resource planning and development (HRPD) is strategy implementation. Strategic HRPD helps develop and exploit core competencies which can benefit the company by, for example, creating incremental customer value. It requires the close integration of thinking about future HR needs with thinking about competitive strategy, organizational strategy and the business environment.

The first of the four key stages in HRPD is the review of strategic business issues identified in the existing strategic plan, including key people resource issues and anticipated emergent strategies. These need to be assessed through, for example, scenario testing. Organizational issues which may arise include the need to simplify management structures or to develop new competencies or to ensure that marketing skills are market-led. The 'strengths and weaknesses' test needs to be applied in order to identify the major problem areas and this may lead to the development of possible generic career paths as well as recruitment and development plans. The process encourages managers to think about different kinds of job moves from those prevailing currently. Assumptions about future organization can be tested, including the ability of particular individuals to meet targets. HR activities should then be prioritized and a potential problem analysis carried out.

A case study featuring Amersham International Life Sciences division illustrates the strategic HRPD process at work. The core of the process was a 2-day workshop attended by senior line managers, senior HR managers and the author. Pre-prepared inputs based on discussions with HR managers were presented in the form of moves from the current situation to a possible future one. The discussion focused on possible new roles and changes to existing ones. Based on this, the group determined the competencies needed for generic roles, defined the management pool, described in some detail future roles, role demands and likely moves, negotiated transfers of key managers and formulated the implications for succession planning. It became clear that a particular appointment needed to be evaluated as part of a strategic project set as well as a stand-alone.

People are often a key element in an organization's ability to build competitive advantage. Strategic HRPD helps in evolving specific competitive strategies and in pinpointing weak areas, but does require the investment of time. It requires balanced input from line and HR managers and must have strong follow-through and follow-up. It provides a refreshing approach to exploiting to the full the human element of strategy.

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Competing in Software: Strategies for Europe's Niche Businesses

Keith D. Brouthers and Yvette M. van't Kruis

US software firms dominate the international software market. European firms find it difficult to compete because their market is fragmented, they are inadequately funded and their American competitors had a head-start. But they can improve their position in the world markets and be effective competitors; this is shown by the results of a research study in which 11 companies took part.

European software firms need to determine their core competencies and then select the strategy that best fits their capabilities. Four differentials can be used as the basis for selecting the optimum strategy. One set is based on assets—regulatory (e.g. intellectual property rights) or positional (e.g. reputation). A second set is based on competencies—functional (i.e. derived from employee skills), cultural or the values of the organization.

Each of the participating companies was evaluated on the differentials. Softco 1 has a 'strong' positional differential but 'medium' cultural and functional differentials. Softco 2 has no regulatory differential and only medium ranking on the others. Softco 3 has a strong functional differential, no regulatory differential and only medium on the others. Softco 4 has weak regulatory, cultural differentials and medium product reputation. Softco 5 enjoys a medium regulatory differential and strong positional and functional ones. Softco 6 has a strong company reputation and cultural differential. Softco 7 scores medium on all but the regulatory differential. Softco 8 developed a strong reputation and gives service and quality high priority. Medium differentials are achieved by Softco 9, with no regulatory differential. Softco 10's strong company and product reputation gives a strong positional differential and Softco 11 has no regulatory differential and all others rate at medium level.

Strong differentials provide a good basis for strategy selection, medium ones can support but do not give a basis and weak ones need improvement. The regulatory differential can support an entrepreneurial strategy whereas the positional differential will help a service-based strategy. A niche strategy can be supported by a strong functional differential. The cultural differential will support service-based, an entrepreneurial and a future-oriented strategy. The service-based strategy is recommended for eight of the 11 companies; alliance-based for all, niche strategy for two and a different marketing channel strategy for one company.

European software companies can determine the best strategies to compete with the USA by examining their capability differentials. It is important, however, that strategies are based on core competencies, the future desired company position and the company's available resources. European software has a great future and companies can become globally competitive in the computer software industry.

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Targeted Planning: a Paradigm for the Public Service

Gerald Barkdoll and Morris R. Bosin

The expectation that planning will help the effectiveness of public sector organizations was raised by the passing of the (US) Government Performance and Results Act. Several earlier attempts had been made—Project Planning and Budgeting Systems, Management by Objectives and Zero Based Budgeting are examples. They failed despite their apparent effectiveness on paper because, unlike industry, the internal and external environment of large, complex public sector organizations is unique. The attempts all shared a common set of assumptions on the predictability and degree of control that a comprehensive linear planning approach can exercise in the public sector environment. In fact, many traditional planning processes become self-contained but are insulated from the risk of action. The unique public sector environment factors act as barriers to conventional planning. There are, for example, multiple stakeholders and the expectation is that public sector management will be customer oriented. Turnover at the top is frequent for political reasons, which encourages a short-term perspective. Many of the issues faced have substantial political elements and are highly complex.

