection state within a period. Within the same period, different varieties of product and system are at different product lifespan. Some products are just researched and developed in developing period, some products are in familiar steady period, some products enter decline seclusion period, products system in company at different lifespan stage need to be adopted different tactics means.

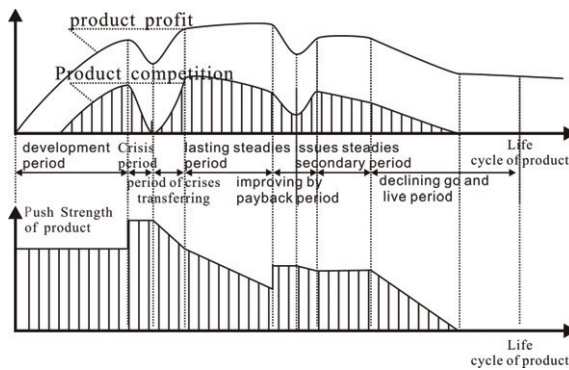


Fig. 6 Products system are at different lifespan and adopt different tactics means

In product developing period, because new product needs cooperation advertisement, marketing plan activity, the new research and development of products is rich in goal pertinence too. So the comprehensive shock power of each other will produce greater influence on the market. New products alter to expand sales volume of the market. But because consumption that research and develop and propagate earlier stage is too large, the price of new product at the time of going on market is often relatively high. Surveyed and studied by many kinds of track of new products of the British company. As time goes on, new product sales amount account for every company of proportions of gross sales amount rise to 52% from 33% from 1976 to 1995. The profit that new products bring accounts for the proportion of gross sales amount of every company rises to 46% from 22%. It is obvious the new products can bring higher profit to company. On management of company should put in new product research and development and popularize especially.

In product developing period, company should take attack tactics method to popularize new product in more cost-effective manner. Especially in crisis period, more efforts should be devoted to popularize and manage to make the quality of new products stabilize rapidly, make manufacturing process and technology grow up rapidly, make efficiency raise rapidly and cost reduce, come down fast, make new product spend crisis period as soon as possible to enter into familiar steady period. In crisis period and crisis transfer period, add effort pushing tactics should be pursued.

In familiar steady period, quality of product is stabilized and sold well, but selling price reduce amount of profit caused lose and drop. Enterprise should promote to increase tactics and variety of service at this

moment, stabilize market share, improve profit rate with high quality and serving varieties. And it can offer previous support for popularization of product and building for a long time of brand on later stage. Enterprises pursue consolidating tactics of serve diversification at this stage.

With the progress of technology and social life, the extrusion of rival's new products, user of goal, consumes tending, development of aesthetic temperament and interest, product passively enter decline seclusion period unavoidably, and enterprise can take two kinds of tactics methods at this moment. Enterprise should assess the value content of product in competition product system. Taking different tactics methods, one way is to use improving design way to old product having surplus value of interests in technology, performance, and system transformation. This is press tactics method to squeeze usable surplus value profit of old product; the second way adopts selling off type tactics to old product without advantage in front of competition product to dump sell off, do empty and stop production to old product without profit space firmly. Enterprise can vacate sufficient manpower, material resources, and financial resources to research and develop new product.

### 3. Conclusions

The whole world changing situation require enterprise to construct mechanism with fast adaptability to change and constant competitiveness to pursue CEMS (Cost, Efficiency, Management, Security) tactics and add subtract ride divide idea (add efficiency, reduce cost, ride management, divide threat). In a word, in product different lifespan stage, enterprise should take economy society and brand culture arriving maximized interest as core to take pertinence different tactics methods.

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