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The Editor's Corner

With this new issue, the journal continues with the phase of gaining international recognition with the retained focus on the transition research and the emphasis on openness to different research areas, topics, and methods, as well as the international and interdisciplinary research nature of scholarly articles published in the journal.

The current issue covers topics such as the technological intensity of industries, the information and communication technology adoption policy, the interconnectedness of capabilities and barriers to entry, the ethics in international economic organisations, and the issue of internal marketing in schools. This issue starts with a paper of Štefan Bojnec and Matjaž Novak who present the results of the analysis of the technological intensity of industries classified by technology levels and patterns in Slovenian merchandise trade developments. Hazbo Skoko, Branka Krivokapić-Skoko, Marinko Škare, and Arnela Cerić build the model of information and communication technology adoption in Australian and Croatian SMEs. S. Phineas Upham suggests that capabilities and barriers to entry tend to be interconnected in such a way that sacrificing one of them can lead to the subsequent vulnerability or erosion of the other. This claim is illustrated with a study of the US bicycle market. Bruno S. Sergi examines ethics in international economic organizations; in his paper he sees ethics and morals as two interconnected concepts, and suggests that the rationale that binds all economic agents to their respective obligations must be interpreted by effective courses of action dictated by economic realities. In the last paper, Vinko Logaj and Anita Trnavčevič discuss the elements of internal marketing that are essential for teacher and customer satisfaction with the aim of indicating opportunities for the implementation of internal marketing philosophy and related strategies in Slovenian schools.

Boštjan Antončič
Editor

Technological Intensity and Patterns in Slovenian Merchandise Trade

Štefan Bojnec
Matjaž Novak

This paper analyses the technological intensity of industries classified by technology levels (low-technology, medium-low-technology, medium-high-technology and high-technology) and patterns in Slovenian merchandise trade developments between and within industries in the post-independence years since 1992. Merchandise trade flows by industries are rather homogeneous in the extent of a decline in the external trade integration measured by intra-industry trade indices and in the presence of relative trade advantages. More considerable differences are found in trade structures and trade quality using the ratio of export to import unit values. In exports we confirm the climbing-up technological development approach, including the jump-up in the medium-high-technology industries in the non-EU-15 markets. Medium-low- and medium-high-technology industries experienced greater price competitiveness in trade with the EU-15 countries. High-technology industries and to a lesser extent low-technology industries experienced a greater competitiveness in the EU-15 internal and external trade. These similarities and differences imply implications for industries with different technological intensity, which are associated with trade and policy shifts before and after the accession of Slovenia to the EU.

Key Words: merchandise trade, trade structures, intra-industry trade, comparative trade advantages, price competitiveness
JEL *Classification:* F02, F14, F15

Introduction

One of the key issues in trade theory and trade analysis is the investigation of patterns in trade specialization. Developed countries would spe-

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cialize in more advanced medium-high-technology and high-technology industries, while emerging and developing countries in low-technology industries (e. g. Krugman 1986; Laursen 2000). Empirical studies reveal that there are some variances from these general patterns across countries in trade specialization (e. g. Dulleck et al. 2005; Wörz 2005).

Considering the literature on a dynamic view in economic development and trade patterns, Stehrer and Wörz (2003) distinguish three types of technological catching-up processes: the continuous-convergence approach equally rapid in all industries; the climbing-up-the-ladder approach with catching-up first in low-technology industries and then in medium-low-technology industries, and so on; and the jumping-up approach with catching-up first in high-technology or fast-growing industries when a higher learning potential in these fast growing sectors is available.

Different methodological concepts for measuring international trade specialization have been developed in the literature (e. g. Grubel and Lloyd 1975; Balassa 1965; 1989; Iaparde 2001). In different empirical merchandise trade analysis different classifications of products and activities are used. To evaluate the dynamics of trade specialization and technological convergence in trade patterns most recent empirical analyses of trade rely on grouping trade flows by technological intensities (e. g. Stehrer and Wörz 2003; Wörz 2005). Murn and Kmet (2002) analyze the structures of Slovenian exports by the UNCTAD product classification according to factors contents. They found a greater and increasing share of products by human capital and technological intensity, but a reduction in natural resource-based products and low-qualified labor intensive products. According to Rojec et al. (2004) these recorded favorable patterns seem to be less optimistic when these developments are compared with some previous EU-15 members, such as Finland and Ireland, and some new EU members, such as the Czech Republic and Hungary.

In this article we analyze four groups of trade indicators that are applied to the Slovenian merchandise trade in the post-independence period since 1991: trade (export/import) structures, the development of intra-industry trade (IIT) versus inter-industry trade, the development of comparative trade advantages, and international quality or international price competitiveness.[1] We employ the classification of the Organisation for Economic Cooperation and Development (OECD) that classifies merchandise trade by technology intensity levels of industries into four categories: low-technology, medium-low-technology,

medium-high-technology and high-technology industries (see Hatzichronoglou 1997). We compare our results concerning Slovenian merchandise trade structures with Stehrer and Wörz (2003) who analyze four groups of countries: the United States of America (USA), North OECD, South OECD, and East Asian countries. The comparison is possible due to the use of the same classification of industries by technological intensities. The patterns in Slovenian merchandise IIT versus inter-industry trade by technological intensity indicate a development in the degree of external integration. The results are compared with some other similar studies for Slovenia as well as for some other countries in the region (e. g. Aturupane et al. 1999; Fidrmuc et al. 1999; Rojec et al. 2004). Besides static indicators we calculate also dynamic or marginal IIT indicators (e. g. Brülhart 1994). Indicators of relative export advantage, relative import penetration and relative trade advantage (e. g. Balassa 1965; 1989) are used to establish associations of comparative relative advantages separately as well as simultaneously in exports and imports. Our results on international quality or international price competitiveness for Slovenian merchandise trade flows are also compared with some other studies (e. g. Aturupane et al. 1999; Fidrmuc et al. 1999). Finally, we derive a conclusion and policy implications for Slovenian merchandise trade developments focusing on characteristics in technological convergence and trade patterns.

Methodology and Data Used

Sectoral export (import) structures in total exports (imports) are defined as:

$$X_i\% = \frac{X_i}{\sum_i X_i} \cdot 100 \quad \text{or} \tag{1}$$

$$U_i\% = \frac{U_i}{\sum_i U_i} \cdot 100, \tag{2}$$

where $X_i\%$ is the i-activity export share, X_i is the i-activity export value, $\sum_i X_i$ is the total value of exports, $U_i\%$ is the i-activity import share, U_i is the i-activity import value and $\sum_i U_i$ is the total value of imports. The export and import shares are analyzed by activities and over time.

To obtain evidence on trade types, we employ the measure of intra-industry trade (IIT). More approaches and methods to calculate intra-industry trade are developed in the literature (e. g. Grubel and Lloyd 1975; Greenaway et al. 1995). The IIT component in trade flows is often measured by a percentage of IIT as an approximation of the degree of

integration of a certain activity into international trade (e. g. Greenaway et al. 1999). The most widely used formula for measuring the IIT is the Grubel-Lloyd (1975) IIT index (GLIIT), which measures the structure of trade flows by the proportion of IIT in total trade by product categories:

$$\text{GLIIT}_i = \left(1 - \frac{\sum_j |X_{ij} - M_{ij}|}{\sum_j (X_{ij} + M_{ij})}\right), \tag{3}$$

where X denotes the value of exports and the M value of imports, whereby i and j denote product groups. The degree of IIT at the aggregate level i is defined as a weighted average, where a share of value of a specific product j at the eight-digit level of Combined Nomenclature (CN) classification in the total trade value of product group i is used as a weight. The GLIIT index ranges between 0% and 100%. It is equal to 0% when all trade within a certain product group i is of inter-industry type (for example, if there are only exports or only imports). It is equal to 100% when all trade within a certain product group i is of IIT type (for example, if export is equal to import). Besides the static Grubel-Lloyd (1975), the LIIT index, we employ also the dynamic marginal IIT index that indicates dynamic changes in trade flows between two different time periods (years) (Brülhart 1994; Thom and McDowell 1999; Bojnec and Novak 2005a; 2005b). Similarly to GLIIT indices, also marginal IIT indices are calculated as aggregated indices using trade weights. The dynamic aggregated marginal IIT index measures the proportion of changes in total trade flows between two time periods, which pertain to IIT vis-à-vis the inter-industry trade. IIT can be horizontal or vertical (e. g. Greenaway et al. 1995; Thom and McDowell 1999). The inter-industry trade index is a residual between 100% and the value of GLIIT (or marginal GLIIT) index:

$$\text{IT}_i = 100 - \text{GIIT}_i. \tag{4}$$

The greater the value of inter-industry trade (IT), the greater the cost of restructuring, and adjustment in the economy is expected following the rapid trade liberalization.

One of the important questions in international trade and in economic growth is the question of competitiveness (e. g. Balassa 1989; Laursen 2000; Chen 2004; Funke and Ruhwedel 2005). Theories and concepts differ in measuring competitiveness and competition at global, regional, national, activity and micro economic levels. Our research focus in this article is limited only to theories, concepts and measures of

comparative trade advantages. In this specific research area different indicators for measuring competitiveness on the basis of trade data are developed. The advantage of using trade data in empirical analysis of competitiveness lies in the fact that reactions in demands and supply responses are considered simultaneously. Indicators of comparative advantages on the basis of trade data measure competitiveness by comparing one sector to the others (e. g. Balassa 1965; 1989; Vollrath 1991). The most widely used indicators on the basis of trade data are: the relative export advantage (RXA) index, the relative import penetration (RMP) index and the relative trade advantage (RTA) index:

$$\text{RXA}_{ij} = \frac{X_{ij}}{\sum_{l,l\neq j} X_{il}} \cdot \frac{\sum_{k,k\neq i} \sum_{l,l\neq j} X_{kl}}{\sum_{k,k\neq i} X_{kj}}, \tag{5}$$

$$\text{RMP}_{ij} = \frac{M_{ij}}{\sum_{l,l\neq j} M_{il}} \cdot \frac{\sum_{k,k\neq i} \sum_{l,l\neq j} M_{kl}}{\sum_{k,k\neq i} M_{kj}}, \tag{6}$$

where X denotes the value of export and M the value of import, i and k denote product groups, whereby j and l denote countries. The numerator is equal to export (import) of a country (for example for Slovenian export or import with the EU-15) for a certain product group vis-à-vis export (import) of this product from all countries, which are used as a benchmark of comparison (for example the EU-15).[2] The enumerator captures total exports (imports) of a certain country (Slovenia) as the export (import) share in total export (import) of all countries, which are used as the benchmark of comparison (for example the EU-15). An RXA greater than 1 indicates that a country in this product group has a relative comparative export advantage, and vice versa, an RXA lower than 1 indicates a relative comparative export disadvantage. On the other hand, the RMP indicates a relative comparative advantage (when the RMP is lower than 1) or a disadvantage in the import penetration (when the RMP is greater than 1) for a certain product or sector. The RTA is calculated as a difference between the RXA and the RMP:

$$\text{RTA}_{ij} = \text{RXA}_{ij} - \text{RMP}_{ij} \tag{7}$$

When RTA is positive, there is a relative comparative trade advantage, and vice versa when RTA is negative, there is a relative comparative trade disadvantage.

Quality or price competitiveness in matched merchandise trade flows is often measured by comparisons of export-to-import unit price values for a same product category (Greenaway et al. 1995; Aturupane et

al. 1999). The ratio of export-to-import unit values is used as a measure to indicate the quality of Slovenian merchandise exports vis-à-vis imports. In this article we use a comparison between Slovenian export and import unit values in merchandise trade with the EU-15 countries. The export unit value (UVX_{ij}) and the import unit value (UVM_{ij}) are derived on the basis of values and quantities of merchandise exports and imports at the eight-digit level of CN classification, where *j* is an individual product within the product group *i*. The ratio of Slovenian export-to-import unit values in merchandise trade with the EU-15 at the eight-digit CN classification level ($IATT_{ij}$) is defined as:

$$IARR_{ij} = \frac{UVX_{ij}}{UVM_{ij}}. \tag{8}$$

The results are presented as weighted at the group *i* level by activities of technological intensities of products. Value shares of individual product *j* in total value of product group *i* are used as weights (see also Bojnec and Novak 2005b). If the export unit value for Slovenian exports is greater than the import unit value for Slovenian imports from the EU-15, then this implies that higher quality products are exported rather than imported, and vice versa when the ratio is lower than one. Moreover, Slovenian export unit values for merchandise exports to the EU-15 are compared with similar unit values in internal EU-15 imports and external EU-15 imports, respectively.

The empirical analysis of four groups of trade indicators (export/import structures, IIT versus inter-industry trade, comparative trade advantages, and international price competitiveness) for Slovenian merchandise trade is conducted at the eight-digit CN classification on the basis of trade data obtained from the Statistical Office of the Republic of Slovenia (SORS) for total Slovenian trade, and on the basis of the Comext CD-ROM data obtained from the Statistical Office of the European Community (EUROSTAT) for trade between Slovenia and the EU-15 countries as well as for all internal and external EU-15 trade.

Merchandise Trade Structures by Technological Intensities

Medium-high technology products are the most important item in the Slovenian export trade structures (table 1). Their share is increasing, while the share of low-technology products is declining. This clearly suggests that induced quality improvements are consistent with the *jumping-up* approach from low-technology to medium-high-technology

TABLE 1 Slovenian total merchandise trade structures (%)

	1992	1996	1997	1998	1999	2000	2001	2002
Merchandise export structure								
High-technology	5.73	6.39	6.00	6.94	6.07	7.11	6.87	7.11
Medium-high	34.06	36.35	42.60	43.27	43.38	42.58	43.69	44.15
Medium-low	19.74	22.83	19.60	20.17	20.27	20.85	20.16	20.82
Low-technology	40.47	34.43	31.80	29.62	30.29	29.46	29.28	27.93
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Merchandise import structure								
High-technology	6.45	9.37	9.00	9.11	9.34	9.69	8.29	8.71
Medium-high	34.14	39.01	39.99	39.96	40.19	42.32	40.38	40.90
Medium-low	29.54	25.19	25.26	24.68	24.84	27.57	26.23	25.85
Low-technology	29.88	26.43	25.74	26.25	25.63	20.42	25.10	24.55
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculations on the basis of data from SORS.

products. The share of medium-low-technology products is more stable at around one-fifth of merchandise exports. The share of high-technology exports is increasing, albeit it is still less than 7.2%.

Medium-high-technology industries are also the most important item in Slovenian import structures, but their increase is lower than that of export structures. Low-technology products are also less important in imports than in exports, but with an explored convergence tendency in export and import structures to around one-fourth of trade. High-technology products and medium-low-technology products are relatively more important in imports than in exports.

The Slovenian export share of low-technology industries is greater than that of the USA and East Asian countries, but lower than that of North and South OECD countries (table 2). With further increases in Slovenian real wages, their export shares are likely to decline further.