Nonetheless, in a study, executives said they had high hopes for planning—to respond to an external mandate, to cope with new leadership, as a reaction of fear to a negative government audit report. At the same time, there is the realization that there are difficulties such as missing an essential need or only partially addressing it, inadequate time and resources and inbuilt resistance.

Targeted planning can, however, result in a higher proportion of successful planning initiatives in the public sector. Each Targeted Planning Initiative (TPI) is designed to meet a specific need, is short-lived, excludes irrelevancies, includes traditional and non-traditional planning activities, is custom-built and is flexible. Essential is the accurate determination of key participants' expectations, or targets. Data collection includes focus groups, personal interviews and written research. Expectations include clear issue identification, considering alternatives and identifying future problems. In addition, hostility to the TPI has to be taken into

Competing in Software: Strategies for Europe's Niche Businesses

Keith D. Brouthers and Yvette M. van't Kruis

The computer software industry has, over the past 10 years, grown into one of the world's largest industries with world-wide sales estimated to be in excess of $100 billion. Despite the large size and international nature of the software industry, US firms tend to dominate. This article discusses a methodology that European software firms can use to identify potential strategies. This methodology is applied to eleven European software firms and the results are discussed. Based on the investigation, it appears that the methodology recommended in this article will provide European software firms with an effective method of developing firm strategy. © 1997 Elsevier Science Ltd

THE UNPRECEDENTED DIFFUSION of personal computers around the world and the more rapid growth of the computer software industry is stimulating economic growth, job creation and a general increase in economic prosperity for those areas of the world where the products originate. However, the benefits of this fast-growing, international business are not equally distributed. Six of the ten largest world-wide software companies are from the USA (IBM, Microsoft, Computer Associates, Novell, Lotus and DEC), three are from Japan (Fujitsu, NEC and Hitachi) and only one is from Europe (Germany's Siemens Nixdorf).[1] US software firms tend to dominate the international software market. Statistics published by the International Trade Administration of the US Department of Commerce, indicate that US firms supply 60% of the software market in Western Europe and Japan, and 73% to the rest of the world.[2] The most recent data suggest that the demand for software in Europe is nearly equal to that in the USA, however, Europe produces only a fifth of what the USA produces.[3] Table 1 shows that in 1991 Europe's consumption of packaged software amounted to 41% of world total, followed by the US with 40%. In this same year US software firms' share of the European market was 63% compared with only 35% for European software firms.

European software firms suffer from a number of problems particular to their location.[4] First, because of the fragmentation of the European market, economies of scale are harder to achieve than in the US market. A new US software company has access to a domestic market of over 57 million PCs and an enormous base of mainframes, work-stations, and network servers, while Europe's largest single domestic market, Germany, has just over 11 million PCs. Because of this, European software firms incur additional costs to offer software in several languages, set up separate distribution networks, and use different marketing techniques.

Funding of software firms is the second problem confronting European software firms. In the USA, venture capital firms are a vital source of money for new companies, especially new software firms. In 1993 US investors injected 24% of their capital into computer-related companies. Funding in Europe comes from two sources. European governments provide aid, however, it is usually insufficient, ineffective, and directed to the wrong projects. Most European government aid ends up with established companies, particularly those working with universities. Alternative sources of capital (beside government aid) are hard to find in Europe. For example, in 1993 European venture capitalists invested only seven percent of their funds in computer-related companies.

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Table 1. Geographic distribution of world-wide packaged software market, 1991[11] (in billion ECU)

Region of production	Region of consumption: Europe	USA	Japan	Rest of world	Total	% of world total
Europe	6.0	0.4	0.3	0.0	6.7	16
USA	10.8	16.2	2.4	3.1	32.5	78
Japan	0.1	0.0	1.7	0.0	1.9	5
Rest of world	0.3	0.1	0.0	0.1	0.5	1
Total	17.2	16.7	4.4	3.2	41.5	100
% of world total	41	40	11	8	100	

The third problem facing European software companies is that the USA has had a head-start. Most new computer hardware technology originates in the US market. Additionally, the USA has a large pool of trained software engineers, unlike the situation in Europe. This head-start means that US firms have attained dominant positions in many of the established software markets and are most often first to market with new product ideas.

The software industry can be divided into several segments.[5] The first segment, software products, consists of packaged or standardized software, including application packages, systems software and tools. Professional services represents the second segment in the computer software industry. Professional services includes two different activity-areas: *1.* software related, such as software customization, which means changing the packaged or standardized software to meet special customer requirements; or software development, which means that software is created ad hoc for each client; *2.* business related activities including consultancy, technical assistance, training, education, auditing, etc. The third segment of the software industry is the processing and network services area. Processing and network services includes the traditional service bureau services as well as new IT services like facilities management, disaster recovery, etc. and value added network based services (VANS).

