International Review of Business Research Papers
Vol 4 No. 4 Aug – Sept 2008 Pp.292-302

A New Classification Paradigm For Companies - Product, Service And Product-Service Companies

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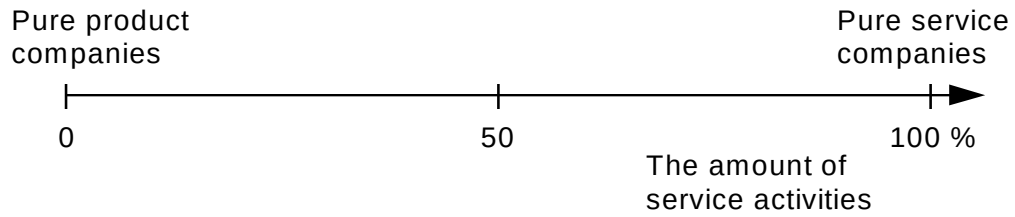
The traditional method in classifying companies by the nature of their businesses is to divide them into Product and Service companies. The importance of service element has become more important to all companies. It is immenent that between these two extremes there are companies which have both features about in equal amounts. The customer satisfaction survey in quality field was carried out applying also the third category called Product-Service companies. All the three company groups had been able to improve quality by the means of certified ISO 9000 quality systems. The field study revealed that companies accepted this categorisation easily and they could locate themselves without difficulties into these three options. Also the statistical analyses of the results showed that these three company categories had different profiles. This new paradigm of three different types of companies can be useful in classifying companies in various studies and statistics.

Field of Research: Organization and Methods, Quality Systems

1. Introduction

The classification into Product (P) and Service (S) companies is the traditional method of separating companies based on the nature of their businesses (Grönroos, 1990). The traditional method of taking this development into consideration is to analyze the companies according to Figure 1 as to how much service elements are included in company activities.

Figure1. Traditional method of analyzing content of company service activities



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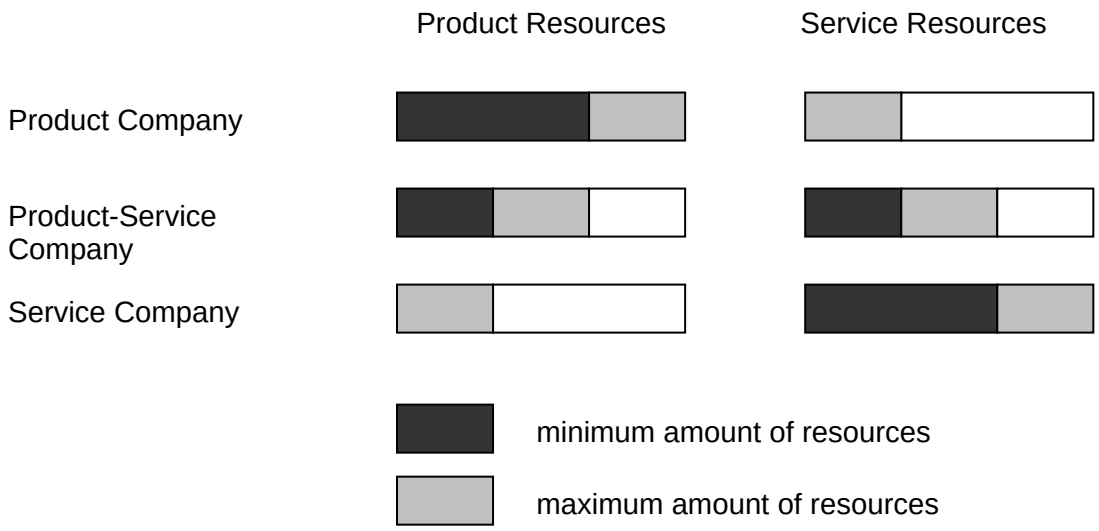
The classification into Product or Service company groups has remained essential for many decades in the analysis of detailed company properties. The present researcher hypothesized that the third group of companies could be classified as one having about equal amounts of product and service activities in its operations. This type of classification is illustrated in Figure 2. It should be noted that the classification is done simply by forming the new company type between the traditional P and S companies.

Figure 2. Classification of companies into three major groups



The three company groups can be more accurately classified as follows:

1. Service (S) companies

- No tangible products of their own
- Most human resources in direct customer service activities
- Typical examples are hotels, hairdressers, forwarding agencies, bus companies, flight companies, etc.