Slovenian medium-low technology industries are more important in merchandise trade structures than in the USA. In these industries, Slovenian import structures explore similar patterns as North OECD countries, while Slovenian export shares are lower than those of North OECD countries. South OECD countries and East Asian countries experience greater import and export shares in medium-low-technology industries than does Slovenia.

TABLE 2 Merchandise trade structures and patterns (%)

	USA		OECD North		OECD South		East Asia	
	1981	1997	1981	1997	1981	1997	1981	1997
Export structure								
High-technology	21.14	28.23	4.06	3.22	3.90	6.99*	15.72	29.38
Medium-high	49.73	46.08	28.55	34.97	27.15	12.88	17.86	24.91
Medium-low	13.71	11.88	34.27	29.66	35.19	41.00	32.70	23.94
Low-technology	15.42	13.81	33.12	32.15	33.76	46.12	33.72	21.77
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Import structure								
High-technology	12.37	23.74	6.47	4.34	10.35	12.55*	11.29	15.46
Medium-high	36.16	38.77	31.27	30.15	43.73	24.69	38.58	32.52
Medium-low	28.41	17.68	29.38	27.29	25.83	32.28	22.77	29.74
Low-technology	23.06	19.81	32.43	38.22	20.09	43.03	27.36	22.28
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Data for 1992. Note: USA – the United States of America. OECD North: Australia, Austria, Canada, Denmark, Finland, France, Germany-west, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, and the United Kingdom. OECD South: Greece, Portugal, Spain, and Iceland. East Asia: Hong Kong, Indonesia, the Republic of Korea, Malaysia, Singapore, and Thailand. Source: Stehrer and Wörz (2003).

Medium-high-technology industries play a crucial role in the Slovenian merchandise trade. Their roles in the USA exports are replacing high-technology industries. The Slovenian export share of medium-high-technology industries *is catching up on* North OECD countries, and is greater than that of South OECD countries and East Asian countries. Greater shares of medium-high-technology industries in Slovenia compared to North OECD countries, South OECD countries, and East Asian countries are found for imports.

More considerable differences across countries are recorded for merchandise trade patterns in high-technology industries. High-technology industries in Slovenia are still much less important in merchandise trade than in the USA and in East Asian countries. This makes also a considerable difference between the USA, East Asia and Europe, of which the latter is lagging behind. The Slovenian export share in high-technology products is greater than that of North OECD countries and similar to that of South OECD countries. The latter experience higher import shares than Slovenia, while import shares of North OECD countries are lower.

Slovenian Merchandise Trade Structures with the EU-15 Markets

After the Slovenian independence, the EU-15 markets have been the most important destination for Slovenian merchandise exports and the origin of Slovenian merchandise imports with around two-thirds of Slovenian merchandise exports flowing to the EU-15 markets, and even somewhat greater imports from those EU countries to the Slovenian markets. As presented in table 3, medium-high-technology industries are the most important item in the Slovenian merchandise exports to the EU-15 markets, but with a slight decline in the export share, which has been observed since 1994. This declining tendency in Slovenian merchandise export shares to the EU-15 markets differs from the general Slovenian merchandise export patterns, suggesting that Slovenia has been facing more considerable competitive pressures in these products on the EU-15 markets than in other markets. Initial Slovenian advantages on the EU-15 markets have deteriorated over time. The declining tendency in Slovenian merchandise export shares to the EU-15 markets is also observed for low-technology industries, which seems to be caused by increasing Slovenian wages, reducing cost competitiveness, and increasing competitive pressures in the EU-15 markets from emerging regional and world market competitors. The tendency towards continued technological catch-up is confirmed for high-technology industries, albeit at a relatively lower level, and for medium-low-technology industries. These two merchandise export shifts from low-technology industries to medium-low-technology industries and from medium-high-technology to high-technology industries could be referred as the *climbing up approach* in the Slovenian exports to the EU-15 markets.

In Slovenian merchandise import structures from the EU-15 markets, there is a continuous decline in low-technology industry imports, but a slight increase in medium-low-technology industries and high-technology industries, and particularly a considerable increase in medium-high-technology imports.

Intra-Industry Trade

The GLIIT index for the Slovenian merchandise trade with the EU, calculated by Wyzan (1999), increased from 0.58 in 1992 to 0.696 in 1998.[3] Aturupane et al. (1999) present the results of the GLIIT index as a percentage of the Slovenian IIT with individual EU-9 countries. The GLIITS varied between 35% and 40% in the years 1993–1995. The percentage of the horizontal IIT increased slightly, but the vertical IIT remained the

TABLE 3 Slovenian merchandise trade structures with the EU-15 (%)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Merchandise export structure										
High-technology	7.6	7.6	9.1	9.0	8.6	9.2	11.2	11.9	11.6	12.9
Medium-high	48.4	48.4	46.6	45.2	44.7	45.1	44.9	43.0	44.4	43.5
Medium-low	16.9	17.9	18.4	20.3	22.4	23.1	22.8	24.4	23.3	23.1
Low-technology	27.2	26.2	25.9	25.5	24.3	22.6	21.1	20.7	20.8	20.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Merchandise import structure										
High-technology	5.3	5.4	5.1	8.4	4.7	4.9	5.3	6.9	5.7	7.1
Medium-high	34.7	37.6	39.4	39.9	42.0	46.3	45.4	45.0	46.1	48.1
Medium-low	18.1	19.2	20.6	19.5	20.7	19.6	20.4	21.2	22.0	21.0
Low-technology	42.0	37.8	34.9	32.2	32.6	29.1	28.8	26.9	26.2	23.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

TABLE 4 GLIIT index for total Slovenian merchandise trade (%)

	1992	1996	1997	1998	1999	2000	2001	2002
High-technology	70.3	64.0	91.2	68.1	92.2	82.2	78.0	76.8
Medium-high	92.6	74.2	68.8	72.1	67.9	97.8	65.7	64.0
Medium-low	87.4	82.9	83.8	83.6	81.0	83.7	81.5	77.4
Low-technology	77.7	94.5	62.3	92.9	63.9	84.3	62.4	61.8

Source: Own calculations on the basis of data from SORS.

most important component of IIT. The Slovenian merchandise trade with the EU is also compared by Fidrmuc et al. (1999). They find that in 1996 the GLIIT index in merchandise trade between Austria and Slovenia was 61.4%, between Italy and Slovenia 58.5% and between Germany and Slovenia 52.7%. Such differences in the results of these studies indicate a mixed finding regarding the prevalence of IIT or inter-industry trade in Slovenian merchandise trade with selected EU countries.

Our results of GLIIT indices are presented separately for total Slovenian merchandise trade with all trading partners and separately for Slovenian merchandise trade with the EU-15. GLIIT indices for total Slovenian merchandise trade indicate some prevailing IIT characteristics in total Slovenian merchandise trade (table 4). While an increase in IIT over time is expected with the economic growth and trade liberaliza-

tion, this tendency is not clearly confirmed by our results for Slovenia. The evidence indicates some instabilities and even a declining tendency in GLIIT indices for total Slovenian merchandise trade, suggesting a persistence of some bottlenecks reducing the degree of external trade integration. However, the majority of total Slovenian merchandise trade flows remain of IIT type.

Our results for the Slovenian IIT are somewhat more consistent with theory in the case of Slovenian merchandise trade with the EU-15 (table 5). In 1993, at least 80% of Slovenian merchandise trade flows were characterized by the IIT type, suggesting that similar products were exported and imported at the same time. Since then, two diverging patterns have been observed. First, there was an increasing tendency in the degree of IIT for low-technology industries and for medium-high-technology industries particularly between 1993 and 1997. These industries were heavily integrated with the EU-15. Second, there has been a declining tendency in the degree of IIT for medium-low-technology industries and high-technology industries, which is inconsistent with Slovenian efforts to achive a greater integration with the EU-15 markets. More likely, it has resulted from the prevalence of export in the case of medium-low-technology industries and the prevalence of import in the case of high-technology industries.

For comparison we also present our results for GLIIT indices for the internal EU-15 merchandise trade and the external EU-15 merchandise trade. The internal merchandise trade between the EU-15 countries is exclusively of IIT type. This finding is consistent with previous studies on this subject (e. g. Chen 2004). The IIT component contains more than 95% of merchandise trade flows. This holds for main technological groups and for individual analyzed years, suggesting that the borderless single EU market leads to exporting and importing of similar merchandise products at the same time. The external EU-15 merchandise trade with the rest of the world indicates an increasing tendency in the already relatively high degree of IIT for low-technology, medium-low-technology, and high-technology industries. In the case of the medium-low-technology industry, IIT is also prevailing but at a lower degree (around 70%). Thus, the evidence for the EU-15 merchandise trade suggests that the prevalence and a further increase in the IIT are consistent with theoretical expectations that economic growth and trade liberalization are pushing up the degree of IIT.

The marginal IIT (MIIT) index measures the degree of IIT in trade

TABLE 5 GLIIT index for Slovenian merchandise trade with the EU-15 (%)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Slovenian merchandise trade with the EU-15										
High-technology	80.0	81.4	65.2	64.0	59.4	60.2	55.3	62.8	56.2	61.6
Medium-high	81.8	85.5	84.4	86.1	84.0	90.4	89.3	90.5	90.5	94.3
Medium-low	98.5	98.5	98.4	90.4	83.0	81.2	83.4	81.4	85.9	84.7
Low-technology	80.4	83.9	92.5	96.0	98.4	98.3	95.7	98.5	99.8	96.7
Merchandise trade between the EU-15 *countries*										
High-technology	98.7	98.3	97.2	97.2	95.7	97.4	95.9	95.9	95.1	95.2
Medium-high	99.6	98.8	99.7	99.8	99.9	99.8	99.5	99.8	99.9	99.4
Medium-low	95.9	97.2	97.0	97.2	97.0	97.7	96.3	96.8	95.7	95.6
Low-technology	96.0	96.2	96.6	96.5	96.6	97.1	96.8	96.5	96.6	96.4
EU-15 *merchandise trade with the rest of the world*										
High-technology	92.1	92.5	94.5	95.3	96.4	94.6	92.3	91.3	96.1	97.1
Medium-high	70.4	70.5	69.0	66.6	68.8	73.6	77.6	78.1	74.8	72.0
Medium-low	93.4	94.9	96.1	90.9	91.2	96.3	96.6	99.7	99.6	97.8
Low-technology	92.2	92.9	99.8	99.0	99.6	97.2	94.3	93.9	93.8	94.5

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

TABLE 6 Marginal IIT index for total Slovenian manufacturing trade (%)

	MIIT$_i$	MIIT$_i$	MIIT$_i$
	1996–1992	2002–1992	2002–1996
High-technology	64.9	99.6	69.0
Medium-high	84.3	81.8	64.5
Medium-low	98.4	81.1	77.4
Low-technology	81.9	95.5	72.1

Source: Own calculations on the basis of data from SORS.

changes over a certain period of time. The prevalence of IIT in total Slovenian merchandise trade, which differs across technological product groups and periods is confirmed again (table 6). For low-technology, medium-low-technology, and medium-high-technology industries, the degree of IIT was higher in the first period 1992–1996 than in the second period 1996–2002, and vice versa for high-technology industries. The MIIT for the whole period 1992–2002 was higher than that for the two sub-periods in the case of low-technology industries and high-technology industries. This could be explained by the fact that some

TABLE 7 Relative export advantage for Slovenian merchandise trade in the EU-15 markets

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Benchmark: Internal EU-15 *merchandise trade*										
High-technology	0.5	0.4	0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.6
Medium-high	1.7	1.6	1.8	1.9	2.2	1.5	1.9	1.9	2.0	1.8
Medium-low	1.0	1.1	1.2	1.6	2.0	1.7	2.1	2.1	2.0	2.1
Low-technology	1.2	1.2	1.4	1.6	1.7	1.2	1.4	1.4	1.4	1.4
Benchmark: External EU-15 *merchandise trade*										
High-technology	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.6	0.5	0.6
Medium-high	1.5	1.5	1.6	1.5	1.8	1.8	2.1	2.2	2.0	1.7
Medium-low	1.1	1.2	1.5	1.7	2.2	2.3	2.6	2.9	2.7	2.4
Low-technology	1.8	1.7	1.8	1.9	2.0	1.9	2.0	2.2	2.0	1.9

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

shifts in trade flows occurred in the mid-1990s, which biases the empirical results.

The majority of Slovenian merchandise MIIT is of a vertical type. This tendency towards diversity rather than similarity is consistent with structural changes which have occurred in the Slovenian economy, causing supply side changes, and changes in demand by consumers towards a diversity of products in the markets.

Comparative Trade Advantages

According to the relative export advantage in the EU-15 markets, Slovenian merchandise exports in the internal EU-15 merchandise exports would enjoy comparative advantages (ratio greater than 1) in the case of low-technology, medium-low-technology, and medium-high-technology industries, but not in the case of high-technology industries (measure lower than 1; see table 7). Although there exist some differences in the absolute size of the measure of relative export advantages, a similar conclusion is derived on the basis of comparisons of Slovenian merchandise exports to the EU-15 countries vis-à-vis the EU-15 external merchandise exports.

Relative import penetration indices suggest that Slovenia was more successful in merchandise import substitution from the EU-15 in comparison with the EU-15 internal merchandise imports for high-technology industries and to a lesser extent for medium-high technology in-

TABLE 8 Relative import penetration for Slovenian merchandise trade with the EU-15

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Benchmark: Internal EU-15 merchandise trade										
High-technology	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Medium-high	0.9	1.0	0.8	0.9	0.8	0.9	0.9	0.9	1.0	1.1
Medium-low	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2
Low-technology	2.3	2.0	1.5	1.5	1.3	1.2	1.3	1.2	1.2	1.1
Benchmark: External EU-15 merchandise trade										
High-technology	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
Medium-high	1.7	1.9	1.8	1.9	1.7	1.8	1.6	1.6	1.8	2.1
Medium-low	1.2	1.3	1.3	1.4	1.3	1.2	1.3	1.2	1.3	1.3
Low-technology	2.4	2.0	1.8	1.7	1.5	1.4	1.3	1.3	1.2	1.1

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

TABLE 9 Relative trade advantage for Slovenian merchandise trade with the EU-15

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Benchmark: Internal EU-15 merchandise trade										
High-technology	0.2	0.1	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4
Medium-high	0.8	0.6	1.0	1.1	1.4	0.5	1.0	0.9	1.0	0.7
Medium-low	–0.1	–0.1	0.2	0.5	1.0	0.7	1.0	1.1	0.8	0.8
Low-technology	–1.1	–0.8	–0.1	0.1	0.3	0.0	0.1	0.2	0.2	0.3
Benchmark: External EU-15 merchandise trade										
High-technology	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.4	0.4
Medium-high	–0.2	–0.4	–0.2	–0.4	0.1	0.0	0.4	0.5	0.2	–0.4
Medium-low	–0.1	–0.1	0.2	0.3	0.9	1.2	1.3	1.7	1.4	1.1
Low-technology	–0.6	–0.4	0.0	0.2	0.5	0.5	0.7	0.9	0.8	0.7

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

dustries, when the measure is lower than 1, but less so in the case of low-technology industries, where the measure is greater than 1. In the latter case, some improvements have been recorded recently (table 8). The picture is less clear for medium-low-technology industries, where the measure around 1 or slightly greater than 1 suggests more indifferent decisions between domestic Slovenian merchandise production and import substitution by merchandise products from the EU-15 countries.