This study will focus on the first two segments of the software industry: software products and professional services. The area of professional services accounted for only 36% of the European software market in 1992, software products account for the remaining 64%. The custom software business is characterized by a stronger presence of local firms who are specialized and focused on vertical markets. European firms dominate the local markets for custom software development by being nearer to the end-users and aware of their specific requirements.[6] Custom software solutions and the (remaining) professional services are the strength of the top European software suppliers. As a result, European software companies supplying these services, earn the bulk of their revenues in one country, their home market.[7]

Considering the problems European software firms face and the myriad of opportunities in the international software industry, the question arises as to how European software firms can improve their position in the domestic and international market and compete with their US rivals. In this paper we hope to provide some answers to this important question.

A Study of European Software Firms

We set out to gather data from a number of European computer software firms in order to gain a better understanding of the strategies European software firms are using to try to combat and overcome US software firm advantages. First, we approached FENIT, the Dutch association for software firms. They supplied us with information leading to interviews with 11 European software companies (see Table 2 for a brief description of each firm—the actual names of the participating companies have not been used for privacy reasons). As can be seen from Table 2, the participating software firms represent a broad range of products and services. All the participants are active in the packaged software market. Nine of the firms also are active in the software customization market. About half the firms are involved in software development.

During personal interviews, managers of the 11 companies provided in depth information concerning the core competencies, firm capabilities, and the strategies used by their firms. Prior to the interviews, an extensive questionnaire was drawn up and other case research techniques were employed. Interviews lasted from 2–3 hours and were conducted by the second author. Prior to analysis the final written summaries of the interviews were reviewed by the interviewees to assure the accuracy of information obtained. In addition, all interviewees were available for further questions as analysis proceeded.

Competencies and Capabilities

Prahalad and Hamel[8] have suggested that firms need to evaluate their core competencies in determining

TABLE 2. General characteristics of participating software companies

Company	Number of employees	Sales	Home country	International activities	International activities	Type software
Softco 1	4324	*f*811.9 million	The Netherlands	yes	Top 500 companies	Pack Cust Dev
Softco 2	1700	£ 146 million	United Kingdom	yes	Government, finance, trade, ind., telecomm.	Pack Cust Dev
Softco 3	30	*f*5million	The Netherlands	no	Customer order-based industry	Pack Cust
Softco 4	20	N/A	The Netherlands	no	Home-use	Pack
Softco 5	35	*f*3–5 million	The Netherlands	no	Government, finance, industry	Pack
Softco 6	4000	*f*208 million (15% of total)	The Netherlands	yes	Top 1000 companies	Pack Cust Dev
Softco 7	320	*f*84 million	The Netherlands	little	Government, police, trade, finance, public utilities	Pack Cust
Softco 8	569	*f*104.8 million	The Netherlands	no	Government, finance, trade, industry,transport	Pack Cust Dev
Softco 9	100	*f*18 million	Germany	yes	Big companies in all branches	Pack Cust Dev
Softco 10	1000	DM 155 million	Germany	yes	Banks, insurance, trade, industry, commerce	Pack Cust
Softco 11	100	*f*10.7 million	The Netherlands	yes	Big, small, and middle sized companies	Pack Cust

f, Dutch Guilders.

the appropriate strategy to pursue. Other scholars [9] have suggested that both core competencies and firm capabilities need to be considered in strategy formulation, since core competencies only address a firm's systems and processes related to technology while capabilities include the actual strategic assets of the firm. Core competencies and firm capabilities are the building blocks of strategy. Capabilities can provide a firm with a comparative advantage if the capabilities are unique and difficult to imitate. Additionally if these capabilities can be properly combined with a firm's core competencies, they can be used to provide the firm with a competitive advantage, thus providing high performance for the firm. However, the simple possession of capabilities, core competencies, or comparative advantage does not guarantee a competitive advantage to the firm. The capabilities must be difficult to duplicate, core competencies must be properly utilized and firm comparative advantage must be properly positioned to provide a sustainable competitive advantage to the firm.[10]

European software firms must determine their capabilities (including core competencies) and then select the strategy that best fits their capabilities. Unlike manufacturing firms, software firms possess mostly intangible capabilities. A number of scholars have provided useful models for identifying a firm's core competencies and capabilities. For this study we selected Richard Hall's model because it *1.* specifically addresses the needs of service firms with intangible capabilities; *2.* identifies both capabilities and core competencies; *3.* has been empirically supported; and *4.* is similar to models proposed by other researchers.[11] Hall, winner of the 1995 Igor Ansoff Strategy Award, has identified four types of intangible capability differentials which firms might possess. These four differentials can provide the basis for strategy selection.