2. Product-Service (PS) companies

- Service activities of customer products
- Human resources about evenly distributed in production and direct customer activities
- Typical examples are service companies of technical products like cars, ships and software packages.

3. Product (P) companies

- Tangible products of their own
- Tangible products manufactured in sub-supplier companies
- Most human resources in production activities or related activities

- These companies include in part manufacturers for the car and electronics industry.

PS companies meet the challenges of mastering the technology included in the products but at the same time these people have direct customer contacts and they should also master customer service activities. In many cases the technology comes originally from the P companies.

The service resources of PS companies are basically human resources having:

- Direct personnel service contacts to customers, or
- Working indirectly with special needs of customers, e.g. customer facilities, products, systems, and immaterial planning tasks.

This hypothesis of three company types was used and tested in the empirical part of the research.

2. Literature Review

The nature of service is difficult to define. Grönroos analyzed various services and summarized that usually four basic features can be found for services (Grönroos,1990):

- Services are more or less *immaterial.*
- Services are *actions* or *series of actions* and not things.
- Services are always *produced* and consumed at about the same time
- The customer is *involved in the production process* to some extent.

Service companies can be classified into five categories (Oakland, 1993):

- Service factory
- Service shop
- Mass service
- Professional service
- Personal service.

Product companies can be classified in various ways. The product concept of a company can be described as market-driven or customer-driven (Mäkelin & Vepsäläinen, 1994). Market-driven means that the generic products are manufactured for the chosen customer segment. Customer-driven means that the products are tailored according to demands of the individual customers.

In many cases the logistics of a product changes as follows (Mäkelin & Vepsäläinen, 1994):

1. Serial products are manufactured in large amounts according to stocks - MTS products (Manufactured-to-Stock).

2. A product is assembled to customer order - ATO (Assembled-to-Order).

3. A product is manufactured only to customer order - MTO (Made-to-Order).

4. A product is manufactured according to the wishes and needs of a customer - MTC (Made-to-Customer).

During the life cycle of a product it often moves from one logistic group to another and the service portion increases continually.

3. Methodology And Research Design

The major research problem here was to determine if different types of company have been able to improve their quality by applying some of the ISO 9000 standards. The main hypothesis is that these companies have been able to do so. The secondory hypothesis was find out, if the companies could be grouped into three categories (P, S, PS) having different profiles. These research problems have been investigated among Finnish ISO 9000 companies by using empirical methods. Since the number of ISO 9000 organizations was already 345 at the beginning of the present study, it was impossible to investigate all the companies with the methods planned; a representative sample was therefore studied.

3.1 Selection And Classification Of The Companies Studied

The following rules and principles were applied in the selection of ISO 9000 companies:

1. The companies were all Finnish firms.

2. The companies must have had an essential customer base in domestic markets.

3. The companies must have owned their ISO 9001 or 9002 certificates at least one year prior to the beginning of the study.

4. The companies selected must not have been in the consumer industry but operating in business-to-business markets.

The first task was to determine those companies belonging to the sample group. The updated versions of the certified companies were acquired from all certification bodies acting in the Finnish markets. One hypothesis was to determine if these companies obtained varying results in their quality achievements. The companies were therefore classified as Service companies (S), Product-Service companies (PS), and Product companies (P). In the present study all the ISO 9000 companies were classified into these three categories based on the judgment of their business activities. This classification resulted in the following numbers of totally 192 companies:

- 43 S organizations
- 76 PS organizations
- 73 P organizations.

It is not surprising that the organizations are quite evenly distributed among these three categories. The nature of the ISO 9000 standards could make one believe that most companies are P companies. Since the ISO 9000 emphasizes that customers will probably request ISO 9000 certification, it will very rapidly induce the S

companies to acquire certification. This is evidence that certification begins at P companies and continues gradually in companies with service features. As the number of organizations was so high, only some could be analyzed with the selected research methods. According to statistical methods (Neter & al., 1988,) a sample size below 5 % of the total population is a normal procedure and fulfills the requirement of statistical analyses. The objective was to select about 10 organizations in every category by a true random process. The companies could determine for themselves in which categories they wanted to belong. The random selection procedure actually resulted in 12 P, 10 PS, and 9 S companies.