When Slovenian merchandise imports from the EU-15 countries are

compared with the EU-15 external merchandise imports, the relative import penetration index is not substantially different in the case of low-technology industries and high-technology industries. A disadvantage in import penetration is more clearly recorded for medium-low-technology industries. Even more evident is the disadvantage in import penetration for medium-high-technology industries. Before the Slovenian accession to the EU, the EU-15 external markets had been more relevant for a comparison. With Slovenia's EU membership, the internal EU market has become more relevant. However, some other countries joined the EU at the same time. So the internal EU market has slightly changed when some other countries from the Central European region joined the EU.

According to our results, Slovenia enjoys a relative trade advantage in merchandise trade in the EU-15 markets in high-technology industries due to an advantage in import penetration rather than in export (table 9). For other industries by technological intensities the results are mixed, but the trade advantage is more evident than the trade disadvantage.

International Price Competitiveness

The ratio of export to import prices greater than one, which is achieved by Slovenia in merchandise trade with the EU-15 countries, indicates that Slovenia exported better quality products and thus more expensive ones to the EU-15 countries (the upper part of table 10). However, the unit price ratio has declined over time. This deterioration in the unit price ratio towards close to one, and thus towards a greater similarity in the quality of exported and imported products is more considerable for low-technology and for high-technology industries. The declining tendency in the unit price ratio is also confirmed for medium-high-technology industries, but the ratio remains greater than one. The unit price ratio for medium-low-technology industries at around 1.4 suggests a more stable quality and thus price advantages of Slovenian merchandise exports vis-à-vis Slovenian merchandise imports from the EU-15 in these products.

The ratio of Slovenian merchandise export prices achieved on the EU-15 markets vis-à-vis the internal EU-15 merchandise import prices indicates Slovenian price competitiveness for high-technology industries with an additional improvement over time, and for low-technology industries with some deteriorations (the middle part of table 10). The evidence suggests a lack of Slovenian merchandise price competitiveness on the EU-15 internal markets for medium-low-technology industries as

TABLE 10 Slovenian export to EU-15 import price ratio in merchandise trade

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Slovenian export to import unit values with the EU-15										
High-technology	1.13	1.12	1.22	1.11	1.09	1.13	1.09	1.12	1.08	0.98
Medium-high	1.57	1.55	1.47	1.38	1.44	1.38	1.38	1.25	1.24	1.31
Medium-low	1.47	1.67	1.43	1.32	1.42	1.56	1.41	1.27	1.32	1.44
Low-technology	1.23	1.19	1.14	1.18	1.17	1.07	1.09	1.06	1.01	1.02
Benchmark: Internal EU-15 import price										
High-technology	1.39	1.37	1.29	1.24	–	1.43	1.39	1.49	1.59	1.58
Medium-high	–	0.88	0.85	1.04	0.89	0.97	0.87	0.89	0.93	1.08
Medium-low	0.42	0.23	0.28	0.28	0.25	0.39	0.46	0.19	0.17	0.72
Low-technology	1.29	1.19	1.19	1.19	1.06	1.15	1.19	1.18	1.19	1.09
Benchmark: External EU-15 import price										
High-technology	1.25	1.53	1.49	1.78	1.49	1.39	1.39	1.45	1.31	1.25
Medium-high	1.12	0.76	0.76	0.73	0.89	0.94	0.89	0.84	0.93	1.07
Medium-low	0.38	0.29	0.28	0.19	0.36	0.39	0.38	–	0.17	1.26
Low-technology	1.52	1.61	1.68	1.62	1.77	1.64	–	1.19	1.13	–

Source: Own calculations on the basis of data from Eurostat Comext CD-ROM (2004).

well as for medium-high-technology industries. In the latter case, recent improvements in price competitiveness have been recorded.

The ratio of Slovenian merchandise export prices on the EU-15 markets vis-à-vis the external EU-15 merchandise import prices also indicates Slovenian price competitiveness for high-technology industries, but with more stable tendencies over time, and low-technology industries with some deteriorations (the bottom part of table 10). The evidence suggests a general lack of price competitiveness for medium-low- technology industries. The exception is the year 2002. To a lesser extent, this is also true for medium-high-technology industries.

Conclusions

Slovenian merchandise trade structures explore three significant patterns with two considerable shifts. First, we have confirmed that there is the shift from low-technology industries, where Slovenia is losing its comparative advantage, towards medium-low-technology, medium-high-technology and high-technology industries. This shift is most consistent with the climbing-up technological development approach. As more

low-technology industries, which are largely low-skill labour-intensive, are lost at the EU-15 and other markets to the catching-up countries from the region and the rest of the world, Slovenian low-technology industries are shrinking. Thus the demand for low-skilled workers is declining. Second, Slovenia particularly gains comparative advantage by the jump-up in medium-high-technology industries in the non-EU-15 markets. At these markets Slovenia has been losing its initial comparative advantage caused by the EU-15 trade liberalization towards other Central and East European countries and the rest of the world. Finally, Slovenian merchandise trade patterns in medium-low-technology and high-technology industries indicate more mixed trade patterns with the continuous convergence and the climbing up the ladder approaches. The Slovenian merchandise trade by technological intensities seems to be more similar to trade patterns observed in the North OECD countries. However, the mixture of the continuous convergence, climbing-up and jumping-up technological approaches have also some elements which are observed in rapidly growing East Asian countries. However, the technological jump-up in Slovenia as well as in most European countries has been much less remarkable in the case of high-technology industries, which are one of the key features in the jumping-up trade and in high-technology-based export-led growth in some East Asian countries.

The role of education, internal organization of production, firms' foreign investment strategies and transfer of technologies, research and development activities are among those crucial factors in these technological development shifts. However, there is also an important role of government policies in reducing market failures and providing a proper incentive mechanism for trade and developments. The indicators of IIT for Slovenia do not reveal that trade liberalization and economic growth have led to an increase in IIT in merchandise trade. These trade patterns are observed in Slovenian manufacturing trade with the EU-15 countries for low-technology industries and for medium-high-technology industries. Except for high-technology industries, Slovenia has enjoyed a relative export advantage in the EU-15 markets. On the other hand, Slovenia has been more successful in the import penetration from the EU-15 countries for high-technology industries. As a result of the combined effects of export advantage and import penetration, high-technology industries have a trade advantage in the EU-15 markets. To a lesser extent and with considerable differences by individual years this holds also for medium-high-, medium-low- and low-technology industries. Slovenia was com-

petitive in quality and prices in trade with the EU-15 in medium-high- and medium-low-technology industries, but less for low-technology and high-technology industries. Slovenian high-technology industries perform better when merchandise export prices at the EU-15 markets are compared with internal and external EU-15 merchandise import prices. Slovenian low-technology industries perform better when export prices at the EU-15 markets are compared with external EU-15 import prices. Slovenian industries, which perform better in comparison to the EU-15 external than to the EU-15 internal trade conditions, are facing greater difficulties upon the accession of Slovenia in the enlarged borderless EU markets.

Notes

1. For more detailed results on Slovenian merchandise trade at more disaggregated trade data levels see Bojnec and Novak (2004, 2005a, 2005b, and 2005c).
2. As a benchmark of comparison for Slovenia are relevant EU countries. The trade for EU countries is recorded separately for intra-EU trade between its member countries and for extra-EU trade with the rest of the world. Before Slovenia's accession to the EU, around two-thirds of Slovenian merchandise trade was with the EU-15.
3. According to Wyzan (1999, 327), the GLIIT index for Slovenian merchandise trade increased by more than 10 percentage points between 1992 and 1998 suggesting the increased degree of integration of Slovenian merchandise industries with the EU markets.

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ICT *Adoption Policy of Australian and Croatian* SMEs

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Many SMEs are currently adopting information and communication technology (ICT) and services based on it. However, there is little systematic research into how they are doing this and what are the organisational and environmental factors associated with this adoption. In this article, the authors build the model of ICT adoption in Australian and Croatian SMEs, founded on premises that SMEs are the main economic developing factor in all modern economies and that the adoption and the use of ICT represents the fundamental source of competitiveness and the basis for their survival on the world market. By applying Qualitative Comparative Analysis (QCA) and Boolean algebra, the authors developed a model of necessary and sufficient factors for ICT adoption by SMEs in Australia and Croatia.

Key Words: SMEs, ICT, adoption models, case studies, Qualitative Comparative Analysis (QCA), Boolean algebra
JEL *Classification:* O32, C80, M13

Introduction

Over the last decade, the business world has changed so rapidly that one can no longer imagine managing in a *steady state*. In no other domain has this observation been more relevant than in the field of information communication technology (ICT), which has become a major catalyst and enabler for organisational change. Thus, emerging small and medium-sized enterprises (SMEs) find themselves in an environment of

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constant technological change. These changes may become a significant threat when ignored by the company, but they may as well become valuable opportunities when anticipated and where appropriately adopted. How those changes impact SMEs and how they respond to this challenge in Australian and Croatian SMEs is the question that we will try to answer in this paper.

The authors develop an adoption model of ICT by applying the Qualitative Comparative Analysis (QCA) and its formal language – Boolean algebra. QCA is a relatively new method for providing causal explanations in social science. QCA is essentially a case-oriented comparative research that provides a systematic, holistic analysis of a moderate number of cases. The method is designed to draw causal inferences from comparing configurations of the selected causal variables across cases included in an analysis. QCA holistically compares these configurations to discover necessary and sufficient conditions for the emergence of an outcome.

Conceptual Frameworks

The literature is replete with references to the adoption of information technology in small business (Kirby and Turner 1993; Brooksbank et al. 1992; Julien and Raymond 1994, Iacovou et al. 1995; Ratnasingham 1997; Premkumar and Roberts 1999; Thong and Yap 1996). Current knowledge in these areas of literature which looks into the necessary and sufficient factors leading to the adoption of IS/IT by SMEs formed the basis for the empirical component of this study. Table 1 highlights the findings from some of these studies.

Many different factors have been identified in previous studies as impacting on IT/ICT adoption by small businesses, and all use differing models in determining the factors of adoption. For this study, the factors of adoption of IT/ICT in SMEs have helped in identifying the contexts that would influence such adoption by SMEs. These factors can be categorised into factors relating to (a) technological, (b) organisational, (c) environmental, and (d) individual contexts.

Based on Rashid and Al-Qirim (2001), we have selected five technological (innovation) factors, together with five organisational factors which served for testing the framework. Poon and Swatman (1999) emphasise the importance of individual characteristics of the manager such as education, age, experience, and psychological traits as those that strongly influence innovation adoption. The authors find that manager's innovativeness and IT knowledge have a positive effect on IT adoption. The

TABLE 1 IT/ICT adoption models by SMEs in literature

Study	Technologies/applications explored	Necessary factors	Sufficient factors leading to the adoption
Kirby and Turner (1993)	Inventory control, sales, purchasing, and others	Perceived benefits, CEO's IT knowledge, CEO's attitude towards adoption of IT	Perceived usefulness of the technology, external pressure to adopt IT
Julien and Raymond (1994)	Internet access, EDI, and others	The level of assertiveness, rationality and interaction of business decision processes, structural sophistication of the firm	Rationalisation, benefits and uses of the technology to an organisation, centralisation and complexity
Iacovou et al. (1995)	Sales, purchasing, personnel and payroll, CAD/CAM, EDI, MRP, and others	Perceived benefits, CEO's IT knowledge, CEO's attitude towards adoption of IT	Perceived ease of use and/or usefulness of the technology, organisational readiness/benefits
Thong and Yap (1996)	Accounting, inventory control, sales, purchasing, personnel and payroll, CAD/CAM, EDI, MRP, and others	Size, CEO's innovativeness; employee's IT knowledge; attitude towards IT	Employee's IT knowledge, information intensity
Premkumar and Roberts (1999)	Email, online data access, internet access, and EDI	Relative advantage, top management support, size, competitive pressure	Relative advantage

Adapted from Rashid and Al-Qirim 2001, 66-67; Van Akeren and Cavaye 2000.

framework, therefore, includes manager's innovativeness and IT knowledge factors grouped under individual factors.

The external environment would play a significant role in the adoption of new technologies but was not included in many IT empirical studies. Thong and Jap (1996) find competition insignificantly influencing IT adoption in small businesses, while Premkumar and Roberts (1999) find that competitive pressure is the only factor influencing IT adoption. However, they find external support to be insignificant. Following these considerations the framework includes four environmental factors for the study.

Adapted from Rashid and Al-Qirim 2001, 68. Summing up, the four contexts along with their factors depict the IT/ICT adoption framework

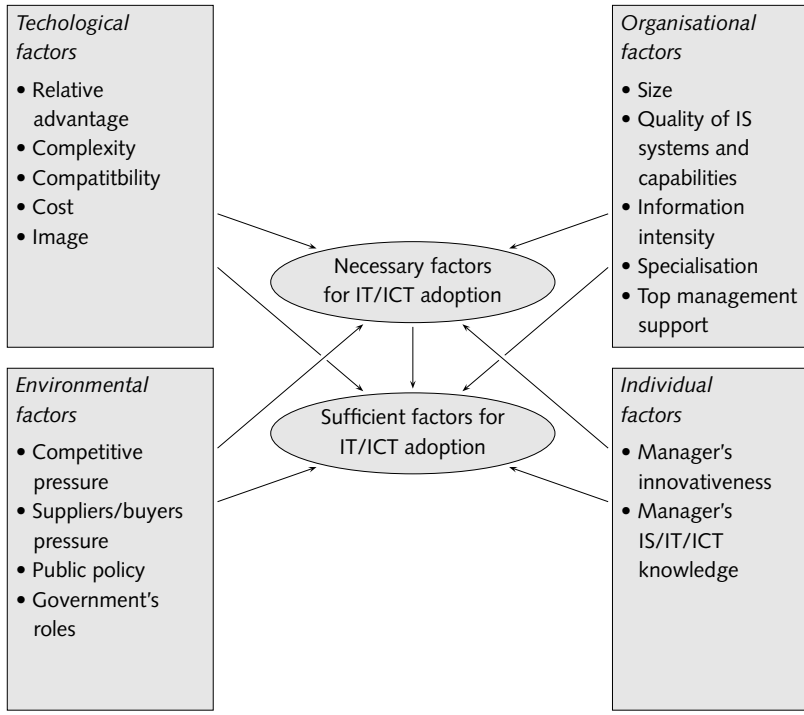

FIGURE 1 A conceptual framework for IT/IC technology adoption by SMEs

shown in figure 1. The framework portrays the various factors and their effect on the decision to adopt IT/ICT. At the first level there are necessary factors. Whether such relationships lead to IT/ICT adoption is depicted at the second level of effects (sufficient factors). Thus, the first level depicts how potential adopters generally view IT. On the other hand, the second level depicts the adoption criterion that is salient to each SME and hence emphasises certain factors more than others. The proposed framework is expected to highlight the impact of various contexts and their factors on IT/ICT adoption in SMEs.

