Innovative Management in Subcontracting Business in Growing and Stagnating Economies

Karl-Heinz SCHMIDT
University of Paderborn, Paderborn, Germany
E-mail: Karl-Heinz_Schmidt@notes.upb.de

Abstract

The worldwide economic recession demonstrates: innovations are needed to increase productivity and competitivity of enterprises, especially of subcontracting companies. The paper compares the subcontracting business at a boom- and recession-phase, mainly in Japan and Germany. For Japan the components of subcontracting systems are exposed by a static and dynamic view. Changes of subcontracting firms from dependent, but stable suppliers of parts and services to extremely dependent subcontractors are shown for Japan. European subcontracting companies are found being less dependent, or even independent, networking suppliers. The worldwide dynamic view demonstrates: innovative management enables SMEs of former LDCs to compete with subcontracting companies of developed countries. The economic recession, yet, endangers the stability of the subcontracting systems worldwide.

Keywords: *New combinations of economic resources – types of subcontracting systems – economic recession – pressure to innovate – new risks and opportunities of subcontracting business*

JEL classification: M11, M16

1. Subcontracting business – "the great hope" of the 21st century?

The worldwide economic recession during the late years of the first decade of the 21st century enforced economists, bureaucrats and politicians of many countries to search for new ways and means to combat the breakdown of firms and the increase of unemployment. They demand more schooling, education and research activities and shorter time-periods between the development of new knowledge and the introduction and application of new production-methods in existing companies and new firms. To put it in terms of economic theory: Joseph Alois Schumpeter's "new combinations of economic resources" (Schumpeter, J.A.,1942, 1946, 134 f) are demanded, and Jean Fourastié's slogan of economic progress as "the great hope" of the 20th century (1954) is transferred to the 21st

century (Fourastié, J., 1954, 10 f).. From a sceptical point of view, yet, the question turns out, if the management of the companies is orientated to innovations and capable to develop, to introduce and to continuously apply the new knowledge and the "new combinations of economic resources" (Backhaus, J. (Ed.), 2003, 5 ff.; Schumpeter, J.A., 1961, 57 ff.). This question is extremely relevant for subcontracting companies in the industrial sector, and at a growing extent also in the service sector. Therefore the following article will point out opportunities of innovative management in the subcontracting business at different phases of economic development. The countries to be compared are mainly Japan and Germany.

2. Methodological aspects of research on subcontracting business

To compare the management of subcontracting companies under different technological and economic framework conditions, two steps of the investigation are necessary: (1) two or more countries are considered at a distinct date or period of time, and (2) individual countries are considered at specific phases of the economic development. The focus is on subcontracting business at boom-phase and recession-phase. The boom-phase will demonstrate the expansion of subcontracting firms. The recession-phase is presumably correlated with a negative economic development of subcontracting companies. Therefore, a static view and a dynamic view of the investigation is necessary.

		Country / Group of countries	
View	**Date/period**	**Germany/ European countries**	**Japan/ Asian countries**
Static view	1980 – 89	Recession	Growth/Stagnation
Dynamic view	1990 – 99	Growth	Growth
	2000 - ?	Recession/Stagnation	Stagnation/Growth

To see the differences of the economic development, the rates of average annual GDP growth in Germany, Japan and selected other countries are compared (Table 1).

Rates of average annual GDP growth in selected countries 1998 – 2008

Table 1

Country	**1998 – 2008** (%)	**2007 – 2008** (%)
Denmark	1,6	- 1,1
France	2,0	0,4
Gemany	1,5	1,3
Ireland	5,7	- 2,3
Italy	1,2	- 1,0

Country	1998 – 2008 (%)	2007 – 2008 (%)
Japan	1,3	- 0,7
Korea	5,3	2,2
Luxemburg	4,5	- 0,9
Netherlands	2,4	2,1
Sweden	2,8	- 0,2
UK	2,6	0,7
USA	2,6	1,1
Euro area	2,1	0,8
OECD total	2,3	0,7

Sources: OECD in Figures 2009, OECD observer 2009 / Supplement 1, Paris 2009, p. 14 f