3.2 Market Research Of Customer Satisfaction

When the companies were selected, they were asked to furnish their customer lists either directly or by mail. Through discussions it was determined that those customers formed the major part of company turnover. The purpose was to obtain suitably filled questionnaires from customers representing at least 10% of company turnover (Hayslip, 1994) on differences between consumer and business-to-business markets. To certify that the amount returned was acceptable it was estimated that questionnaires should be sent 2-3 times more than the required minimum, because the rate of return for this type of survey has been 20-30 % (Maisniemi, 1994). This worked quite well and usually additional questionnaires were not needed.

The questionnaire contents were designed following the general recommendations (Hayes, 1992; Futrell,1994; Hayslip,1994) that it is better to have a suitable amount of overlapping questions. The individual questions were formulated to be as simple and consistent as possible. These selections were also of the best value to the companies, because they contained detailed information and because the companies should know which issues were covered and which needed improvement. All the questions were grouped into larger entities (dimensions). With regard to S and PS companies the larger dimensions were selected to be 9 of those 10 issues which Parasuraman et al (1985) used for S companies:

- credibility and security
- tangibles
- competence
- understanding/knowing the customer
- access
- responsiveness
- reliability
- communication
- courtesy.

Credibility and security were thus united in one entity. The individual questions were not exactly the same for PS and S companies. More questions regarding products (tangibles) were asked of PS companies and more regarding service aspects were asked of S companies. Only the six larger dimensions were asked of P companies:

- credibility and security
- understanding/knowing the customer
- tangibles
- responsiveness

- reliability
- access.

Those features essential to S businesses were omitted from P company questionnaires; each dimension included 2-8 detailed questions. Likert-type formats were selected to be the only solution, because they provided scales needed in statistical calculations. Seven scaling levels were used. As no previous information of customer response was available prior to certification, the companies were asked of any change in quality issues. The customers evaluated any changes in the present situation in comparison to that prior to certification. In the reference group the customers were asked to compare the situation occurring 3-4 years earlier; the scaling levels were:

- significantly worse
- substantially worse
- slightly worse
- remained the same
- slightly improved
- substantially improved
- significantly improved.

The customers had to list the 10 most important issues in order of importance.

4. Findings And Discussion

4.1 Return Rates Of The Survey

The results of these surveys have a sound statistical background, because the number of answers in every company group is > 160, as follows:

- S companies, ISO 9000	165 returns	≥	30%
- S companies, non-ISO	184 “	≥	34%
- PS companies	173 “	≥	22%
- P companies	279 “	≥	30%
- total	801 returns	≥	30%

The return rates are at normal levels in this kind of survey in Finland (Maisniemi, 1994).

4.2 Improvement Of Quality Of ISO 9000 Companies

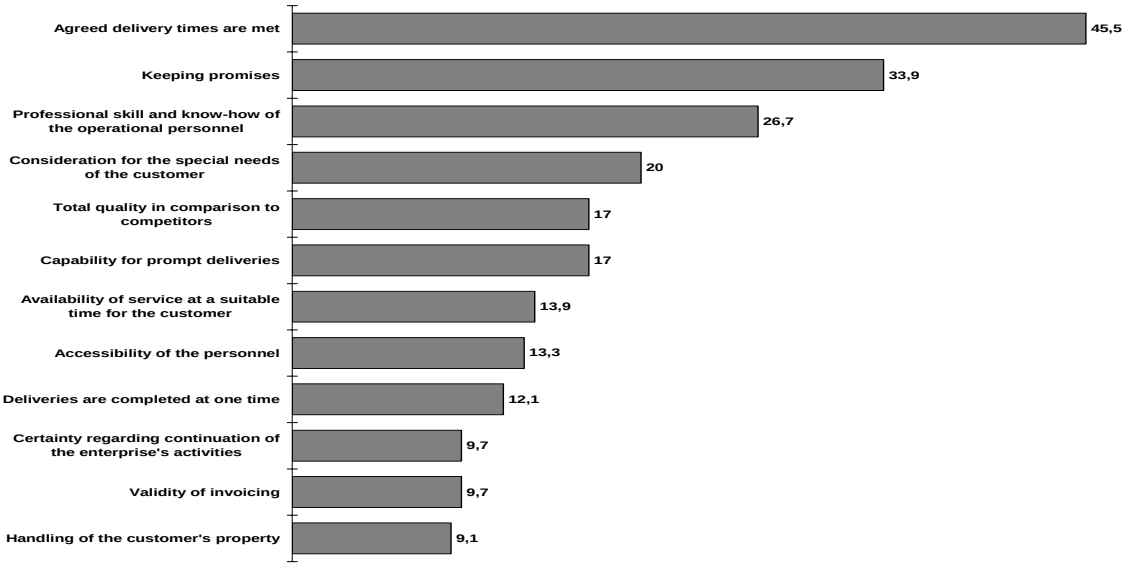
The statistical analysis applied was t-test. The main hypothesis was that companies applying ISO 9000 have improved quality. The analysis showed that all company groups had improved quality with a confidence of 99%, if the t-test was calculated for total population of the company groups. If individual companies are studied there are differences but approximately one can say that 9 companies from 10 have improved quality according to customer satisfaction. Comparison of ISO 9000 Service companies into reference group without certified quality system showed that ISO 9000 companies had improved quality in 20/36 questions with reliability of 95%. In