Methodological Considerations: Features and Procedure of QCA

Qualitative Comparative Analysis (QCA) is a case-oriented approach to comparative research with an explicit goal to provide causal explanations. QCA is also a variable-oriented approach, since each case is transformed into a configuration of selected causal/independent and outcome/dependent variables. These causal configurations are first pre-

sented as nominal data with a yes/no or presence/absence dichotomy, and are then holistically compared by using the principles of Boolean logic. As a result, QCA offers deterministic causal explanations for the presence/absence of some outcomes (Ragin 1987; 2000).

The method builds on the strengths of the explanatory and interpretive research by primarily bringing complexity and intensity of an in-depth investigation to a moderate number of cases, while maintaining rigour, replicable procedures and the use of formal logic. The dialogue between theory and evidence is well structured. Starting from theoretical arguments that determine the minium set of case attributes, QCA proceeds indicatively by simplifying the complexity of the evidence in a systematic, stepwise manner. In doing so, QCA cases are transformed into unique combinations of selected causal conditions and associated outcomes, and then compared and interpreted holistically focussing on their attributes. Thus, in applying QCA, each case remains contextualised as a whole – as a meaningful, interpretable and specific configuration of causal conditions/attributes and outcome variables. The focus is primarily on comparing and interpreting these unique configurations of attributes that are not cases per se. QCA appears to be of substantial utility in research sites with contextual and multiple causal relations. The method assumes that causal variables are effective only when operated in conjunction with each other, and consequently the impact of each causal variable should be discussed only in a particular context (Krivokapic-Skoko 2003).

The QCA is based on Boolean algebra. There are two conditions or states in Boolean logic, and these are generally referred as 1, which indicates presence, and 0, which indicates absence. In Boolean logic, addition is equivalent to the logical operation 'or', while multiplication is equivalent to the logical operator 'and', where a product is a specific combination of causal conditions.

The method systematises and transforms empirical evidence into algebraic forms suitable for the data reduction process, and represents the attributes of the cases into presence-absence dichotomies. These dichotomies are then included in a truth table – a raw data matrix which comprises causal conditions and outcomes across the cases – as a tool for data reduction, while maintaining the integrity of each case. Each row in a truth table represents either a logically possible or an empirically observed configuration of attributes – causal and outcome conditions. The truth table is completed when all the cases and codes on the causal and

outcome conditions are displayed using binary mathematical forms. This matrix of binary data is then subjected to a procedure of Boolean minimisation. The procedure involves comparing groups of cases based on the presence/absence of outcome conditions and the presence/absence of selected causal conditions. These logical combinations, as represented in Boolean primitive equations, are compared with each other and then logically simplified. The comparison ends up with a logically minimal Boolean expression as an output of the analysis. This provides logically minimal configurations or the most parsimonious description of the combinations of causal conditions that produce a given outcome.

Empirical Considerations

CHARACTERISTICS OF AUSTRALIAN SMES

In 1999, the Australian Bureau of Statistics (ABS) reviewed the way businesses should be defined by size. Subsequently, the following statistical definitions are now applied for business measurement in Australia (see http://www.abs.gov.au). Small businesses (excluding agricultural businesses) are defined on the basis of full-time equivalent (FTE) employment as follows:

- non-employing businesses – sole proprietorships and partnerships without employees;
- businesses with 1–4 employees; and
- businesses with 5–19 employees.

These three groups form the small business category (those businesses employing less than 20 people), while medium-sized businesses are defined as those employing more than 20 but less than 100 people. The survey *Small Business in Australia* shows that in 2000–2001 there were 1,164,100 non-agricultural private sector businesses operating in Australia, employing around 6.9 million people. Over the period from 1990–1991 to 2000–2001, the total number of businesses increased by an average of 3.3% per year, while the total number of people working grew at 2.2% per year. By comparison, during the 12-month period 1999–2000 to 2000–2001 the number of businesses grew by 4.5%, while the number of persons working increased by 2.5% (see http://www.abs.gov.au).

Over the period 1990–1991 to 2000–2001, the average annual rate of growth in numbers of businesses varied across different size categories, ranging from 1% per year for businesses with 200 or more employees to

4.3% per year for businesses with 1–4 employees. Over the 12-month period 2000–2001, the number of businesses with 100–199 employees fell by 8.6%, with all other size categories showing increases. The most significant growth in businesses during 2000–2001 occurred for those with 20–99 employees (up 8.2%) and non-employing businesses (up 7.4%).

The change in the number of persons employed across different size categories generally reflected the change in numbers of businesses, with those having 1–4 employees recording the strongest average annual growth (up 3.5%) over the period from 1990–1991 to 2000–2001. Those businesses with 100–199 employees showed a decrease in employment numbers during 2000–2001 (down 9.2%) while still showing an average annual increase in employment of 1.4% per year over past 10 years (to 2000–2001; see http://www.abs.gov.au). These figures support the claim of significant growth in the SME sector. Indeed, the increase in the number of small businesses can be traced back to the early 1980s as shown in the table below. It coincides with the 'twin oil' shocks which triggered an unexpected reappraisal of the role and importance of small and medium-sized enterprises. In Western economics as well as in Australia there has been a surprising finding – small businesses and entrepreneurship can play a much more important role in economic growth than was previously acknowledged.

The use of e-business techniques is often cited as the principal gateway for SMEs to take greater advantage of opportunities in global markets. However, many SMEs are still lagging behind large companies in using the internet as an efficient business tool. In order to stimulate usage of the internet by SMEs, the Australian government has deployed a wide range of policies and instruments and has launched many different actions and initiatives based on them.

The number of Australian businesses using information communication technology (ICT) continues to grow. Computer use has shown a steady growth, rising from 49% at the end of June 1994 to 83% by June 2003. Similarly, the proportion of businesses with a web presence has grown rapidly, rising from 6% in June 1998 to 23% in June 2003. The proportion of businesses with internet access has also risen from 29% in June 1998 to 71% in June 2003 (Skoko 2004).

As regards the ICT adoption model, a strong relationship exists between the size of a business and the likelihood that the business is using ICT. As employment increases, so does the proportion of Australian businesses using ICT. By June 2003, all large businesses used computers

TABLE 2 Coding system used in the analysis of case studies (SMEs)

		1	2	3	4	5
(1.0)	Firm	Art Gallery	Courier	Engineering	Architects	Restaurant
(2.0)	Size	Small	Medium	Large	—	—
(3.0)	Activity	Trade	Other service	Manufacturing	Professional service	Tourism/ restaurants
(4.0)	Idea/ influence	Technological factors	Business environment	Organisational factors	Individualistic factors	—
(5.0)	Investment size (AUD)	< 5.000	5.000-15.000	> 15.000	—	—
(6.0)	IT form	Computer	One computer connected to the internet	Intranet and internet	Home site	E-commerce
(7.0)	Problems	Technical	Human resources	Financial	Time needed for adoption	Other
(8.0)	Results	Better than expected	As expected	—	—	—
(9.0)	Future expectations	Optimistic (plans for further improvement)	Pessimistic (status quo – holding the existing level of IT)	—	—	—

Source: Skoko 2003, 119.

(100%) and had access to the internet (99%), while 80% had a web presence. However small businesses had a lower level of ICT adoption; 78% used computers, 65% had access to the internet and only 15% had a web site. These results of the Australian government support policy were also confirmed by the empirical analysis conducted by Skoko (2004), which concluded that Australian SMEs adoption of IT/ICT was strongly influenced by the government support policy.

In 2000, the National Office for the Information Economy (NOIE) commissioned the professional services firm Ernst & Young to identify and examine those small and medium businesses in Australia that were successfully using advanced ICT technologies (National Office for the Information Economy 2000). The purpose of the project was to demonstrate the business benefits of e-commerce and assist small businesses to undertake their own cost-benefit analysis of e-commerce. Using these secondary data for five comparable case studies (as a minimum require-

TABLE 3 Causal (independent) variables

Code		Meaning of codes	Code of present variables	Code of absent variables
ENV	*PP*	Supportive economic policy for adoption of IT	X_1	x_1
	K	Competition/competitors	X_2	x_2
	BP	Business partners	X_3	x_3
TEH		Technological factors	X_4	x_4
ORG		Organisational factors	X_5	x_5
M		Manager's knowledge of IT	X_6	x_6
S		Staff's knowledge of IT	X_7	x_7

TABLE 4 Dependent variables (outcomes)

Code	Meaning of codes	Code of present variables	Code of absent variables
C	Computer	Y_1	y_1
CI	One computer and Internet	Y_2	y_2
NCI	Intranet and Internet	Y_3	y_3
HS	Home site	Y_4	y_4
EC	E-commerce	Y_5	y_5
$+/x$	And/or	—	—

Source: Skoko 2003, 151–152.

ment for applying QCA), we have conducted the content analysis to construct Boolean *primitive* tables of the Australian case studies.

For the purposes of empirical analysis and application of QCA as well as Boolean algebra it was necessary to develop a coding system (table 2) which would be used for further analysis to build up a Boolean *primitive* table of ICT adoption. Table 2 was developed based on the empirical research of five Australian SMEs (Skoko 2003).

The result of the above functional form can be represented as a Boolean 'truth table'. In order to understand Boolean equations which will be discussed in this paper, the coding system for independent (causal) and dependent (outcome) variables is outlined in tables 3 and 4.

Based on the process of minimization and by applying Boolean logic in this section (see Krivokapic-Skoko 2003), the results are presented as follows:

TABLE 5 Boolean *primitive* table of causal variables and outcomes for Australian SMEs (five firms)

SME	Causal factors (variables)							Outcomes				
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	Y_1	Y_2	Y_3	Y_4	Y_5
1	1	0	1	1	0	0	0	1	1	0	1	0
2	0	0	1	1	1	1	0	1	1	1	1	0
3	1	0	1	1	0	1	0	1	1	0	1	0
4	1	0	0	1	1	0	0	1	1	0	1	0
5	1	0	1	1	0	0	0	1	1	0	1	0

Adapted from Skoko 2003, 155. For coding see tables 3 and 4.

$$Y_1 = Y_2 = Y_4 = [X_1 * (X_2 * X_3 * X_4)] + [X_1 * (x_2 * x_3 * x_4) * (X_6 + X5 * x_6) + (x_1 * X_6)] \quad (1)$$

$$Y_3 = [X_1 * (x_2 * x_3 * x_4) * X_6) + (X_2 * X_3 * X_4)] + (x_1 * X_5 * X_6) \quad (2)$$

$$Y_5 = [(X_2 * X_3 * X_4)(x_5 * X_6 + (X_1 * x_6)] + [X_1 * X_6 * (x_5 + x_2 * x_3 * x_4 * X_5)] \quad (3)$$

Firstly, Australian SMEs are adopting IT/ICT in a form of computers (C/Y_1) and connection to the internet (CI/Y_2). They also design their home sites (HS/Y_3) mainly under the influence of technological factors (X_1) and factors of support by the government policy ($X_{2,3,4}$), or (+) under the influence of technological factors (X_1) together with individualistic factors (X_6) and (*) in combination with organisational factors (X_5) (equations $Y_{1,2,4}$).

As to the intranet (NCI/Y_3) form of IT/ICT, Australian SMEs are adopting it under the influence of technological factors (X_1), with (marked as $*$) or without the government support policy ($x_2 * x_3 * x_4$) but with individualistic factors present (X_6) (equation Y_3); or (+) this form is adopted by environmental factors ($X_2 * X_3 * X_4$) alone; or (+) by individualistic factors without technological factors ($x_1 * X_5 * X_6$).

Finally, e-commerce is adopted by Australian SMEs under the influence of environmental support policy factors ($X_2 * X_3 * X_4$), with individualistic technological factors but without organisational factors ($x_5 * X_6 + (X_1 * x_6)$; or (+) under the influence of technological and individualistic factors ($X_1 * X_6$) and (*) without environmental/support factors ($x_2 * x_3 * x_4$) (equation Y_5).

CROATIAN CASE STUDIES

To conduct the same analysis for Croatian case studies, we have designed a questionnaire which was sent to 100 SMEs in Croatia. 20% of SMEs from all regions of Croatia responded to those questionnaires of which 5% were not usable. It is also important to note that most of the responses did not provide us with the financial structure of their businesses, while some of them asked us not to publish their contact details. Thus, by using primary sources, we will here set up the second hypothesis and describe the development of an ICT adoption model for Croatia. However, before doing that we need to note the structure of the Croatian economy in transition and to emphasise those characteristics that might influence the results of our analysis.

In the past decade, the macroeconomic performance of the Croatian economy has not been impressive by any standard. The proclamation of independence, the war of aggression, the policy of transition from a socially self-managed economy to a market economy, and the macro- and microeconomic mismanagement have been some characteristic features of that economy. An enchantment of policy makers with the text book style liberal market philosophy has resulted in a policy of tight money control, high interest rates and an unrealistically high pegged foreign exchange rate. Accordingly, the rates of growth have been very low or negative, unemployment has been high and prices have not been stable. In addition, the balance of payment position has been highly unfavourable with mounting external and internal debt.

The decade-old downward trend in economic growth of Croatia started in the 1980s. In 1998, the GDP of Croatia was 81%, compared to the 1990 level. The lowest level was recorded in 1993 at 63%. The level of gross investment as a percentage of the GDP was as low as 11.3 in 1991 and reached a maximum of 20.6%. In 1998, according to the World Bank statistics, it was 17.6%. In 1998, the number of employed people fell from 1.57m (1990) to 1.18 million. In 1997, the deficit in the balance of payment on current account reached a record level of 2,434 million USD, while in 1998 the total external debt was around 8 billion USD. Thus, Croatian transitional economies are in the midst of an unfavourable environment for development. This stage of development is characterized by:

- adverse business settings in which the contribution of both public spending and tax burden is increasing;
- an uncertain future business acumen;

TABLE 6 Coding of Croatian SMEs (case studies)

01	02	03	04	05	06	07	08	09
1	1	4	4	—	2,4	1,5,2	1	1
2	2	3	1	3	3,4	1,5,2	1	1
3	1	2	1	3	3,4	1,5,2	2	1
4	2	1	4	2	3,4	1,5,2	2	1
5	2	3	4	1	1,2	1,5,2	—	1

For coding see table 2.

- an ever-present threat of increased inflation;
- highlighted management problems due to the unsolved (or unsuccessfully solved) ownership system;
- a lack of investment funds and financial infrastructure;
- a lack of skilled labour force;
- a lack of incentives for productivity and amortisation increase.