To get further insight into the phases of economic development in Japan and Germany, annual growth rates of GNP/GDP are taken into account (Table 2). The empirical data indicate higher growth rates of GDP in Japan than in Germany during the period of 1970 to 1995, but followed by lower growth rates of GDP in Japan than in Germany thereafter. Roughly, the pattern of a longterm phase of relatively stable economic growth up to 1995 and of a second phase of stagnating economic development in Japan differs from a more cyclical performance of annual growth rates of GDP in Germany. If this pattern holds in future years, the conclusion may be: in Japan the economic development will change from economic expansion to stagnation of GDP, whereas in Germany increasing cycles of economic growth will designate the economic development. Consequently, enterprises have to be aware of growing risks of economic decisions in both countries, but with more long-term negative growth-rates during the stagnating economic development in Japan than in Germany. The data of 2009, yet, demonstrate the worldwide economic crisis in terms of negative growth rates of real GDP in Germany and Japan. The stagnating economic development is expected to determine not only the output of industrial manufacturing, but also the subcontracting business.

Annual growth rates of real GDP in Japan and Germany

Table 2

	Japan	**Germany**	
Year	Real GDP % over preceding Year		GDP at price of % over preceding year
1970	8,2	1971/80	2,7[1)]
1975	4,0	1975	.
1980	(4,5)	1981/90	2,1[1)]
		1982	- 1,1[1)]
1985	4,2	1985	1,8[1)]

	Japan	**Germany**	
Year	Real GDP % over preceding Year		GDP at price of % over preceding year
1990	5,5	1990	4,5[1)]
		1993	- 0,8[2)]
1995	2,5	1995	1,9[2)]
2000	1,7	2000	3,2[2)]
2001	- 1,3	2003	- 0,2[2)]
2006 – 07	2,4	2005	0,8[2)]
2007 – 08	- 0,7	2008	1,3[2)]

[1)] At prices of 1985;
[2)] price changes eliminated (preisbereinigt);

Sources: The Asahi Shimbun (ed.): Japan Almanac 2003, Tokyo 2003, p. 57; OECD (ed.): OECD Observer 2009/Suppl. 1, Paris 2009, p. 14 f; Institut der deutschen Wirtschaft Köln (Hrsg.): Zahlen zur wirtschaftlichen Entwicklung der Bundesrepublik Deutschland, Ausgabe 1991, Tab. 21; Ausgabe 2009, Tab. 2.1.

3. The static view: efficiency by decentralization of production in the 1980s

3.1 Subcontracting systems in Japan

Subcontracting activities have a long tradition in Japan. Prior to Meiji Revolution regular interfirm relations between orderer companies and subcontracted, mainly small companies were very widespread in the manufacturing production. Since the late 19th century and during the process of industrialization subcontracting systems were developed by industrial companies and related institutions in Japan. Though this structural change was organized in Japan later than in Western industrial countries, the basic pattern of the Japanese subcontracting business became acknowledged in Western countries as a model of reliable, stable and efficient interfirm business relations, especially since the 1980's. Therefore, the static view of the Japanese subcontracting system is orientated to a decade of stable economic framework conditions: the 1980's. At that time the growth-rates of GNP were positive, and the manufacturing production of the automobile industry, machinery industry and other basic key-industries of the Japanese economy was steadily expanded. Which were the main important components of the subcontracting business in Japan at the 1980's?

Firstly, two types of firms were involved in the subcontracting business: (1) subcontractors: they receive orders by "their" orderer companies – based on written contracts or oral agreements –; (2) subcontracting companies: they give orders to other (small) firms, ranked on a lower level of economic functions and subcontracted products or services. Both types of firms form a "subcontracting system". Its structure is designed as a "subcontracting pyramid", consisting of

different layers of subcontract-oriented firms (Ogawa, E., 1984; Schmidt, K.-H., 1992, 128).