the 10 most important questions to customers, the ISO companies improved their quality in seven questions with reliability of 95%. The main hypothesis can be proved to be true that companies applying ISO 9000 have improved quality according to customer perceptions and this improvement has been essentially better than in non-ISO companies' improvement. All the data and detailed analysis can be found in the dissertation material (Ollila, 1995).

4.3 The Most Important Issues

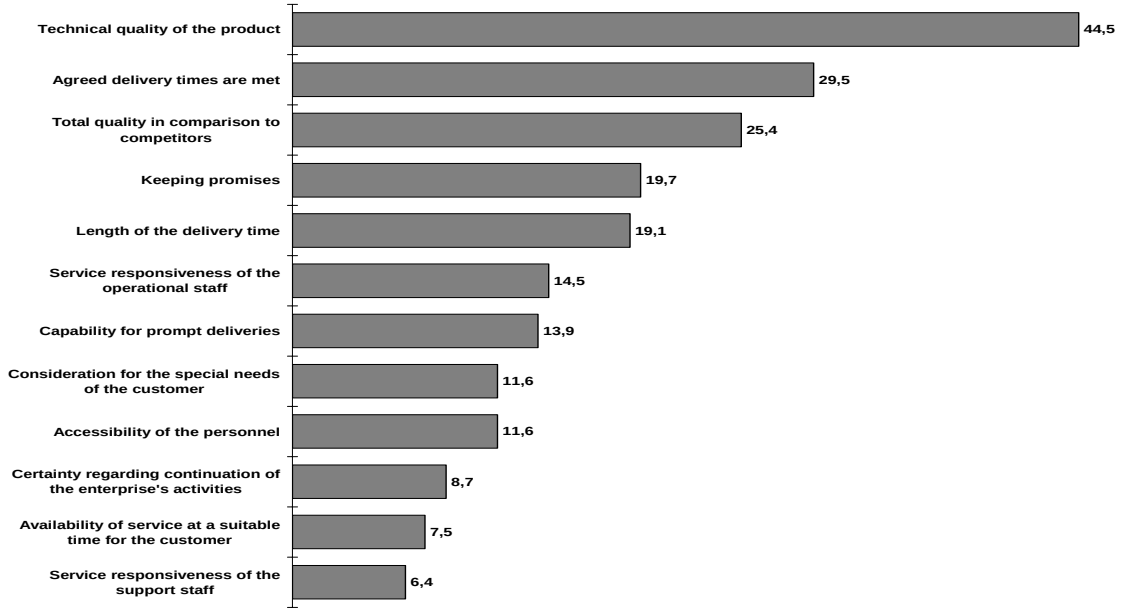
Customers had the possibility of indicating the 10 most important issues in the order of importance, and generally made use of this possibility. The chosen method in analysis was to use those issues mentioned among the four most important issues. The order of importance of these four issues was not considered. The results of the S companies are presented in Figure 3. It is not surprising that the "Agreed delivery times are met", "Keeping promises", "Professional skill and know-how" and "Consideration of the special needs of customers" are the most important issues.