Capability Differentials Based on Assets

These capability differentials are related to assets that the business owns. Therefore, these differentials are

TABLE 3. Capability differentials of participating companies

Company	Regulatory differential	Positional differential	Functional differential	Cultural differential
Softco 1	none	strong	medium	medium
Softco 2	none	medium	medium	medium
Softco 3	none	medium	strong	medium
Softco 4	weak	medium	weak	weak
Softco 5	medium	strong	strong	medium
Softco 6	none	strong	medium	strong
Softco 7	none	medium	medium	medium
Softco 8	none	strong	medium	strong
Softco 9	none	medium	medium	medium
Softco 10	none	strong	medium	medium
Softco 11	none	medium	medium	medium

concerned with '*having*'. The following capability differentials are based on assets:

Regulatory differential. This differential results from the possession of legal entities such as intellectual property rights, contracts, trade secrets, etc.

Positional differential. This differential is a consequence of past actions that, for example, have produced a certain reputation with customers, a certain advantageous location of facilities, etc.

Capability Differentials Based on Competencies

These differentials are based on competencies or skills and are concerned with '*doing*'. The following differentials fit in this category:

Functional differential. Functional differential results from the knowledge, skill and experience of employees, and others in the value chain such as supplier, distributors, etc.

Cultural differential. Cultural differential applies to the organization as a whole. It incorporates the habits, attitudes, beliefs and values, which permeate the individuals and groups which comprise the organization. When the organization's culture results in, for example: a perception of high quality standards, an ability to react to challenge, an ability to put the customer first, etc.; then culture can be a contributor to competitive advantage.

The Capability Differentials of European Software Firms

For each participating European software firm the capability differentials (core competencies and firm capabilities) were evaluated. Capability differentials could be rated as either non-existent, weak, medium, or strong. Each firm was evaluated by the two researchers independently based on the interview information and then the two ratings were compared. Differences were resolved through discussion and further data gathering. While these ratings are subjective in nature, they provided a basis for comparison and strategy development. Table 3 summarizes the ratings of capability differentials for the 11 software firms.

Softco 1. Softco 1 owns no intangible resources that could create a regulatory differential. Softco 1 has a strong positional differential because of the strong company reputation. Furthermore, she has (developed) internal and external networks. Softco 1 invests in training and education of her employees in those areas that are demanded by customers and in new emerging knowledge-areas. However, this differential is ranked as medium because every competitor can easily do the same thing. Softco 1 puts the customer first, there is a high perception of quality and service in order to achieve 100% customer satisfaction and she is in compliance with the ISO-9000 certificate. The cultural differential is therefore ranked as medium.

Softco 2. Softco 2 owns no intangible resources that could create a regulatory differential. Softco 2 has a strong company reputation, which is shown by her strong fixed customer-base. However, except for relationships with customers, she has no strong relationships with external parties (networks). Therefore, the positional differential is ranked as medium. Softco 2 focuses on continuous education and training of her employees in the most modern methods and techniques that are and become available in every specialty. The functional differential is ranked as medium. Softco 2 puts the customer first by reacting strongly to (changing) customers' wishes. The perception of service and quality is high and she is in compliance with the ISO-9000 certificate. Cultural differential at Softco 2 is ranked as medium.

Softco 3. Softco 3 has no regulatory differential because she does not possess intangible resources related to this differential. Softco 3 has developed a strong product and company reputation in the market by supplying software in the Dutch language. Moreover, Softco 3 has specialized in customer-order software that has provided her expertise in the area. Softco 3 has few relationships with external parties. Therefore the positional differential can be ranked as medium. Furthermore, Softco 3 has invested in the development of a methodology to implement the product effectively in the customer's organization. Softco 3 had to train and educate her own employees in order to supply and implement the product in this way. This shows that Softco 3 has a strong functional differential. The cultural differential at Softco 3 is medium. The perception of service and quality is high and getting an ISO-9000 certificate has a high priority.

Softco 4. Softco 4 has a weak regulatory differential. She has contracts with a supplier in Germany and with a few suppliers in the USA and is the sole representative and supplier of these products in the Netherlands and Belgium. However these products are not that unique in functionality; there are many other competitors who offer similar products with similar functionality. Softco 4 has a medium product reputation, which is created by supplying the products in Dutch, at an attractive price/performance ratio, and through the use of various marketing channels—making the product available through as many distribution channels as possible. Moreover, she has few relationships with external parties except her software suppliers. Softco 4 has a weak functional differential. The cultural differential is weak. A distinct perception of high quality standards or service is not obvious.

Softco 5. Softco 5 has a medium regulatory differential. She has contracts with suppliers in Germany and Belgium. She is the only representative of these products in the Netherlands. She has a contract with IBM to develop the security for the OS/2 operating system. However, she is not the only supplier of security software in the market. Softco 5 has a strong positional differential. She has strong relationships with her customers and suppliers. She also has external networks with software companies like Microsoft, Novell, and IBM. Unlike most software firms that supply security software, Softco 5 has specialized and focused herself only on the supply of security software. Therefore, the functional differential can be ranked as strong. Softco 5 has an ability to place the customer first and the perception of quality and service at Softco 5 is high. In 1994 she started with the preparation for certifying with the ISO-9000 certificate. The cultural differential is medium.