Secondly, the performance of the subcontracting system in Japan during the 1980's was determined by the economic situation and social environment of the participating firms, but also by the technological, economic, political and institutional framework in foreign countries, where clients and competitors of the firms were located. The performance of the Japanese subcontracting system in the involved industries was determined by the hierarchy of the society and by the vertical and horizontal interrelations between work-places, firms, industries, regions and sectors of the economy. (Small and Medium Enterprise Agency, MITI (ed.) (1984, 1996); METI (ed.) 2004, 29). Contrasting to Western Countries, the Japanese subcontracting system was determined by large industrial firms functioning as "parent companies". The subcontractors instead to a large extent were small and medium sized enterprises (SME). They were part of the vertical structure of the Japanese subcontracting system: a "parent company" on top of a pyramid and various levels of subcontractors below, supplying specific quantities and qualities of subcontracted products, parts or services. The subcontractors were located near to the parent company or at larger geographical distance. The consequences were different: nearby subcontractors were apt to form a regional or local industrial complex, far-distant subcontractors were often involved in various interindustrial network-relations.

Thirdly, different types of subcontracting systems could be distinguished in Japan, according to the criteria: strategies of involved firms, organizational structure and incentives orientated to those firms, and effects of participating companies as to employment, production, research and development. By comparing firms of the subcontracting business five types of related systems were pointed out: (1) "pyramid-type" (vertical structure), (2) "diversification-type" offering different products and services to a variety of orderers (horizontal structure), (3) "industrial-complex-type" (local or regional structure), consisting of subcontracting companies and "their" subcontractors located near to the locations of "their" main important orderers, (4) "footloose-industry-type" designated by an output structure complementary to the production process and output of the orderer companies, (5) "dfs-type"combining decentralization of production and flexible specialization of manufacturing and output, including two sub-types: (a) the independent, self-employed and flexible subcontractor, and (b) the dependent, administered division-plant or decentralized production unit of a large company. The decentralized production unit of a large company was considered to be the "last resort" of the subcontracting business before entering the economic border lines of a large diversified company preferring the "making" instead of "buying". Already at the beginning of 1980's the structural change of the Japanese subcontracting business could be recognized by the static view: the existing subcontracting systems had to watch for competitivity, or they could be substituted by "in-house-decentralization" of large companies (Schmidt, K.-H., 1990, 2 f; 1992, 133 f).

3.2 Decentralized subcontracting firms in European countries

The static view orientated to European countries at the beginning of the 1980's points out the situation of the subcontracting business under the conditions of the European Community (EC) (Schmidt, K.-H. 1990, 4 f).The EC Internal Market was presumed to bring about economic and technological advantages for the enterprises of the EC-countries – with differences of the opportunities as to industries, firm-size and plant–locations. The machinery industry turned out to benefit from growing Intra-EC exports. As this industry includes large numbers of subcontracting enterprises and subcontracted firms, the growth of exports was a positive factor of the economic development of the subcontracting business in Europe. This statement was also valid for other exportintensive industries, as electronics and electrotechnical industries and automobile manufacturing. These industries include many large enterprises functioning as orderers of small or medium sized subcontracting enterprises and subcontracted companies. In fact, the large automobile manufacturers were interested to exploit economies of scope by delegating production departments to division plants, subsidiary enterprises or other qualified companies of the subcontracting business (Pascha, W./Storz, C., 1996, 41 ff.). Available surveys and own studies demonstrated, that the structure of the subcontracting business in West European Countries, especially in Germany and neighbour-countries (France, Switzerland, Austria a.o.), differed from the structure of the Japanese subcontracting system, but that in the European countries the subcontracting business was developed towards a structure similar to the Japanese subcontracting system: large enterprises organized a stable network of SME-subcontractors in order to perform diversified mass production at home and in foreign countries (Pascha, W./Storz, c. (ed. 1996, 1 ff., 41 ff.). Contrasting to Japan, yet, the subcontracting business in Europe at the 1980's was highly concerned by new risks connected with the expanding internationalization of production and sales, and by the accelerating development and diffusion of new technologies. The consequences consisted in increasing economic and technological dependence of the subcontractors and subcontracting firms on the management of the large orderer-enterprises in the European countries. These enterprises did not decide as Japanese "mother-companies", which were prepared to keep "their" subcontractors and subcontracting companies in the markets. In Europe the risk of the subcontracting system was higher than in Japan. Since the beginning of the 1990's, yet, the European subcontracting business, was evaluated to be adapted towards the network-structure of the Japanese subcontracting system. Instead, the economic, technological and political development brought about the opposite structural change: the Japanese subcontracting system became more intensively adapted to the structure of the subcontracting business in Europe, including higher economic and technological risks of waiting for orders and of performing independent economic decisions as a subcontracting company or as a small or medium-sized subcontractor.