Figure 3. The ten most important issues of S companies (ISO 9000-certified) mentioned among the four most important issues



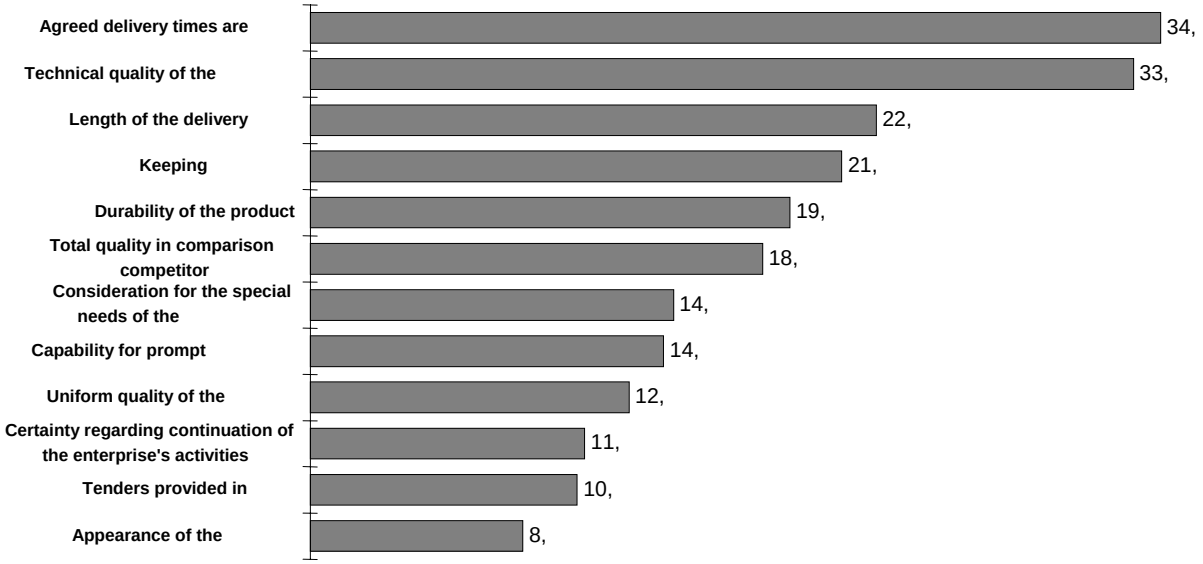
The results of the PS companies are presented in Figure 4. The conclusion is that "Technical quality of the product" is the most important issue and "Agreed delivery times are met" the second most important issue.

Figure 4. The most important issues of PS companies mentioned among the four most important issues



The results of the P companies are presented in Figure 5. The two most important issues of “The promised delivery times are met” and “The technical quality of the product” are almost at the same level.

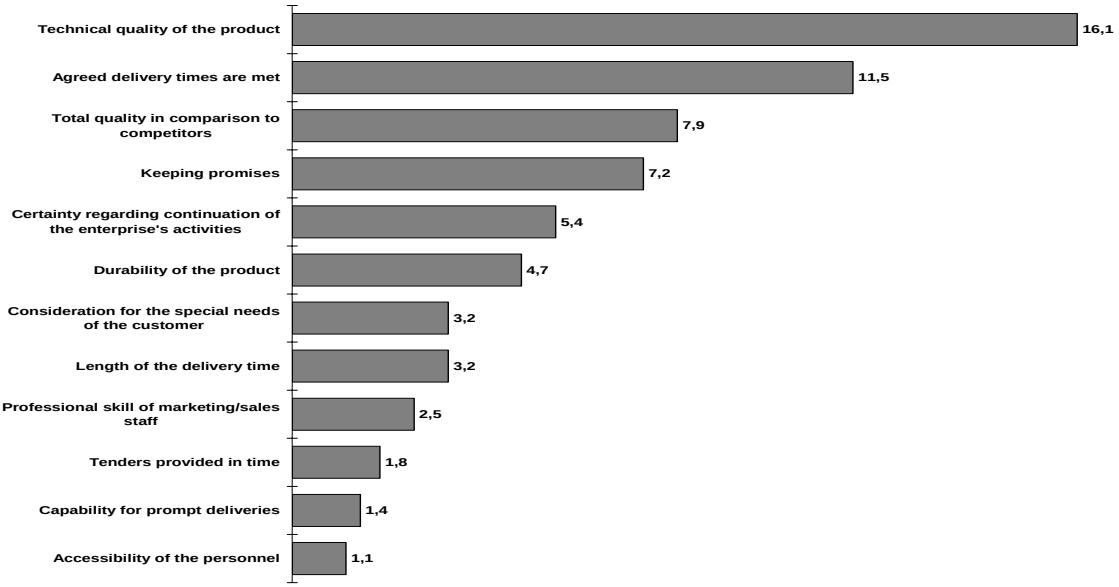
Figure 5. The most important issues of P companies based on the analysis that the four most important issues are taken into consideration