Softco 6. Softco 6 possesses no intangible resources that could create a regulatory differential. Softco 6 has a strong company reputation, and therefore a strong positional differential. She has developed strong external networks by collaborating or allying with software firms, customers, and universities. The functional differential can be ranked as medium. Softco 6 continuously invests in education and training for her employees in new and emerging knowledge-areas. The firm is divided into multiple competence centres, or specialist groups. Each competence centre can share and bundle the specific knowledge of the other centres in order to supply a more complete service and product to the customer. The cultural differential at Softco 6 is strong. There is a strong perception of quality and service.

Softco 7. Softco 7 owns no intangible resources that could create a regulatory differential. Softco 7 has been able to develop a strong company reputation. She has a strong and loyal fixed customer-base. Softco 7 does not have other networks with external parties. Therefore the positional differential is ranked as medium. The functional differential can be ranked as medium. Since the beginning 20 years ago, Softco 7 has gained a lot of experience in developing Dutch software. Furthermore, Softco 7 invests in training and education in order to follow technological developments. The cultural differential at Softco 7 can be ranked as medium. The employees at Softco 7 are very motivated and have a good team-spirit. A satisfied customer is high priority at Softco 7. The perception of quality and service is strong and she is in compliance with the ISO-9000 certificate.

Softco 8. Softco 8 owns no intangible resources that could create a regulatory differential. The positional differential at Softco 8 is strong. She has developed a strong reputation. She has external networks with customers, software companies, and universities. Investment in education and training is very important to Softco 8. Therefore the functional differential can be ranked as medium. The cultural differential can be ranked as strong. Service and quality have a high priority at Softco 8.

Softco 9. Softco 9 has no regulatory differential. The positional differential is ranked as medium. Softco 9 can profit from the strong reputation of Parent-Softco 9 (the total organization). Softco 9 has a fixed customer-base, no strong external networks, but internally she collaborates with the hardware division of Parent-Softco 9. The functional differential is medium. She has developed some expertise in three main areas: financial administration, packages for car dealers, and office automation, archiving and mail-systems. Moreover, she invests in education and training of her employees in new specialty areas. Softco 9 has a help-desk that is available 24 hours a day, a tele-maintenance service, and a possibility to solve the problem on site. She is also in compliance

Table 4. Strategies supported by each capability differential

Regulatory differential	Positional differential	Functional differential	Cultural differential
Alliance-based strategy Entrepreneurial strategy	Service-based strategy Alliance-based strategy Different marketing channel strategy	Niche strategy Alliance-based strategy	Service-based strategy Entrepreneurial strategy Future-oriented strategy

with the ISO-9000 certificate. The cultural differential is ranked as medium.

Softco 10. Softco 10 owns no intangible resources that could create a regulatory differential. Softco 10 has a strong positional differential, because of her strong company and product reputation. Formerly, she had a close relationship with Philips. Softco 10, as a BMW company, also can use leverage the good reputation of BMW. She also has external networks with consultancy firms and software companies. The functional differential is medium. Softco 10 continuously invests in training and education of her employees. The cultural differential is medium. Good service and quality have a high priority at Softco 10. She is in compliance with the ISO-9000 certificate.

Softco 11. Softco 11 has no regulatory differential. The positional differential is medium. Softco 11 has obtained a position in the top five Dutch administrative and financial software suppliers. She has external networks with software companies and organization consultancy firms. The products are sold in the language of the country. The functional differential is medium. Softco 11 has gained a lot of experience in the development of administrative software. She invests continuously in software renewal and therefore in new knowledge areas. The cultural differential is medium. Service and quality have a priority at Softco 11. She offers the customer a help-desk service, a remote access service, an on site support service, and the possibility of a consignment version of the product. She offers to her customers free updates and they are informed about new modules and new releases.

Strategies Utilized

Once each firm's capability differentials were evaluated we examined the strategies they used. Each differential supports certain strategies or combination of strategies (see Table 4 for a summary). Firms that possess certain differentials would be expected to utilize one or more specific strategy (see the Appendix for a description of each strategy). Only strong differentials provide a good basis for strategy selection. Medium rated differentials can support firm strategies but should not the basis on which strategies are built. Weak and nonexistent differentials need improvement before they can be relied on as a basis for strategy implementation.

The regulatory differential can support an *entrepreneurial* strategy based on an innovative idea. This regulatory differential may come from either the possession of a trade-secret or the exclusive use of another firm's product. A software firm can create a regulatory differential by forming a contract with another software supplier so that they are the only representative of the software in a particular market. Additionally a software firm may possess a regulatory differential because they have established a *standard*, such as Microsoft's MS-DOS. The *alliance-based* strategy can then be used to help contending companies promote their technology and to persuade more businesses to use their design.