3.3 Subcontracted companies in less developed countries

At the beginning of the 1980's the level of economic welfare, roughly expressed by the GDP per capita, was extremely lower in less developed countries than in Central Europe (OECD, 2009). Even among OECD-countries the differences of GDP per capita (in current prices) were at a high amount, for example they ranged from about 28.600 DM in Germany to 5.500 DM in Portugal and 2.800 DM in Turkey. Far-distant LDC's like India and China at that time were ranking even more behind. The subcontracting business of micro-firms and SMEs also was less developed in terms of production volume and sales. At a large extent the firms were organized as small subcontracted companies, economically and technologically dependent on orderer-firms. These firms were independent large enterprises or small or medium-sized subcontracting companies, which were again independent firms or components of industry-wide networks of firms. The economic welfare of owners and employees of those subcontracting and subcontracted companies, yet, was on a very low level. Poverty was the consequence of <pauverté>. Economic and technological progress was still lacking.

4. The dynamic view: the impact of cyclical economic development on subcontracting business since the 1990's

4.1 Increasing pressure to innovate

Though Western industrial countries were experienced in managing economic recessions, the cyclical economic development was continued in European countries and in far-distant industrialised countries like Japan. Special events brought about an economic recession in Germany at the beginning of every decade since the 1960's (FAZ, Nr. 278, 27. Nov. 2008, 15). The first recession happened in 1967/68 for economic and political reasons, while in 1974/75 the oil-price-shock the main cause of the new recession. This seemed to be valid also at the beginning of the 1980's (1980 – 82), the crisis following the second oil-price-shock. Instead, the recession of the 1990's was brought about by political turnpike events: the breakdown of the political systems in Eastern Europe and East-Germany. The recent recession after 2003, yet, was the effect of political shocks and of monetary speculation. The instability of the capital markets and of the banking system resulted in cyclical movements of the industrial production, investment and employment. Moreover, the shock by the events of terrorist activities in USA ("9/11", 2001) intensified the downswing of the economy, not only in USA, but worldwide. After a new upswing and subsequent downswing of the economic development the later years of the first decade of the 21st century were determined by the heaviest worldwide economic recession since 1929/30. This economic instability also depressed the development of the subcontracting business. Additional negative effects on subcontracting and subcontracted firms

were brought about by two factors: the "globalization" of international trade and competition and the accelerating innovation and diffusion of new technologies. All of these factors – the monetary distortions of the economic development, the political distortions, the reorganization of international relations and the availability of new technologies not only in industrialised economies, but also in less developed countries – resulted in an increasing pressure to innovate and to stabilize the technological and economic performance of companies. Again, subcontracting enterprises and subcontracted firms were hit by these new conditions of production and sales, not only in West European countries, but also in far-distant countries like Japan. The effects on the subcontracting business, yet, were different, for example in Germany and Japan: German companies were more intensively prepared on increasing risks of subcontracting business; they took care for diversified clients and orderers. Japanese subcontractors and subcontracting companies were more intensively linked to one or a few orderers, mainly large "mother companies"; the effect was a higher degree of technological and economic dependence of the subcontracting business on the management decisions of the large enterprises in Japan, compared to German firms of the subcontracting business (Hemmert, M., 1998, 16 f).

4.2 Innovative management in the subcontracting business

Political disturbances, the internationalization of production and sales and the accelerating innovations and diffusion of new technologies brought about new risks, but also new opportunities of subcontracting companies and subcontractors worldwide, to establish new companies and to organize efficient networks of intraindustrial and interindustrial economic relations. The internationalization was intensified mainly by treaties on regional economic integration during the 1990's and the first decade of the 21st century. The establishment and expansion of the European Community (EC), the preparations of treaties on economic cooperation and integration in East Asia, along the Pacific Rim and in South America demonstrated, that politicians, bureaucrats, entrepreneurs and representatives of economic organizations expected stable economic growth and increasing economic and social welfare in the participating countries. New networks of enterprises and related organizations, which were established or expanded, were evaluated positively, especially by entrepreneurs of the subcontracting business. But those expectations were not implemented by real economic development. Mainly since the turn to the 21st century new developing countries like India and China set up new conditions for international trade by cheaply producing and selling subcontracting companies and subcontractors. The more the orderer companies of developed industrial countries, like Japan, USA and Western Europe, recognized the economic opportunities of the international cooperation with the new developing countries, the more they decided to reorganize the subcontracting business: "mother companies" left "their" former subcontractors and transferred "their" orders to small and medium firms functioning as newly developed

subcontractors in Asian countries, at the Pacific Rim or in South America. Orderer companies in Western Europe found new competitive subcontractors additionally in Eastern Europe since the former economic systems of those countries had broken down.