The known problem (Maisniemi, 1994) is that in large groups only four to six of the most important issues differ markedly from the other issues; they can be distinguished from each other only slightly. It is also well known that if a company has not succeeded in the two or three most important issues for customers, the result will be a failure, regardless of the success in the other issues. To demonstrate

the meaning of the chosen analysis method, the P companies are presented in Figure 6 in such a manner that only the most important issue is taken into consideration.

Figure 6. The most important issues of P companies based on the analysis that only the most important issue is taken into consideration



The technical quality of the product is of primary importance. Among the four most important issues are three same issues in Figure 5 and 6. The two issues, which are not the same, are ‘Lenth of delivery time’ in Figure 5 and ‘Total quality in comparison to competitors’ in Figure 6.

4.4 Adaptive Conjoint Analysis Results

To confirm the most important quality issues for the customer, Adaptive Conjoint Analysis was carried out among the S company customers. The three most important quality issues were:

- Agreed delivery times are met
- Keeping promises
- Availability of service at a time suitable for a customer.

The first two issues are exactly the same as in the original customer survey. After these two issues, the order of importance differs from the original survey; the relative differences are rather small. This result confirms that the original results of the other surveys presented in Figures 3...6 are reliable.

4.5 Differences Based On Company Size

The three company groups were analyzed with the $\chi 2$-test to determine if any differences existed based on company size. Scores were used in the test corresponding to improved results (scores 5-7). In ISO S companies the chosen three-size categories were < 50, 51-100, and 101-250 employees. The results of this analysis indicate no real trend that company size has any essential effect. The PS companies were grouped into small companies (< 20 employees) and large companies (51-250 employees. The results show a clear trend in that the small companies improved their quality in practically every question. The difference has a statistical significance of 95% in 11/39 questions. The same type of analysis was also done for P companies, but showed no systematic differences.

5. Conclusions And Implications

The main hypothesis proved correct that the companies applying certified ISO 9000 quality system can improve quality according to the customer perceptions and in comparison to non-ISO companies. The analyses of the company size show that the small PS companies have gained more from the formal quality system than the large PS companies. This is quite natural, because small companies usually have only a minimum amount of formal regulations concerning their activities. The formal quality system will easily afford them positive impact if the quality issues are applied in a systematic manner. The results of PS companies indicate that these companies are really of a different nature than pure P or S companies. PS companies have the profiles of their own regarding the most important issues of customer satisfaction. Grouping of companies into three different categories turned out to be a relevant choice in this study. The companies themselves also very easily located themselves into the right categories: P, PS or S company.

Of course there are limitations of applicability of these findings. Export businesses set more challenges to companies. Total business chains should be analyzed when the true quality results must be determined. Business cultures vary from country to country, and it is possible that in some countries ISO 9000 certification is acquired without any intention of obtaining real quality improvements. Consumer businesses are outside the scope of the present study. A paradigm exists that every company now and especially in the future will have difficulty in competing without adding service properties to their products (Grönroos, 1990). This paradigm takes it for granted that every company is or will act in the service economy. There are at least two trends, which do not directly support this paradigm. In manufacturing industry the global companies having recognised brands will purchase more and more parts from sub-suppliers and they themselves concentrate on assembly type production only. In some cases global brand companies may purchase the whole product from specialized production companies like in electronics industry. This trend has created Product companies (sub-suppliers), which concentrate on production capabilities only and they minimize all other efforts like service.

Another global trend is outsourcing of activities, which are not considered to be core businesses. Typical examples are maintenance, office cleaning and ICT (Information Communication Technology) services. The outsourced parts of the businesses will cover tangible products like maintenance of electric motors or intangible deliverables

like maintenance of ICT products. The new organisation will be a typical Product-Service company, because the organisation in question must have about equal amounts of personnel in production and service activities. In some cases these outsourced businesses will take care about the after sales activities for customers. The opposite is true in this case that the original company has decreased service activities.

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