The positional differential supports a *service-based* strategy. The focus of this strategy is on listening continuously to customer preferences, continuous observation of customer reaction, learning from past mistakes, supplying products with multiple language options, extensive help-desk support, high level quality, and possibly certifying with the ISO-9000 certificate. A strong positional differential also can support the *different marketing channel* strategy. The positional differential, such as the strong reputation of Lotus Development Company, can be leveraged to deliver software through non-traditional channels. The *alliance-based* strategy also can be used by firms with a strong positional differential. In an alliance multiple firms can share resources and increase market coverage through leveraging the positional differential of all or one participant. For example, IBM's partner program allows smaller software firms to piggy-back on IBM's reputation in order to reach new and expanded markets.

A strong functional differential can support a *niche* strategy. By focusing on a small market-segment a company with extensive expertise in that market area can increase its functional differential as well as secure a larger share of a small market. This expertise can then be used to expand to other related markets. Software firms with strong functional differentials also can follow an *alliance-based* strategy. For example, a firm can acquire knowledge about niche markets

Table 5. Strategies by participating companies

Firm	Strategies used	Recommended strategies
Softco 1	Service-based strategy Alliance-based strategy	Service-based strategy Alliance-based strategy
Softco 2	Service-based strategy	Service-based strategy Alliance-based strategy
Softco 3	Niche strategy	Niche strategy Alliance-based strategy
Softco 4	Different marketing channel strategy	Different marketing channel strategy Alliance-based strategy
Softco 5	Niche strategy	Niche strategy Alliance-based strategy
Softco 6	Service-based strategy Alliance-based strategy	Service-based strategy Alliance-based strategy
Softco 7	Service-based strategy	Service-based strategy Alliance-based strategy
Softco 8	Service-based strategy Alliance-based strategy	Service-based strategy Alliance-based strategy
Softco 9	Service-based strategy	Service-based strategy Alliance-based strategy
Softco 10	Service-based strategy	Service-based strategy Alliance-based strategy
Softco 11	Service-based strategy	Service-based strategy Alliance-based strategy

by collaborating with firms in these markets. In this way, a company is able to expand her knowledge in a relatively short time and enter these new markets more effectively.

The cultural differential supports three different strategy types. A *service-based* strategy can only be supported if there are strong cultural beliefs within the firm. Good service is difficult to maintain. As a software firm grows it must be continually vigilant in its efforts to realize high quality service to the customer. A strong belief among employees can work toward supporting the quality service strategy. The *entrepreneurial* strategy also may be pursued if the cultural differential leans toward the ability to innovate. A company that believes in innovation, such as Apple computers in its early years, can provide the support needed to enter new and potentially exciting markets. Finally a strong cultural differential can support the *future-oriented* strategy. Firms with cultures that are future/change oriented may be able to capture a large share of a new market, as did Novell with its networking software.

The Strategies Utilized by European Software Firms

In our interviews we gathered information on the type of strategies the European software firms were utilizing. We then compared the strategies used with the strategies that could be supported by the existing firm capability differentials. A summary of this section is provided in Table 5.

Softco 1. Softco 1 has a strong positional differential (a strong reputation, a large fixed customer base, and internal and external networks). This means that Softco 1 could pursue a service-based strategy, an alliance-based strategy or a different marketing channel strategy. We found that Softco 1 appears to be following a combination of the service-based strategy and alliance-based strategy. Furthermore, the service-based strategy is supported by a medium cultural differential and the alliance-based strategy is supported by a medium functional differential.

Softco 2. Softco 2 has no strong differentiating capabilities. The medium positional differential (a strong reputation, large fixed customer base but no strong networks), medium functional differential and medium cultural differential mean that Softco 2 has broad support for most of the strategies listed above. However, without a strong differential in any one area, Softco 2 will have difficulty maintaining a strategic competitive position. We therefore recommend that Softco 2 decide on a strategy to pursue and then work actively on strengthening the capabilities needed to achieve this strategy. We found that Softco 2 appears to be pursuing a service-based strategy, which is supported by the medium cultural differential. We think that Softco 2 should consider using the alliance-based strategy, because it will be supported by the medium positional differential and medium functional differential and may help Softco 2 in strengthening its capabilities.

Softco 3. Softco 3 has a strong functional differential. This means that Softco 3 could follow the niche strategy or the alliance-based strategy. We found that Softco 3 appears to be following a niche-strategy. Softco 3 has a medium positional differential that helps support the niche strategy. Softco 3 may want to consider adding the alliance-based strategy since it has a medium positional differential and strong functional differential. This new strategy could be pursued with the existing capabilities.

Softco 4. Of the 11 software firms examined, Softco 4 appears to have the weakest strategic position. Softco 4 has a medium positional differential that is created by supplying Dutch software at an attractive price/performance ratio and through the use of various marketing channels. However it is weak in all other capabilities. This implies that Softco 4 could follow the service-based strategy, alliance-based strategy or different marketing channel strategy. However additional capabilities will be required to sustain the strategy. We found that Softco 4 appears to be following the different marketing channel strategy. To improve capabilities, and because of its small size, Softco 4 should consider using an alliance strategy and focus on improving its positional capabilities.