These structural characteristics of the Croatian economy further highlight the critical need for SMEs support and their further development as well as the importance of adopting and using ICT. As mentioned earlier, for this part we have used primary data collected by a structural questionnaire. Based on the content analysis and using the same coding system as in the Australian case, we here present characteristics of Croatian SM firms.

Based on an empirical coding of causal and outcome variables (table 6), it can be concluded that the analysed firms are small and medium in size (column 2), from different industrial sectors (column 3), which were adopting ICT (column 4) mainly under the impact of individualistic (3×4), and technological (2×1) essential influencing factors. Organizational and environmental factors played no role in the process.

In addition, it is worth noting that one small firm and one medium firm had high (over AUD 15,000) investment costs (column 5), while one medium firm had small to medium high investment costs (from AUD 5,000 to AUD 15,000). The main form (column 6) of adopted ICT was 3 and 4, which means that more than one computer (intranet) was connected to the internet and had a designed home site (3×3, 4), followed by one computer connected to the internet and a designed web site (2, 4). One firm had only one computer. The most significant hurdles for businesses adopting ICT were evenly spread amongst 1, 5, 2 (column 7).

TABLE 7 Boolean 'truth table' of causal variables and outcomes for Croatian SMEs (first five case studies)

MSP	Causal factors (variables)							Outcomes				
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	Y_1	Y_2	Y_3	Y_4	Y_5
1	1	0	0	0	0	1	0	1	1	0	1	0
2	1	0	0	0	0	1	0	1	1	1	1	0
3	1	0	0	0	0	0	0	1	1	1	1	0
4	1	0	0	0	0	1	0	1	1	1	1	0
5	0	0	0	0	0	1	0	1	0	0	0	0

For coding see tables 3 and 4.

These are technical problems, infrastructural issues (bad connections), limited human resources, as well as (5) problems linked to the current economic situation and lack of legislative and governmental support. In addition, several firms reported problems with business partners who had not installed any form of ICT, resulting in a poor use of their own IC technologies.

As regards benefits (column 8), one can conclude that an even number of firms reported that the investment in ICT was a good and a bad decision. Finally, it is important to note that all firms were optimistic about the future development of ICT and were planning to extend the use and further the investment in these technologies. From the above, it can be concluded that the Croatian economy is in transition and that it lacks a policy for SME development. It is also obvious that in those firms the ICT adoption depends on initiatives of managers/owners alone.

These factors led to the introduction of computers connected to the internet (column 6), as well as to the designed Web presentation, in most cases for marketing and promotional purposes. One small firm had one computer connected to the internet; two medium firms had both the intranet and internet installed, while one medium firm had only one computer connected to the internet. However, although planned, none of those firms introduced e-commerce, mainly because there were no legal and infrastructural foundations for it.

By applying Boolean minimization to the truth table of the Croatian comparative case studies, we derived empirically based Boolean equations outlining casual conditions that led towards positive outcomes (Y_1; Y_2; Y_3; Y_4).

$$Y_1 = (x_2 * x_3 * x_4 * x_5 * (X_6 + X_1 * x_6) \quad (4)$$

TABLE 8 Map of areas of agreement for Australian SMEs

Form of IT	Theoretical influencing factors (T)	Empirically confirmed influencing factors (R)
C, CI, HS	*TEH*	*TEH*
	env	*ENV*
	ORG	—
	IND	—
NCI	*TEH*	*TEH*
	env	—
	ORG	—
	IND	*M*
EC	*TEH*	—
	env	*ENV*
	ORG	*org*
	IND	*M*

Source: Skoko 2003, 169. For coding see tables 3 and 4.

$$Y_2 = Y_3 = Y_4 = (X_1 * x_2 * x_3 * x_4 * x_5) \quad (5)$$

The Croatian results can be interpreted as for the introduction of an IT/ICT basic form – a computer (C) under the influence of individualistic together with technological factors ($X_6 + X_1 * x_6$), but without an obvious government support policy and organisational factors ($x_2 * x_3 * x_4 * x_5$) (function Y_1). As to more sophisticated forms of IT/ICT, they were adopted under the influence of technological factors (X_1) without an environmental/support policy and organisational factors ($x_2 * x_3 * x_4 * x_5$) (function $Y_{2,3,4}$).

Concluding Comments

Finally, as regards the last step in the application of QCA, it was necessary to map areas of agreement between theoretical and empirical findings, which is presented in table 8 (Australia) and 9 (Croatia).

From table 8 it may be concluded that for adopting IT/ICT forms (*C, CI,* and *HS*) it was necessary that technological factors (theoretically hypothesised) and environmental/government support factors (not theoretically hypothesised) were present. That is, we have mapped only the technological factor area of agreement between the theoretical and the empirical model, but not the environmental factor. For adopting higher

TABLE 9 Map of areas of agreement for Croatian SMEs

Form of IT	Theoretical influencing factors (T)	Empirically confirmed influencing factors (R)
C	*TEH*	*TEH*
	env	—
	org	—
	IND	*M*
CI, HS, NCI	*TEH*	*TEH*
	env	—
	org	—
	IND	—

For coding see tables 3 and 4.

levels of IT/ICT like intranets, Australian SMEs would need a combination of causal conditions in the following order: technological support present, governmental support absent but individualistic factors present. In other words, we have mapped areas of agreement for technological and individualistic factors, but not for the governmental support factor. For the last IT/ICT form, e-commerce, we have confirmed the area of agreement for both individualistic and governmental support factors.

Similarly to the Australian case, the Croatian areas of agreement were mapped (see table 9).

From table 9 we can conclude that the adoption of basic forms of IT/ICT was influenced by technological and individualistic factors; it is therefore confirmed (the area of agreement) that the adoption of IT/ICT in Croatia is not politically supported and is left to individualists with their knowledge and IT skills. Other higher forms of IT/ICT are adopted under the influence of technological factors with an obvious absence of all other factors.

After applying the QCA method rules and the logic of its formal language – Boolean algebra, we have found that Australian SMEs are adopting ICT mainly under the influence of technological factors and factors of support by the government policy.

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Innovation and the Interrelatedness of Core Competencies: How Taiwan's Giant Bicycles broke into the US *Bicycle Market*

S. Phineas Upham

I argue that capabilities and barriers to entry are, in certain circumstances, interconnected in such a way that sacrificing one of them can lead to the subsequent vulnerability or erosion of another capability or barrier to entry. I illustrate this through a study of the US bicycle market in the 1980's in general, and Schwinn Corporation and Giant Manufacturing in particular, arguing that both the barriers to entry and the firm capabilities were interrelated. A specific set of decisions by Schwinn had broad and unanticipated effects that went beyond the capacity they explicitly relinquished. In this case manufacturing and distribution were tightly linked in such a way that without some form of tight link between them successful incremental innovation became difficult. Seemingly unrelated capabilities and strengths become mutually reinforcing or interconnected. Instead of being able to choose to add a single capability, or choose to discard one, companies may instead be choosing between sets, groups of interlinked, or patterned capabilities. A seemingly small change may require a major reorganization of other core capabilities that its ostensible status belies.

Key Words: international strategy, outsourcing, capabilities, barriers to entry
JEL *Classification:* F02, F14

Introduction

On a sunny day in 1972 in Tachia, a port city in western Taiwan, a new bicycle company called Giant Manufacturing officially opened its doors. Back then, the vast majority of the world bicycle market was dominated by established brands such as Schwinn Corporation, Derby Cycle, and Huffy Corporation. A handful of domestic US brands controlled 76% of the US market. These firms had an enviably entrenched industry position in the US. From the industry perspective, bicycles were a hard market to break into indeed: the level of technological expertise was high,

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the name brand crucial, the distribution painstakingly complex, and, perhaps most importantly, the distribution networks of specialty shops were relationship-based and complex (Porter 1980; Porter 1996). When these hurdles are combined with the high efficiencies of scale intrinsic to bicycle production, the barriers to entry in that industry were indeed substantial and Giant's obstacles were great.

Given this, the rise of the bicycle maker Giant Manufacturing has been surprising. By 1980, Taiwan was the largest exporter of bicycles in the world and today with over $ 400 million in total sales; Giant Manufacturing is one of the largest bicycle producers in the world. Indeed, in 2001, Giant was named one of *Fortune Magazine's* '20 best small companies in the world' (http://money.cnn.com/magazines/fortune). Perhaps almost as surprising as Giant's rise is the fall of the old guard of bicycle producers. Derby Cycle had gone into bankruptcy and was largely broken up, Schwinn had been sold out of bankruptcy to Pacific Cycle for a mere $ 86 million and then acquired by Dorel Industries in 2004, and Huffy went into bankruptcy in 2004 for restructuring, emerging in 2005. All this was during a period of 30 years of healthy growth in the bicycle industry as a whole.

What happened? The answer to this puzzle lies in an examination of the bicycle industry and a close study of the actions of bicycle producers in the 1980s – actions which, in combination with market changes, ultimately led to the erosion of the bundle of capabilities which were responsible for their initial dominance. We will frame this more theoretical discussion in a reified examination of how these firms allowed an upstart in Taiwan to gain the capabilities to topple them and take an industry leadership role (Porter 1990).

While discussions of core competence and capabilities can be traced back to Porter in the 1980s, it is only recently that the idea has emerged that capabilities may be interrelated (Baldwin and Clark 2001; Levinthal 1997; Porter 1980; 1985; Porter 1996; Shane 2001b). In this case we believe manufacturing and distribution in high- and middle-end bicycle production became tightly linked due to industry changes in the 1970s and 1980s (Shane 2001a). Bike shops were increasingly demanding a fast turnover and a constant innovation in the product line; they wanted fast-paced and incremental improvements to move expensive bike inventories. The tight link between manufacturing and distribution encouraged incremental innovation and an understanding of industry trends. Bikes became items of prestige and fashion with an emphasis on excellence

of craftsmanship rather than utility. A slow new product introduction, occasional radical innovations, and a less than perfect control over production were not sufficient for this market. In this shifting context, and despite a healthy overall demand, the actions of US bike makers in the 1980s caused them to under perform.

We will examine the barriers to entry of the bicycle industry, the resources at Giant's disposal, and the exogenous changes in the industry that may have made a difference. This is not a case study that indiscriminately criticizes outsourcing or unambiguously praises the advantages of cheap labor and efficient production methods. Instead, it is a tale of the interconnectivity of core capabilities, complementary competencies, and interlocking barriers to entry that, once breached, began to gush. It is a case study that, we hope, will do more service by attempting to complicate existing paradigms rather than challenge them.

And now the 'child is father to the man' (Wordsworth, 'My heart leaps up when I behold'). In a situation that is in many ways reminiscent of that of the 1970s, Taiwan began to manufacture in China. King Liu, Giant's founder and chairman, has recognized that production in China, where wages are low and the potential for sales is high, would be more efficient. But is he aware that he has helped teach US bicycle producers to struggle over the last 30 years? He claims he is consciously shifting production into China through a very different model than US firms did into Taiwan 50 years ago. What lesson has this modern day David learned now that he has grown to be the Giant himself? But first let us explore the two major players in this story: Schwinn Corporation and Giant Manufacturing.

Schwinn – Company History

Schwinn/GT Corporation, bankrupt and sold to Pacific Cycle and later to Dorel Industries, was founded in 1885 by the German immigrant Ignaz Schwinn and Chicago investor Adolph Arnold. At the time it was called Arnold, Schwinn & Company, but Arnold sold his portion of the company back to the Schwinn family in 1908. Schwinn sold quality bikes, at first in retail locations such as Sears, Roebuck and Co., which accounted for 75% of Schwinn sales by 1917. Ignaz's son invented the air filled balloon tire for bikes before World War II, receiving only laughs from his competitors until the tire became a financial success in the children's bike market during the Great Depression. By 1950, Schwinn was making 25% of the bicycles sold in the US. Schwinn came out with another tech-

nological breakthrough in the 1960s when it introduced a gear-shifting derailleur, which allowed the bicycle to more easily navigate hills.

Schwinn began to miss market trends as the European style of faster, lighter bikes became popular in the 1970s and 1980s, and as the mountain bike craze of the 1980s and 1990s grew. In 1981, the workers of Schwinn Corporation's largest factory in Chicago went on strike. Workers were demanding to be paid the same rate as auto workers. Schwinn closed its three Chicago factories and moved production overseas.

In 1992, Schwinn filed for bankruptcy. It was revitalized for a time under the new owner Zell/Chilmark who bought the company for $ 43 million and proceeded to make a number of expensive acquisitions of smaller, elite bike producers. By 1996, Schwinn again climbed the ranks in terms of volume and became the No. 2 US bicycle maker. In addition, it launched a very successful line of spinning machines (stationary bicycles) for health clubs. In 1998, Schwinn bought bike maker GT Bicycles for $ 170 million, thus gaining control of high-tech manufacturing facilities for the first time since the 1980s, something which had been lacking for decades. Perhaps it was too little too late, in 2001, Schwinn/GT again filed for bankruptcy. It was sold for $ 86 million to the bicycle importer Pacific Cycle which planned to bring the Schwinn brand down market by, for the first time, selling an inexpensive version of its products in large-retail outfits such as Wal-Mart. In 2004, Pacific Cycle was purchased by the conglomerate Dorel Industries.

Giant – Company History

Giant Manufacturing began in 1972 as a low-end manufacturer and exporter of bicycles. It received its first large break in 1981 when the largest US bike maker, Schwinn, hired it to produce bicycles. Giant provided engineering, technology, and volume sales, and Schwinn received bicycles that were less expensive than those produced in the US, and sold them under its own name in the US. By 1984, Giant was producing 700,000 bicycles a year for Schwinn.

When in 1985 Schwinn and Giant ended their partnership, it was only a partial break, since Schwinn continued to outsource to Giant, though not to as great an extent as before, but it was nevertheless a significant break. This acted as a catalyst for Giant, who was at this point outsourcing for many US bicycle producers, and was therefore spurred to create its own brand. Giant began selling its own brand of bicycles first in Europe and then, in 1987, in the US. It routinely offered bike distributors

a 15% discount on bikes identical to those sold by Schwinn without the name brand and could afford to gradually build volume since it had its supporting production for the US companies.

Back in the 1970s Giant did something very surprising (the significance of which will be addressed later). It reversed the trend of outsourcing to markets where labor was cheap, and built a factory in the Netherlands. It chose this location, we believe, because the Netherlands is considered a trendsetter in European design and because of the excellent Rotterdam port and a large nearby airport. Indeed, the Netherlands is also one of the largest recipients of US foreign direct investment. This factory was meant to pick up on ideas and trends in the European racing bike tradition. One of the interesting aspects of Giant product line was that only 75% of it was standard, the remaining 25% was designed by regional managers to have local appeal. Giant has designers in the US, Europe and Asia and, twice a year, gathers them all together at its factories in Taiwan to work out ways to lighten the frame, increase strength, etc.