To summarize: The precondition of a stable economic development of orderer companies and "their" new subcontracting firms was innovative management on both sides of the subcontracting business (Whittaker, D.H., 1990; Whittaker, D.H. a.o., 2009, 87 ff.). The orderer enterprises were used to organize innovations, but the new subcontracting companies and even more of the small subcontracted firms had to introduce new combinations of economic resources and new regulations of intra- and interindustrial cooperation (Storz, c., 1999, 2 ff.; OECD, (ed.), 2009, 43, 57). On the opposite side, the former subcontractors having delivered parts and services to "their" orderer companies since decades, were set out to rough competition in the markets (FAZ, Nr. 125, v. 2. Juni 2009, 19). Consequently, Japanese traditional subcontractors complained heavily about the innovative management of "their" former orderer enterprises. Since then mistrust substituted former trust. The "Japanese subcontracting system" broke down, mainly during the recession phase of the business cycle and on behalf of the worldwide economic crisis of the first decade of the 21st century. Similar experiences of the former subcontractors are documented in Germany and other industrial countries (Lawrence, R.Z., 1993, 3-19).

Conclusions

The results of studies on the preconditions and consequences of innovative management differ according to the stages of economic development and to the phases of the business cycle. Special consideration is necessary, if subcontracting business is compared at a boom-phase and at a recession-phase of the business cycle.

During the boom-phase subcontracting companies find favourable opportunities to settle new contracts with large orderer enterprises as far as the subcontracted business concerns new products and innovative parts or services. Case studies and field reports on subcontracting business in Japan, Germany and neighbour-countries like Austria, Switzerland and Netherlands have pointed out, that subcontracting business is prospering procyclically: the participating subcontracting and subcontracted firms expand their economic activities nationwide and in foreign countries. Subcontracting business grows according to economic growth of GDP and industrial exports of innovative products.

Contrasting to the boom-phase, the subcontracting business is stagnating during the recession-phase, yet, at different intensity, depending on the innovativeness of the delivered products and services and on the intensity of the recession. If the recession concerns a few countries only, the subcontracting companies can find new clients by innovative management. During a worldwide recession instead, the subcontracting companies will loose "their" orderer-enterprises without substituting them by new clients in new markets. Moreover, the

intensity of the recession will be increased by the negative economic development of the subcontracting business. This is what happened in the automobile and machinery industries of Western Europe, US and Japan during recent years of the first decade of the 21st century. On the other hand, subcontracting companies and subcontracted suppliers of parts or services turned out to be winners of the worldwide economic recession, mainly as an effect of regional economic integration and transnational cooperation of innovative enterprises.

To conclude, three points should be pointed out:

(1) Subcontracting business needs innovative management of the participating companies, in orderer-enterprises and in subcontracting or subcontracted firms.

(2) Considering the types of subcontracting companies, the "diversification-type" of subcontracting enterprises should be proclaimed among the concerned firms. They sell different products and services to a variety of orderers and to the markets; by this diversification of applied technologies, output and sales the subcontractors keep up their economic independence.

(3) Two actual problems of the subcontracting business are of growing importance for the future economic development of the subcontracting business:

(a) The internal coordination problem: how to manage the subcontracting firms facing increasing rates of innovations?

(b) The external coordination problem: how to organize decentralized-flexible-specialization of the subcontracting business and of the production system?

Obviously, subcontracting business will need a "Strategy-Mix" consisting of two types of strategies: the internal strategy should be orientated to increase the internal flexibility of the company; and the external strategy should decrease the turbulence of the economic environment of the enterprises and strive for new clients in new markets. The resulting diversification and decentralisation strategies will increase the importance of the subcontracting business as a component of an innovative and stable production system of the economy.