Softco 5. Softco 5 has the strongest capability differential of the eleven firms examined. Softco 5 has a strong functional differential and a strong positional differential. In addition Softco 5 has medium regulatory and cultural capabilities. This means that she could follow a niche strategy, an alliance-based strategy, a service-based strategy, or a different marketing channel strategy. We found that Softco 5 appears to be following a niche strategy. However, Softco 5 should extend its strategies and as a minimum utilize the alliance-based strategy. An alliance-based strategy is recommended because this strategy can be supported by the strong functional and positional differentials and by a medium regulatory differential.

Softco 6. Softco 6 has a strong positional differential (strong reputation, large fixed customer base, and strong external networks). This means that Softco 6 could follow a service-based strategy, alliance-based strategy or a different marketing channel strategy. Moreover, the strong cultural differential implies that Softco 6 could pursue the service-based strategy, the entrepreneurial strategy and the future-oriented strategy. We found that Softco 6 appears to be following a combination of the service-based strategy and the alliance-based strategy. The alliance-based strategy gains additional support from a medium functional differential.

Softco 7. Like Softco 2, Softco 7 has no strong capability differentials. She does have a medium positional differential (strong reputation, large fixed customer base, but weak external networks). This means that she could pursue a service-based strategy, an alliance-based strategy or a different marketing channel strategy. We found that Softco 7 appears to be following a service-based strategy that is supported by the medium cultural differential. The alliance-based strategy is recommended because this strategy would be supported by the medium positional differential and medium functional differential and could be used by Softco 7 to improve its capabilities.

Softco 8. Softco 8 has a strong positional differential (i.e. strong reputation, large fixed customer base, strong external networks), and a strong cultural differential (i.e. high perception of service and handling opportunities in an entrepreneurial way). This means that Softco 8 could follow the service-based strategy, the alliance-based strategy, the different marketing channel strategy, the entrepreneurial strategy or the future-oriented strategy. Also a medium functional differential means that there is support within the firm for the alliance-based strategy. We found that Softco 8 appears to be pursuing both the service-based strategy and the alliance-based strategy.

Softco 9. Softco 9 has only medium rated differentials. A medium positional differential (profits from the strong reputation of Parent-Softco 9, large fixed customer base but no strong external networks). This means that Softco 9 could follow a service-based strategy, alliance-based strategy or a different marketing channel strategy. The medium functional and cultural differential indicate that she also could pursue the niche strategy, the entrepreneurial or future-oriented strategy. We found that Softco 9 appears to be following a service-based strategy. The alliance-based strategy might be recommended. This strategy could be supported by the medium positional and medium functional differential and allow Softco 9 to improve its capabilities.

Softco 10. Softco 10 has a strong positional differential (strong reputation, close customer relationships and strong external networks with customers). This means that she could follow the service-based strategy, alliance-based strategy or different marketing channel strategy. We found that Softco 10 appears to be following a service-based strategy. Based on the strong positional differential together with the medium cultural and functional differential we think that the alliance-based strategy also could be recommended.

Softco 11. Interestingly, Softco 11, like three of the preceding firms, has only medium rated capability differentials. Softco 11 has a medium positional differential (strong reputation, but no strong external networks), a medium functional differential and a medium cultural differential (high perception of service and quality). This means that Softco 11 could follow a service-based strategy, alliance-based strategy, different marketing channel strategy, niche strategy, entrepreneurial strategy or a future-oriented strategy. We found that Softco 11 appears to be pursuing a service-based strategy. Furthermore, the alliance-based strategy might also be recommended to Softco 11. This strategy would be supported by the medium functional and medium positional differential and help Softco 11 improve its capabilities and develop a long-term viable strategic advantage.

Conclusions and Management Implications

European software firms are in a difficult competitive position, they serve a segmented market and they face strong competition from US suppliers who have established themselves as market leaders. Fortunately, all is not lost. The computer software market is large and growing rapidly. There is ample room for new entrants and new markets are being developed almost daily. The key to future success for European software providers will be in developing core competencies and firm capabilities and selecting strategies that will allow them to progress against US domination.

By examining the capability differentials of the firm, European software managers can help determine the best strategies to be used to combat the encroachment of US software giants. While each capability differential can support multiple strategies, it is the combination of capability differentials that will determine the best strategies for each firm. Additionally, these strategies are not mutually exclusive, firms can pursue multiple strategies that can have a synergistic effect, improving performance, capabilities and core competencies simultaneously.