Giant has recently begun establishing factories in China. In 1996, for example, it produced 2.02 million bicycles, of which 1.5 million were produced in Taiwan, 550,000 in China, and 300,000 in the Netherlands. Currently they are the biggest bike sellers in China, accounting for 3% of all bike sales in this growing market. The Olympics taking place in China in 2008 are likely to strengthen that market.

Historical Overview of the Bike Market 1970–1989

From the 1950s through the early 1980s, Schwinn was one of the largest bicycle makers in the US and one among an exclusive club of bicycle makers in the US who had a virtual lock on the upper- and middle-level bicycle market. Other major US bicycle manufacturers at the time included Derby Cycle and Huffy. For these three companies, 1981 marked an important turning point – within a few years each of them would outsource either all or most of their basic manufacturing to Asia without maintaining much control over production.

Difficult labor relations in the US, combined with high domestic wages were causing a flood of companies to outsource to Asia (as well as, to a more limited extent, South America). Taiwanese companies were already exporting a large number of low- quality $ 40–50 bicycles into the US. But the high- and middle-quality bike market was not like some other US goods, such as VCR's and TV's, which were judged largely on simple price/quality ratios and 'gee-wiz' features. High-quality bike making

was more and more becoming an art which required a close connection to enthusiasts, an insight into trends, and craftsmanship. The high-end ($1,000–4,000) bike market was growing at double-digit rates.

In 2000, for example, 60% of bikes were sold thorough mass merchant channels such as Toy's-R-Us, Wal-Mart, Kmart, Target, and Sears. The average price of these bikes was $75. Meanwhile, there were about 6,300 specialty shops selling middle- and high-quality bikes, accounting for about 31% of the market. The price for these bikes started at around $200 with the average at around $360. The rest of the market (9%) was represented by sporting goods stores which typically sell middle price bikes for something between the mass retailers and specialty shops. Furthermore, specialty shops dominated the parts, accessories, and repair market. Bike companies that sell to mass merchants and the ones that sell to specialty shops were highly delineated. Huffy began as a high quality maker of bikes and has since become a mass merchant supplier. Others, such as Schwinn, Trek, Giant, and Derby typically sell at specialty shops.

Before the 1970s, the majority of the US bike market had been one of style and fun. Bikes had sci-fi names like the phantom (1950s), and the banana seated Sting Ray (1960s). In the US, two factors changed this: technology and oil. In the 1970s, OPEC induced oil shocks that led to a dramatic increase in the use of bikes for transportation, and ingrained the bike in the imagination of the mainstream population. Bike lanes were placed on the streets of many US cities in order to help accommodate their use. In Europe, with its more condensed cities and higher gas taxes, bicycles had long enjoyed this sort of utilitarian use. Secondly, derailleurs, or gear-shifts, were first mass manufactured by Schwinn in the 1960s, and by the 1970s they were standard. These derailleurs allowed bikes to climb hills much more easily, giving the bike an extended range of terrain and usefulness. These changes were important to the future of the bicycle. Still, the predominant use for the bike continued to be for recreational and fitness reasons. Recent figures from the Interbike Directory (www.interbike.com) show that 94.5% of bike riders ride for recreation or fitness, while 5.2% do so for transportation, and 0.03% for racing.

By the 1980s, bikes had enormous enthusiast support. Specialty bike shops, the prime retailers of high quality bikes, were demanding better and lighter bikes along the European tradition. Numbers hint at this change but do not tell the whole story, in the US, for example, 8.9 million adult bikes (with 20" and up wheels) were sold in 1981, 11.4 million

in 1985, 12.6 million in 1986, and 10.7 million in 1989 (a slight drop). But these modest increases do not show the quality of bikes sold. The average price to manufacture a bike in 1985 was around $ 40, but this number shot up to around $ 80 in 1989, a change not explained by inflation. Bike manufacturers were rushing upstream to develop sophisticated bike technologies only dreamed of a decade before (primarily in materials of production, lightness of the frame, and detailing of the bike in manufacturing). In the 1980s bikes would attain a sort of status symbol, with low-use buyers paying top prices for whatever enthusiasts determined were top-of-the-line bikes. A few ounces less weight in the frame, a bit more stability, a slightly better torque in the gears, these were significant differentiators. As one would expect, this change in preference led to a related change in the bicycles production cycle.

Whereas in the 1960s it was common for a company to put out a few new bikes a year, by the late 1980s competitive companies were releasing a few new models every few months. These changes dramatically affected the bike industry where the core capabilities of the bike producers lay. Previously, large technological leaps, distribution networks and name brand had been paramount in the bicycle market, but later, technology, fast production, and small and constant technological improvement became just as important. And these capabilities were, arguably, exactly those that the bike companies shipped, along with their trade secrets, their machines and their best engineers to Taiwan in the 1970s.

The Strategy Problems in Outsourcing in the Bicycle Industry

We will attempt to explain this concurrent rise and fall by synthesizing three areas of the strategic literature: that of competencies, that of R&D, and that of barriers to entry. This synthesis is meant to illuminate the importance of thinking about core capabilities in a multi-dimensional way, especially as related to risks of outsourcing. Management scholars often view a firm's competitive advantage as centering around core competencies (Burgelman 1996; Pennings et al. 1994; Prahalad and Hamel 1990; Siggelkow 2002). In the short run, price and performance measures determine who is the winner or loser, but in the long run being competitive along these two metrics is only a necessary and insufficient precondition to success. Prahalad and Hamel (1990, 81), for example, argue that 'in the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products. The real sources of competitive advantage are

to be found in management's ability to consolidate corporate wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities'.

The Tight Fit between Production and Distribution

But as we shall see, by outsourcing production completely, Schwinn and others compromised a core competence in their market with unexpected results. Of all bikes now sold in the US, 93% are produced abroad and imported, and virtually all of these are outsourced. The bicycle market in the 1980s increasingly began to have closer and closer links between production and distribution. Production cycles shortened and constant small improvements in design became necessary in order to be competitive. These improvements were, it turned out, just the sort of incremental improvements that are discovered while making a product on the factory floor – a slightly lighter frame, a cap over the joints, a slightly better gear/wheel alignment (Henderson and Mitchell 1997; Henderson and Clark 1990). They are the sort of improvements one hears about from hobbyists and then must try to execute through a deep understanding of what it takes to make the bicycle. Driven by detail-oriented bicycle hobbyists, the middle- and high-end bike market was not the one which would coast on name or distribution networks. This set the stage for the potential entrance of competitors into the bicycle market.

The CEO of Giant, Anthony Lo, says he believes bicycles are more than machines. 'Bicycles are as much a fashion item as a piece of machinery. We sell bikes in several thousand variations. In the early 1990s we introduced up to three new products per year, today, however, that figure has grown to between five and ten, reflecting increasing sophistication in the demand for bicycles'. Furthermore, each of these models usually implemented a small improvement which made the bike more competitive and helped stores move the inventory by touting the latest innovation/improvement.

Schwinn and other bike manufacturers, driven to cut costs, outsourced broadly. In 1988, for example, when Giant first introduced its own bike with its own label on it, Schwinn, despite having broken its partnership with Giant in 1985, still manufactured 80% of its bikes through Giant. At that time, Giant was also producing practically all the bikes for Treks, Fisher, and Specialized, as well as other US bike sellers. As Prahalad and Hamel (1990, 84) point out, 'the embedded skills that gave rise to the next generation of competitive products cannot be 'rented in'

by outsourcing and OEM supply relationships'. After all, while outsourcing can provide cheaper supply and delegate much of the headache of production to another company, it does not build up the skill base that is needed to maintain one's engineers at the cutting edge, nor does it provide the company with the sort of know-how that comes on the factory floor (Henderson and Clark 1990).

If there is one example that most clearly shows that production and distribution are tightly linked, it is a look at the Giant's factory in the Netherlands. It is strange indeed that Giant, which, at least initially, depended on cheaper labor costs to make cheaper bikes, would open a factory where labor costs were 70% higher than at home. At exactly the same time as US bike manufacturers were outsourcing most or all of their bikes, Giant was investing heavily in building a new state-of-the art factory in Europe. What was its logic? Lo, the current CEO argues that this factory was critical in promoting and speeding up innovation. With the European racing bike market becoming more and more influential, Lo believes that keeping production next to the customer is crucial both to keep up with fashion and also to have faster and more responsive innovations. Giant's ability to produce, and its emphasis on producing specialized bikes for regional managers based on local demand necessitated such a close connection with production. The differential success created through this experimentation ultimately generated many new ideas for new products and kept Giant abreast of changing needs and fashions. The tight fit between production and manufacturing in the bicycle market was a key interrelation for innovation and competitiveness. While Schwinn might have seen this outsourcing as merely cutting a cost center, in fact the consequences of this decision were broad. Due to the demand for fast customer responsiveness, the detail-oriented nature of bike enthusiasts, and the highly incremental nature of progress in bikes in the 1980s and 1990s, bike manufacturing of today is tightly tied to technical competence, innovation, and customer satisfaction. In other industries, where the dynamics of demand and the interconnections between capabilities are differently strung, this relationship changes.

Prahalad and Hamel (1990, 84) stated it well by saying 'there are two clear lessons here. First, the costs of losing a core competence can be only partly calculated in advance. The baby may be thrown out with the bathwater in divestment decisions. Second, since core competencies are built through a process of continuous improvement and enhancement that may span a decade or longer, a company that has failed to invest in

core competence building will find it very difficult to enter an emerging market, unless, of course, it will be content simply to serve as a distribution channel'. And this is exactly what Schwinn and others have become. When Schwinn attempted to build a factory in Greenville, Mississippi a few years after outsourcing to Giant, it failed to produce bikes of sufficient quality. Similarly, when Schwinn later tried to buy a factory in Hungary and produce bikes cheaply there, it failed to produce bikes suitable for import (Brown and Duguid 1991; 2001). Schwinn had lost the capability to produce high-end bikes. It never regained that capability until 1998 when it bought GT Bicycles for $180 million; GT did indeed have excellent manufacturing capabilities.

The Tight Link between Understanding Customer's Needs and Production

This leads to a related part of the literature which delves more deeply into the specific costs of outsourcing to essential knowledge bases (Barney 1999; Poppo and Zenger 1998). Cohen and Levinthal (1990) argue that R&D spending can add to a company's essential abilities to understand and advance in the field. In the case of middle- and high-end bicycle production, R&D comes in two components: periodic and punctuated (Levinthal 1998; Romanelli and Tushman 1994; Siggelkow 2001; Tushman and Anderson 1986). Despite periodic huge leaps in the bicycle market, such as inflatable tires in the 1930s, gear shifts in the 1960s, both pioneered by Schwinn, there are also the small, steady and very production-based advances. These advances are focused on small increases in performance in highly competitive situations. The European market, infatuated with grueling and highly competitive bike races, set the trends in the 1980s. Enormous importance was put on small incremental changes in order to gain a slight edge in such races. A passage from a bike aficionado's web page called Bike Magic (www.bikemagic.com), detailing the production in a Giant factory, serves as an example:

> Start by taking a look at Giant's frames. Giant Chromoly bikes are fully butted with all butting done in the factory. Not only do many of Giant's competitors not butt their own tubing, but they will cut corners by not butting a top tube, down tube, seat tubes or seat stay like Giant does every time. Giant ovalizes its frame tubing at the factory. Again, very few companies do this. Ovalized tubing provides a larger weld area which serves to

> strengthen the frame. Ovalization also reduces the weight by controlling wall thickness where it's needed the most.
>
> All Giant ATB's and cross bikes have mono stay seat stays. The result is better rear braking power and control due to reduced flexing. Giant's aluminum frames are custom welded by hand, just like the expensive custom frame makers. Giant has never had a reported aluminum frame failure. Giant uses all heat treated 6000 series aluminum. Heat treating is one extra step that Giant takes to ensure frame strength and reliability . . . Giant produces everything under one roof – from drawing, butting, and swagging to welding, heat treating, painting, decaling, assembly and final shipping. All other bicycle manufacturers source out one or many of these production phases. Not Giant. Giant stands alone.

One can see that R&D improvements in the bicycle industry would necessarily have a lot to do with the details, care and quality of production rather than only with large technological leaps (Levinthal 1998). Thus, investments into this sort of capability will serve much the same sort of knowledge-based ability to understand and respond to the complaints and concerns of one's customers (Siggelkow 2002). It is not easy for a company that does not produce its own tubing to absorb and address information concerning larger weld areas that increase frame strength or weld problems on aluminum frames. To turn customer information into innovation, a manufacturing technical capacity is needed. This allows a firm to turn information from distributors and enthusiasts into real improvements on the factory floor. Cohen and Levinthal (1990, 150) point out that 'absorptive capacity is more likely to be developed and maintained as a byproduct of routine activities when the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base'. After all, they point out (1990, 140), 'the ease of learning is in turn determined by the characteristics of the underlying scientific and technological knowledge'.

Therefore, we see that cost considerations that drove Schwinn and other bike manufacturers might have led to problems both in coming up with new products, innovating, and in understanding customers desires and complaints. In an industry as demanding and with as much obsession for detail as the middle- and upper-end bike industry, these factors were crucial in eroding the strength and capabilities of the entrenched

US industries. But while this analysis might go toward explaining some of the reasons for the weakness of Schwinn and other US firms, and it points to where some of their mistakes might have been, it does not yet give an accurate picture of the whole story.

Bicycle Market Barriers to Entry: The Interconnected Nature of Barriers to Entry in the Bike Market

It is sometimes known as the problem of the commons. Some resources are precious for a group of people but very hard to guard from the exploitation of any one member. As a whole, and even individually, it would be very well if no one ever exploited this resource. But given that at any time one member can exploit it, and that this decision would put cooperating members at a disadvantage, it is rational for all members to exploit. Above we have described the weakening of core competencies of the US bicycle firms and the undermining of their capacity for knowledgeable relationships with their customers. But there remain significant barriers to entry that the US firms enjoyed in the middle- and upper-level bike market in the 1980s:

1. Distribution networks: While less expensive bikes were sold through large retail stores such as K-Mart and Wal-Mart, middle- and upper-echelon bikes were sold predominantly through specialized retailers. The US bike firms had hard-to-crack relationships with these smaller retailers. It would take years for a new entrant to crack enough of these stores to gain large numbers of bike sales.
2. The middle and upper quality bicycle market enjoyed enormous efficiencies of scale to be economical. To run a full bike factory, which can produce hundreds of thousands of bikes each year, requires enormous overhead as exemplified by Porter (1985). The combination of 1) a complex distribution system with 2) the need for large scale production in order to sell at a competitive price makes the market extremely difficult to crack. The paradox is apparent: you need to sell enough to be able to lower costs enough to sell. But with a distribution network that takes a decade to crack, a decade of steep losses is needed, during which the producer subsidizes cost in order to build volume and market share.
3. In the middle- and upper-end bicycle market there was an additional hurdle. The technical ability to make good bikes was orders of magnitude more difficult than the challenge of making cheap bikes

(a market in which Asian firms had long ago become major players). It required an intimate connection with enthusiasts, practiced engineers, and long ingrained know-how. Numerous essays on organizational learning emphasize how complex tasks become engrained into the workers who do them and cannot be easily transferred or re-learned (Brown and Duguid 2001; Cohen and Bacdayan 1994).