References

1. Asahi, Shimbun (2002): *Japan Almanac 2003*, Tokyo
2. Asahi, Shimbun (1995): *Japan Almanac 1996*, Asahi Shimbun Publisching Company, Tokyo
3. Backhaus, J.G. (Ed.) (2003): Joseph Alois Schumpeter. *Entrepreneurship, Style and Vision*, Kluwer Academic Publishers, Boston
4. *FAZ* (Frankfurter Allgemeine Zeitung), Nr. 278, 27. Nov. 2008, 15: Jede Rezession brachte mehr Arbeitslose und mehr Schulden
5. *FAZ*, Nr. 125, 2. Juni, 2009: 19: Toyota sorgt sich um seine Zulieferer in Nordamerika
6. Fourastié, J. (1954): *Die große Hoffnung des 20*. Jahrhunderts, Köln-Deutz

7. Hemmert, M.: "Zulieferwesen in Japan: Strukturmerkmale und neuere Entwicklungen", in: Pascha, W./Storz, C. (Hrsg.): *Workshop Klein- und Mittelunternehmen* in Japan IV, Duisburger Arbeitspapiere Ostasienwissenschaften, No. 18/1998, Institut für Ostasienwissenschaften, Duisburg 1998, 11 – 25
8. Institut der deutschen Wirtschaft (Hrsg.): Zahlen der wirtschaftlichen Entwicklung der Bundesrepublik Deutschland, Ausgabe 1983, Deutscher Instituts-Verlag GmbH, Köln, Ausgabe 1985; Ausgabe 2009
9. Lawrence, R. Z. (1993): "Japan's Different Trade Regime: An Analysis with Particular Reference to Keiretsu", in: *The Journal of Economic Perspectives*, Vol. 7, Nr. 3, 1993, 3 – 19
10. OECD (ed.) (2009): *Innovation in Firms. A Microeconomic Perspective*, OECD
11. OECE (ed.) (2009): *OECD in Figures 2009*, OECD Observer 2009/Supplement 1, Paris
12. Ogawa, E. (1984): *Modern Production Management. A Japanese Experience*. Asian Productivity Organization, Tokyo
13. Pascha, W./Storz, C. (Hrsg.) (1996): "Klein- und Mittelunternehmen in Japan und Deutschland". *Duisburger Arbeitspapiere zur Ostasienwirtschaft*, No. 33/1996, Universität Duisburg
14. Schmidt, K.-H. (1990): "International Comparison of Subcontracting Business in West European Countries and Japan", in: *The Study of Business and Industry* Nr. 7, Nihon University, The Research Institute of Commerce, College of Commerce, Tokyo
15. Schmidt, K.-H. (1990): "New Risks and Chances of SMEs in the Subcontracting Business", in: Oliga, J.C. (editor): *ENDEC-International Entrepreneurship Conference*, Singapore, 307 – 312 B
16. Schmidt, K.-H. (1992): *Uncertainty, Innovations and Firm-Size*, University of Paderborn, Department of Economics, Paderborn
17. Schumpeter, J.A. (1942): *Capitalism, Socialism and Democracy, New York: Harper & Brothers; German* ed. (1946): Kapitalismus, Sozialismus und Demokratie, Verlag A. Francke A.G., Bern
18. Schumpeter, J.A. (1961): *The Theory of Economic Development*, Oxford University Press, New York
19. Small and Medium Enterprise Agency, MITI (ed.) (1984)
20. Small Business in Japan 1984, Tokyo 1984.
21. Small Businesss in Japan 1996, Tokyo 1996.
22. Smann Business in Japan 2004, Tokyo 2004
23. Storz, C. (1999): "Which Role does Network play in Japanese SMEs? – The Importance of Building up Networks in Japan" –. In: *Small Business Monograph*, No. 11, Febr. 1999, Osaka University of Economics
24. Whittaker, D.H. (1990): *Managing Innovation: A Study of British and Japanese Factories*, Cambridge, Cambridge University Press
25. Whittaker, D.H. a.o. (2009): *Comparative Entrepreneurship. The UK, Japan and the Shadow of Silicon Valley*, Oxford University Press