Implications

In this article we present a methodology for European software firms to identify their core competencies and firm capabilities and relate them to potential strategies. Based on Hall's research in the area of intangible capabilities, we suggest that European software firm managers determine the level of regulatory, positional, functional, and cultural capability differentials within their firm. Since these evaluations are subjective in nature and subject to cognitive biases, we suggest that managers utilize an outside party to develop an independent evaluation of these capability levels. Subsequent to this evaluation firm managers may find it necessary to pursue strategies that will improve one or more of the firm's capabilities/competencies. Since only strong capability differentials can be used as a basis of constructing a sustainable competitive advantage, it is imperative that steps be taken to assure the firm has at least one strong capability differential. In general there appears to be a need for European software firms to strengthen their capabilities. This situation can be most easily resolved by using alliance-based strategies to strengthen weak capabilities/competencies and add new ones. Alliance-based strategies also can be used by firms with strong capability differentials to achieve greater market access, to gain access to markets that would otherwise be closed, and to provide a 'learning' opportunity and continuous capability/competencies improvement for the firms.

Once capability differential levels are determined, firm managers can evaluate the present strategies. This evaluation needs to focus on the strategies the firm is pursuing including product and market related focuses. Our study indicates that many European software firms are attempting to utilize a service-based strategy. However service-based strategies are extremely difficult to maintain since other software firms can easily duplicate most service-based capabilities. It is therefore important that European software firms pursue a combination of strategies that cannot be easily duplicated by competitors. As presented in this article, European software firms have a number of strategic alternatives. The final decision as to which strategy or group or strategies to pursue should be based on *1.* the intangible capabilities or core competencies of the firm; *2.* the future desired position of the firm within the industry and; *3.* the financial and managerial resources available to the firm.

Interestingly, the 11 firms examined all possessed different capability differential portfolios. The methodology offered in this paper helps make clear the deficiencies in many European software firms' capabilities/competencies and the strengths of others. While most of the European software firms interviewed were pursuing single strategies, it appears from our examination, that other strategies are available to these firms.

European software managers have a great future ahead. If they will take advantage of the potential opportunities available to them there is every reason to believe that European software firms can regain their market share and become competitive world-wide participants in the computer software industry.

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Appendix: Summary of Strategies

The Service-based Strategy
The primary objective of a service-based strategy is to attain a differentiated competitive position.[12] This is achieved when customers perceive that a service differs from competitive offerings on any characteristic. Differentiation is based on aspects of the service that are salient to customers and ultimately have a favorable effect on their preferences. Headley and Choi[13] state that it is essential to listen continuously to customers' preferences in order to improve service quality, since quality is ultimately defined by customers' perceptions.

The Entrepreneurial Strategy
Stevenson and Jarillo[14] define entrepreneurship as a process by which individuals—either on their own or inside organizations—pursue opportunities without regard to the resources currently in control. Opportunity can be defined as 'a future situation that is deemed desirable and feasible'. Because individuals have different desires and they possess different capabilities opportunities tend to vary among individuals and for individuals over time. According to Naman and Slevin[15], entrepreneurship has three dimensions: the willingness to take business related risks, the willingness to be proactive when competing with other firms, and the willingness to innovate, i.e. to favour change and innovation in order to obtain competitive advantage.

Future-oriented Strategy
Hamel and Prahalad argue that the greatest competitive advantage a company can possess is *a vision of the future*.[16] Tomorrow's market leaders will be those who exploit the swift pace of technology to create new goods and services. They will be experts not only at anticipating and responding to the demand of customers and their changing preferences, but also in leading customers to try, then embrace, what is new. Developing a point of view about the future (the mission) should be an ongoing project sustained by continuous debate within the company.[17] Regenerating the core strategy again and again is a prerequisite to stay in the market.

Alliance-based Strategy
Howard and others[18] argue that if companies want to take advantage of the latest innovations and speed the design and production of components, collaboration is inevitable. They reason that it takes so much money to develop new products and to penetrate new markets that most companies have to ally with other companies— competitors or non-competitors—in order to survive. Furthermore, alliances can provide shortcuts for companies racing to improve their production efficiency and quality control.

Different Marketing Channel Strategy
Revzan[19] sees a marketing channel as 'a structural arrangement whereby sellers search for customer prospects with whom to communicate and to whom sales can ultimately be made, and whereby buyers, in turn, search for sellers carrying the assortments desired from whom purchases ultimately can be made'. Using different marketing channels can lead to a broadening of the availability of the company's products to target different segments of customers.

Low Cost Strategy
By outsourcing a firm can establish great cost reductions. Each activity in the value chain can be either produced internally or sourced externally. If the firm lacks capabilities for a particular service, it has to look for possibilities for outsourcing the activity to a firm that has superior capabilities. By outsourcing the company becomes more flexible, more focused on their core activities and can generate cost reductions.[20]

Niche Strategy
One of the most traditional strategies is a niche strategy. Companies can concentrate on trying to identify an unexplored and overlooked segment in the market. A niche strategy requires two things. First, a firm must identify a market area that is being unserved, under-served or served poorly. Second, the firm must posses or develop the capabilities necessary to exploit this market segment. A niche strategy can provide a firm with a starting point in entering a new market, or in expanding internationally.

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