Porter (1975) outlines the potential barriers to entry in an industry just after he notes that '[the five forces] reflect the fact that competition in an industry goes well beyond the established players. Customers, suppliers, and potential entrants are all "competitors to firms"'. He lists these barriers as:

- economies of scale,
- product differentiation,
- capital requirements,
- access to distribution channels,
- cost disadvantages independent of scale (such as proprietary technology).

As argued above, from an industry perspective the US quality bike market had a strong position in at least four, perhaps five of these five areas (the possible exception being capital requirements since a bike factory can be inexpensive if it is designed to make only a small number of bikes).

The problem arose from a prisoner's dilemma (Cable and Shane 1997; Kogut and Zander 1996; Radner 1992). In an oligopoly, a company can pursue its own self-interest by undercutting its competitors, knowing that this will start a war, or it can pursue the interests of the group and forgo the short-term benefits of defection. By 'cooperating' or acting in the interests of the group, the firm may maximize its long-term interests. As Porter (1980, 88) says 'the dilemma arises because choosing strategies or responses that avoid the risk of warfare and make the industry as a whole better off ... may mean that the firm gives up potential profits and market share'.

Schwinn was the first of the major bike producers to move significant portions of its middle- and upper-end bikes abroad through outsourcing. It had very strong competitive reasons for doing this, even if its Chicago factory strike had not exacerbated the problem. In 1996, wages in Taiwan, in the relevant norm, were below average: 5.41 $/hour vs.

13.22 $/hour in the US. Production of this sort, furthermore, was something at which Taiwanese firms had proven very adept. Schwinn had every expectation that their bikes from Taiwan would be less expensive and better.

But to produce bikes in Taiwan, Schwinn had first to teach the Taiwanese how to produce such high quality bikes. Therefore, in 1981, it shipped its best engineers and its most sophisticated machinery to Taiwan and began training the workers at Giant plants in the art of making fine bicycles (which involved the use of both machine and hand labor). The organizational routines were actually handed over to Giant voluntarily (Nelson and Winter 1982). This decision undermined the barrier of proprietary technology and product differentiation – remember that a few years later Giant was able to build distribution by offering bike shops exact replicas of Schwinn bikes at a 15% discount. The barriers of know-how and efficiencies of scale in turn undermined the barriers of product differentiation and access to distribution channels and capital requirements. Prahalad and Hamel (1990, 85) predicted the possibility of a transition from supplier to competitor, since once 'Asian competitors have built up advances in component markets first, they have then leveraged off their superior products to move downstream to build brand share. And they are not likely to remain the low-cost suppliers forever. As their reputation for brand leadership is consolidated, they may well gain price leadership'.

The numbers support this speculation. In 1984, Taiwan was exporting 6,328,000 bikes with a total value of $ 281,596,000 and an average cost of $ 44.5. The majority of these were low-cost bikes for large retail outfits. By 1990, Taiwan was exporting 8,942,000 bikes with a total cost of $ 909,937,920 and an average cost of $ 101.76. This was the period in which Taiwanese firms (led by Giant) began to produce high-end bikes for US bike companies. In 1996, 9,692,000 bikes were sold for $ 984,185,670 at an average price of $ 101.55. It is interesting to notice that no significant change in the average value of bikes exported occurred between 1990 and 1996. What happened was rather that Taiwanese companies acting as outsourcers decided to sell their own brand. From when Giant launched its own brand in 1985 to today, it has gone from producing all subcontracted bikes for others to doing this with only a third of their production – with the other two-thirds produced for their own label.

Despite a bad performance of US bike companies in the last decade, the bike industry as a whole did relatively well in the 1990s. In 2000,

the industry as a whole (including retail value of bicycles, related parts, and accessories) was worth about $ 5.0 billion. In 1995, it was worth $ 5.2 billion, in 1994, $ 5.0 billion, in 1993, $ 4.3 billion, in 1992, $ 4.5 billion, in 1991, $ 4.0 billion and in 1990, $ 3.6 billion. These numbers suggest that the industry is mildly healthy with a general trend of growth. But despite these seemingly placid numbers, the bicycle industry was undergoing dramatic changes.

We argue that the major barrier to entry in the bicycle industry was the interconnection between cutting edge technology, economies of scale, and large distribution networks (Cohen and Levinthal 1989; Herriott, Levinthal, and March 1985; Levinthal 1997). In many cases, under normal circumstances, it would be prohibitively expensive to do all three from a standing start. In order to sell the bikes at a competitive rate, a company would have to produce a large number of them. Yet it would take years for a company to crack a complex decentralized distribution market like the market for bike retailers in the US. Thus, an entering bike company has to rely on producing extremely high quality hand-made bikes and slowly increase distribution as it moves down market; otherwise it risks losing money for years if it attempts mainstream distribution. Not all markets have this dilemma. Inexpensive bikes, for example, are sold largely by large retail chains such as K-Mart and Wal-Mart that could be negotiated with for large quantities of bikes. Taiwanese and other Asian firms were therefore able to crack that market in the 1970s without too much difficulty. These markets truly did compete for the lowest price in a relatively static technological environment.

But the specific nature of the outsourcing that Schwinn and others did with Giant allowed Giant to crack the middle- and high-quality US bike market despite barriers to entry. Economies of scale were not an issue for Giant or a few other outsourcers in Taiwan (Makadok 1999; Raff 1991; Wernerfelt and Karnani 1987). Giant was already producing millions of bikes for export to US companies; it was therefore able to divert excess capacity after Schwinn scaled back manufacturing in 1985 by introducing its own line first in Europe, and, in 1987, in the US. It was able to produce, with maximum cost efficiency, even when it was selling only a few bikes under its own brand because its factories were running at near full capacity for others. Today, after over a decade of double-digit growth, two-thirds of Giant bikes are produced under its own brand. Schwinn began a trend which led to the erosion of barriers to entry in the industry as a whole. This effect was not achieved by a destruction of any specific

barrier listed by Porter (1975); instead it consisted of undermining the relationship between barriers. The barriers seemed to be interrelated in this market in such a way that giving up production in the way Schwinn did may have led to the erosion of all other barriers.

Giant's Decision to Manufacture in China – What are the Alternatives to Outsourcing?

Nevertheless, Schwinn's decision to manufacture in Asia seems to have been in some way inevitable sooner or later. Once any major bike maker had outsourced, taking advantage of cheaper wages abroad, then, in order to keep up with their competitors in a cost/quality calculation, all major middle- and upper-end bike makers were also pressured to manufacture in a low-cost nation in order to continue to compete on cost (with the exception of a few specialty bike producers within niche markets). While collusion (which is illegal) might have avoided this problem if enough major players agreed not to move manufacturing abroad, other, legal options, could have been taken when faced with such a dilemma. Economists often argue that manufacturing in Asia ensured a better allocation of resources. Cheaper labor comprised a comparative advantage in Asia, allowing US workers to focus on their own comparative advantages. These arguments, however, can be strengthened by including a more thoughtful arrangement of outsourcing contracts, incentive structures and relationship management.

What else could Schwinn or others, looking to outsource in the middle- and high- quality bike market, have done? The most obvious place to look for such a strategy is in the Giant's recent move to produce in China, the new low-cost center for global production, where wages are 1.16 $/hour (5.41 $/hour in Taiwan). This is a 1 : 0.21 Taiwan/China wage ratio, higher than the 2.44 : 1 US/Taiwan ratio (13.42 $/hour vs. 5.41 $/hour). Bike production in China is growing; China is currently producing 21% of all bikes sold in the World. Giant's founder King Liu has committed himself to producing and selling bikes in China. In 1996, Giant made 550,000 bikes in China; in 2001, it was expecting to make 3.2 million bikes there, two-thirds of them for export. But rather than hiring Chinese firms to produce their bikes, Giant and other Taiwanese bike firms opened fully-owned subsidiaries in China. In a recent board meeting, Liu, standing in front of pictures of racing bikes, said the following about the recent competition in production and distribution in China:

'A lot of the competition there has actually been companies backed by Taiwan. It's just that they're over in China now'. Continued production in Taiwan and in Denmark has maintained Giant's closeness to other core markets and designed an advantage.

Giant produces each and every one of its top bikes in Taiwan, not China, by the same group of highly skilled engineers. Its design teams in the US, Europe, and Asia are constantly working on improving design, trying out new designs in Giant factories, and responding to demands of regional managers by creating whatever these managers believe will be popular for sale in that region. While manufacturing in China makes sense, especially with Giant in complete control of the factories, Giant has no plans to close down its factories in the Netherlands or Taiwan. Giant has in fact recently invested in a new 11,520 sq. meter facility in Europe. These factories, which are close to their markets, are seen as valuable resources for innovation and learning. Making bikes in Europe may not be cheap, but it is the only way to truly understand and respond to European demands and to pick up tricks that are then brought back to Taiwan in the bi-annual meeting of designers and engineers from around the world. Innovations are then spread throughout the company.

By expanding into China, Giant is less likely than Schwinn to erode its core capabilities. In fact, since China was the source of over half of Giant's profits in 2000, it seems likely that Giant will use its manufacturing capacity in China to link itself tightly with the needs and dynamics of that market. With 3% of the bike market in China, Giant and its local partner, Phoenix, plan on expanding. Chinese factories will increasingly become more than just centers for producing bikes to be exported; they will increasingly become linked sales in China and will use production to fuel innovation for Chinese factories. The close link between production and innovation will be crucial. As information and demands from Chinese distributors are instantly transformed into products that can hit the market, Giant is likely to turn its Chinese factories into more and more valuable centers for capabilities and innovation.

What, in hindsight, could the US have learned from this model? A blanket government regulation or bans on imports against outsourcing would not have led to optimal results either for consumers, who would pay a needlessly high price, or for companies, who would not be spurred to be competitive in the global marketplace (Banerjee 2001; Jensen and Ruback 1983; Wheelock and Wilson 1995). Instead, as a start, bicycle mak-

ers could have reflected more carefully on the core capabilities of the bike industry and acted to help maintain them (Porter 1996; Porter and Siggelkow 2000).

However, options are easy to spot in hindsight and much harder at the time when information is more ambiguous, outcomes are less clear and trends harder to spot. Even so, such analysis might be helpful in generating options to consider and could act as a warning in future decisions. In this case, even if some part of production had been outsourced (a result that appeared all but inevitable in the market conditions at the time) at least some proportion of high-end production centers for key competitive parts (frames and perhaps derailers) might have been produced by the company, probably in the US closest to the core market. Further, an attempt to open a company or joint venture subsidiaries in Asia might have been advantageous in this case. Despite slightly higher costs, perhaps the production of its best models should have been, for strategic reasons, done exclusively in-house, protecting this core capability jealously. Further, small but high-tech factories could have been placed in core markets (Europe, the US) in order to keep a tight link between production and distribution. Lastly, any outsourcing should have been spread among small Taiwanese firms rather than lumped into one or two, if possible fragmented so that neither company possessed a full bundle of core capabilities. This way, original companies could have maintained some control over their potential foreign rivals. If possible, contractual agreements limiting suppliers' ability to compete directly could have been demanded.

The most essential part of the capabilities of production, once reflected upon, might have been maintained in-house (Wernerfelt 1984; Wernerfelt 1995; Wernerfelt and Karnani 1987). Their ongoing technical knowledge would have allowed US bicycle manufacturers to maintain a high level of absorptive capacity to suggestions and needs realized through their distribution networks. This strategy might have allowed them both to keep their finger on the latest trends and to maintain a steady stream of eclectic improvements.

Conclusion: The Potential Interconnectivity of Capabilities and Interconnectivity of Barriers of Entry

In certain circumstances, both capabilities and barriers to entry are interconnected in such a way that sacrificing one of them or some necessary but insufficient component of them can lead to the subsequent vulner-

ability or erosion of many others (Cohen and Levinthal 1989; Levinthal 1997; 1998). In this model, some company's capabilities are like the foundational pillars of a house. Some pillars can be knocked down without any other consequences. But there are other pillars, which are crucial to the structural support of the house. Thus, a company's core capabilities are not all equal, nor are they additive – adding one and subtracting another may not result in a wash. Similarly, certain capabilities allow access to others, while others do not.

We have argued that in the case of the bicycle industry, of Schwinn Corporation and Giant Manufacturing in particular, both the barriers to entry and the firm capabilities were interrelated in certain ways. We suggest it is the interconnectivity of barriers to entry and core capabilities that are the key to the puzzle. Perhaps, in this case, a loss of manufacturing capabilities led to a loss of the 'organizational learning' barrier to entry which in turn ricocheted to knock down the core capability of technical absorptive capacity (Herriott et al. 1985). In the case of Schwinn, one decision regarding one core capability had broad and unanticipated effects which went beyond the capacity they relinquished. It does seem that interrelated, interlocking barriers to entry and capabilities tell this story. In this case, we have argued that manufacturing and distribution were tightly linked in such a way that without this tight link, successful incremental innovation would have become extremely difficult.

Stalk et al. (1992, 57) illustrate well how an advantage in one dimension can fan out and create other previously unrelated strengths. 'Companies that compete effectively on time – speeding new products to market, manufacturing just in time, or responding promptly to customer complaints – tend to be good at other things as well: for instance the consistency of their product quality, the acuity of their insight into evolving customer needs ... or [the ability to] generate new ideas and incorporate them in innovations'. In some cases, instead of being able to choose to add a single capability, or to choose to discard one, companies may instead be choosing between sets, groups of interlinked or patterned capabilities. Seemingly, unrelated capabilities and strengths become mutually reinforcing or interconnected. A small change may require a major reorganization of other core capabilities which its ostensible status belies.

It is said that Hannibal, the Carthaginian general, was having a hard time capturing a particularly well-fortified Roman city. The city had high walls surrounding it and an inexhaustible supply of water from a river flowing through it. After a long siege Hannibal finally dug a new riverbed

for the river and diverted its flow. This left a wide gap under the walls of the city, where the river used to flow, through which he marched his army and captured the city. For this city, its barriers to entry were interconnected in such a way that removing one quite literally undercut the other. Success and failure, in business as in siege, may depend on understanding how core capabilities are interconnected and how barriers to entry are interdependent.

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Economic Agents, Ethics and International Economic Organisations

Bruno S. Sergi

The last sixty years have seen international economic organisations maintain a position at the forefront of promoting economic growth and socioeconomic development. These organisations have not achieved as much against certain benchmarks, and several observers have accused them of being unqualified to meet the needs of the poor, and even found them guilty of something worse, such as famine and disease. Although these organisations have organisational behaviour and skills, many of their funded projects lack forcefulness to such an extent that they should only be answerable through achieving certain economic facts by way of ethics and morals. We design ethics and morals as two interconnected concepts, and the rationale that binds all economic agents to their respective obligations must be interpreted by effective courses of action dictated by economic realities.

Key Words: ethical and moral codes, international organisations, national agents, political economy

JEL *Classification:* A11, F02

Introduction

No doubt, economic opportunities have been missing in the world, though unevenly over the last decades. In the light of the outcomes of the international course of actions that have been confused, pressures for more results have come from international organisations such as the United Nations, for example, that held the Millennium Assembly in New York in September 2000 in an endeavour to set targets and deadlines, by which better human welfare should be completed. These targets, known as the millennium development goals, were set for 2015. By then, the

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international community seems to be committed to halving that 30 per cent of the world population that in 1990 lived in the absolute poverty of less than one dollar a day. It should also provide universal primary education, ensure a sustainable growth compatible with the preservation of the environment, reduce under-age-five mortality by two-thirds and maternal mortality by three-quarters, and halve the population without access to safe drinking water. Nevertheless, was the game played by international agencies dealing with national difficulties a cause of unconstructive economic outcomes? Will these organisations be able to reach the millennium development goals? Is there anything else that these organisations can do apart from diminishing the effect on the autonomy in domestic economic choices?

The aim of this article is to approach these challenging questions by looking at a special feature of ethics and morals. The thesis is to view the conduct of international organisations as lacking in exact ethical and moral codes in order to gain distinctive consensus and commitments on mainstream programmes. Ethics and morals must be designed as two interconnected concepts to enable all national and international economic agents design effective policies and commitments. The next section outlines the achievements in international economic affairs and focuses on the distinction between ethics and morals. We unveil distinctive levels of ethical involvement for domestic and external partners, and suggest a new ethical value commitment, which, *inter alia,* concerns all actors, engaging them to agree on mutually accepted conditions and programmes and accomplish targets through equal bases. This new logic stimulates domestic economic ownership and international commitment for credible programmes while keeping all of the actors involved fully accountable. The final section provides concluding remarks.

Ethics and Moral Codes

Actually, there are many aspects of understanding how ethical values have developed over the last few decades. They concern domestic economic and political affairs as well as international affairs. Although these values originate from religion and are tied to the Greek word *ethos,* while morals derives from the Latin word *mores,* morality pertains more to a personal sphere of ethics, and ethics itself is connected to rules and widely accepted principles, which affect a much larger audience.

Besides the substantive issue concerning distinctions between moral and ethical codes that are magnified by phases of deepening interaction

between nations and regions, there is still the requirement to envisage an ethically satisfactory behaviour in the sphere of international economics, thus complementing critical scrutiny of domestic values regarding truth and social justice. Living in harmony with valuable norms and standards of excellence, attending to the betterment of social well-being, these are the ultimate goals of any international community.

The exact role of ethics and morals was not mentioned much in the past literature. They are crucial to strengthening international relief and world financial stability, but this must occur not at the expense of country's effective economic upturn. Their authority pertains to international and domestic economic dimensions; the ethical components of institutional policies and norms, and efforts to revitalise the economy when it is either in danger of even a tiny slowdown, or to help rescue suffering populations and offer protection in perilous emergencies. This sounds like going back to Adam Smith's 1759 (2002) observations on charity, in some ways. Serious efforts by the institutions to overlook economic troubles are very revealing in a financial world of certain selected market failures and domestic ineptitudes. We reject Mises' (1949) critique of economic interventionism and the state's manipulation of the market, because it could produce an undesirable consequence and, in turn, further rounds of intervention. On the other hand, we support the issue of a government recipient's behaviour and recognise a determinant of charitable giving, as long as there are specific forms of assistance by international agencies (see Birch 1998). Still, the literature debates on the quality of institutional design and the part played by geography and natural endowment as additional causes of the missed socio-economic development. In fact, the trait of national institutions might be the cause of differences in income levels (Acemoglu et al. 2001; Rodrik et al. 2002). These differences could be caused perhaps also by geography and resource endowments as claimed, among others, by Jeffrey Sachs (2003). Still, this drives us to understand the difference between what is moral and ethical and what has to be done to combine these two values in a judicious setting.

Besides the moral attitude to lend support, we make the case for an ethical approach that binds international organisations not to supersede local realities. In fact, economic crises in specific regions of the world, the challenging transition in East Europe, famine and diseases are all evidence that a large share of the world's population is far from enjoying a minimum and ethically satisfactory living standard. As aforementioned, the United Nations Millennium Assembly put forward a commitment to

halve the 1990 rates of poverty, hunger and access to safe drinking water by 2015, as well as to reduce the rate of child mortality by two thirds. The international community renewed these commitments at the Monterrey and Johannesburg meetings in 2002, when it took concrete steps towards official development assistance of 0.7% of donor countries' GNP. However, even that 0.7% would generate $142 billion each year, while the sum should rise to $443 billion if the millennium development goals are to be met (Besley and Burgess 2003). While the UK finance minister, Gordon Brown, advanced the proposal to create an international finance facility aimed at doubling aid, at the end of January 2004 the presidents of Brazil and France insisted on a special global alliance against hunger and poverty, including a taxation of profits generated by globalisation through taxing arms sales or unspecified financial transactions. With this in mind, the point of our discussion is to call for a new ethical approach to these issues, and make a clear distinction between moral and ethical views upon methods of action or the logic followed by international organisations.

The Logic of International Organisations: Domestic Affairs

The years of the Great Depression, exchange rate instability, and unproductive protectionism that had damaged the world economy leading to the Second World War, led to the creation of major international economic agencies responsible for stabilising global financial markets. The complex commitment to establish an acceptable base for an ethical behaviour prompted a set of policies aimed at achieving economic and financial stability, and providing adequate economic resources to poor countries. Tackling inflation and unbalanced public finances, prompting trade liberalisation, creating governance and strengthening financial systems appeared to be ethically truthful, guiding principles. In contrast with this is the current negative perception that the IMF appears much like a global sovereign, which does not enhance and improve wealth at the community level. The case of Russia in the 1990s is revealing, economically and politically, as it rests on the most authoritative examples of what actually occurred during the past decade throughout much, if not all of East Europe. Linking Russia's, Argentina's and other countries' economic failure to the IMF, is revealing at several levels.

Observers have elaborated on this point. Joseph Stiglitz (2002), the prominent former chief economist of the World Bank, and former White House chief economic advisor, states, for example, that the much-touted

transition strategies of international agencies like the IMF were responsible for moving Russia and other transitional countries into poverty, beginning in the very early 1990s. What is the underlying theme of Stiglitz's writing? Stiglitz (2000) argues that economists working at the IMF are frequently not very professional. Although many come from prominent universities, Stiglitz states that they would often not be as good as better-trained local economists. At the same time, Stiglitz casts doubt on the logic the IMF has followed in Russia.

This unenthusiastic view relates more to the specific Russian case, but the essence of the argument has common characteristics, similar to those we have observed when we looked at economic performance among regions. Although we cannot substantiate a causal linkage between international economic organisations and economic performance, one fact is clearly indisputable: real economic growth has collapsed throughout East Europe since 1989. If the level for 1989 is set at 100, the Commonwealth of Independent States witnessed a fall in real GDP to 54.2 by 1998, whereas Central Europe recorded a fall in 1993 when it reached 76.9. The years 1993 and 1998 were also the transition low points in industrial production. In Latin America, economic growth and crises have been managed thoughtlessly. The catastrophic crisis of late 2001 and early 2002 marked the tragic end of the Argentina's initially successful, decade-long experiment with sound money and market-oriented economic reforms. The IMF consistently supported Argentina's stabilisation and reform efforts in the decade leading up to the current crisis, and often pointed to Argentina's policies as examples for other emerging market economies to emulate.

A parallel with Stiglitz may be suggestive: Stiglitz was former chief economist at the World Bank, while Mussa is the current IMF chief economist. While the former focuses on overall commitments of the IMF globally, the latter addresses the question of what went wrong in Argentina and what important errors the IMF made either by supporting inappropriate policies or failing to press for alternatives that might have avoided catastrophe. While Stiglitz's view implies a direct responsibility on the part of the IMF, Mussa emphasises the persistent inability of Argentina's authorities to run a responsible fiscal policy at all levels, and that this was the primary, avoidable cause of the country's catastrophic financial collapse.

The IMF failed to press aggressively for a more responsible fiscal policy, says Mussa (2002), but without an ethical commitment, no one may ask

for any type of direct ethical approach to policy. Even Stiglitz lacks this type of approach. Mussa (2002) also addresses the role of the Convertibility Plan, which linked the Argentine peso rigidly and at parity with the US dollar, thus playing a central role in both the initial success and ultimate collapse of Argentina's stabilisation and reform efforts. While the IMF accepted this plan as a basic policy choice of the Argentine authorities as long as it remained viable, it erred in the summer of 2001 by extending further massive support for unsustainable policies rather than insisting on new policy strategies that would possibly mitigate some of the damage from the tragic crisis that became unavoidable.

Economic and Political Rationalisations

A point must be clarified at the outset. There are economic and political rationalisations regarding policymaking. Political explanations concerning IMF involvement and disaster exist especially with regard to the Soviet empire, when this was too important not to be helped (Sergi 2003a). The IMF needed a simple ethical validation to be able to offer loans to transition countries as well as finance efforts to link them with the West. Nor did concrete, substantive concerns about economic risks matter. Was a resurgence of trade and capital flows between East and West demanding market stability? Unquestionably yes. The world economy would have influenced transition economies by opening local markets to foreign linkages. In addition, balance of payment disequilibria could have threatened international stability by creating waves of financial contagion from one country to the next, with the world economy not being able to bear the consequences of additional economic disorders. The risks of further economic and political implosions were immense. Moral charity and ethical yardsticks became crucial suddenly as further instability was expected to become the principal outcome should effective responses not be put through. Consequently, the IMF started signing loan and conditionality agreements with almost every country in the former Soviet bloc, and instructions for treating external imbalances, government deficits, etc. became common in the conditionality agreements.

IMF involvement in transition economics has been extreme; also the World Bank, NGO's and scholars working at academic institutions' think tanks have exercised a variety of conditionality. Whilst certain NGOs were considered watchdogs or were associated with given interests, there have been unsupported and false statements that NGOs and independent experts would be much superior to governmental agencies.

Tutelage Policy

In principle, targeted aid and debt relief may serve as a takeoff into self-sustained growth or conditionality policy tutelage and as a substitute for the inertia of entrenched domestic institutions and poor macroeconomic policies. However, Boone (1996) states that aid serves to finance consumption instead of growth and that international aid has a positive impact in the countries exhibiting good macroeconomic policies, while it has no impact in those countries carrying out poor policies (Burnside and Dollar 2000). Bird (2002b) states that it is not empirically confirmed that the role of the IMF conditionality policy is positive. Indeed, the majority of fund programmes were incomplete and not subject to accurate scrutiny (Bird 2002a), whereas inflation projections and outcomes of programmes supported by the IMF have been missed completely (Musso and Phillips 2002). The World Bank comes under a similar allegation: reviewing and evaluating past investment projects has been unsuccessful. For instance, only some 5% of World Bank's loans are evaluated, yet only after three to ten years from the time when the last disbursement takes place. Indeed, these evaluations are made on a self-evaluation basis, that is, by the same functionaries and implementing agencies, and are thus far from being fair and independent. NGOs or other international agencies also do not show superior records in such fair evaluation of objectives, and 'they face some of the same incentives as official agencies to emphasize observable effort rather than focus on less observable results' (Easterly 2003, 38–39).

Unachieved targets might put under risk the credibility of future programmes, but too much criticism on their activities is unfair as well, otherwise, one would opt for a dismantlement of international agencies. The aforementioned agencies have also actually played an important role in East Europe and other regions of the world. Nevertheless, the reason for the discrepancy between what had been targeted and what was in fact achieved lies in the fact that coordination with internal actors is missing and policies are not calibrated locally. Transition economies and corrupt political leaders did not coherently comply with the logic of the western consensus, despite a variety of views on the subject. However, numerous interplays shaping economic variables could not lead an international watchdog to keep an eye on economic well-being without exercising tutelage on the complexity of the phenomenon; this is a matter of fact. Despite the fact that the IMF overrules national players in the preparation

of policies and does not believe in the transparency it urges on others, its ethical choices could not be concealed over time.

Yet, a generalised criticism (including all the outcomes occurring in all nations) fell squarely in the lap of the IMF, which was not equitable. Anyhow, it is possible to attribute reform failures either to domestic flaws or to poor external advice characterised by incompetent sequencing of economic strategies. While foreign advisers and international organisations have no total knowledge of local markets, they force fixed-format programmes on many. In fact, when circumstances are right, the IMF, for instance, does exactly what the model predicts to tip the balance of incentives in favour of a long run strategy of fiscal and monetary restraint, but this is only a partial reinforcement of the credibility of national governments that are not all regarding credible political economies. Whatever the proper rationale, operational decisions are firmly based on a few rigorous economic rules of conduct, which – if they existed – would provide a straightforward counselling concerning a broad set of instruments. The intended beneficiaries have no voice in how money is spent or economic conditionality worked out, although not much was said about how to design an overall policy concerning domestic incentives and accountability of all players involved in aid and conditionality. In Easterly's words, 'research would likely involve principal-agent theory, organisation theory, game theory and political economy' (Easterly 2003, 39).

In the light of criticism, the IMF has recently concluded an extensive review of conditionality aimed at enhancing the effectiveness of its support programmes. This recent consultative process recognises that successful economic policy programmes must be founded on strong, credible in-country support. This remarkable development started in September 2000, when Horst Köhler took up his post as new IMF managing director, and soon after made a big pitch for a new Interim Guidance Note on Streamlining Structural Conditionality that would replace the original one issued in 1979. Although an independent evaluation office was created in July 2001 to have an independent evaluation of the IMF's programmes, the IMF's Executive Board adopted revised conditionality guidelines in September 2002. The new focal point shifted to distinguish between what is relevant but not critical to the objectives of a supported programme, and improve the division of the working operations between the IMF and World Bank in ways that both would share the conditionality policy.

Meanwhile, the World Bank has placed economists in the field 'to

have staff working shoulder-to-shoulder with clients' (Stern 2003, 49). Whilst the World Bank's recent strategy partially reflects the issue of having credibility in its economic policies, because countries have to be co-partners and not clients, the shared conditionality policy between the IMF and World Bank provides only an unfinished ethical agenda regarding criticism of what the 1979 guidelines missed. The WTO is trying to help the process intended to insure free trade and equality among countries, but this is a complex task.

It is unquestionable that the IMF has been refocusing the entire spectrum regarding its very unsuccessful idea of conditionality, with the number of structural benchmarks having decreased and come under coordination with that of the World Bank. This may develop into an important step, although not definitive in itself (Sergi 2003b). Critics are numerous and scholars continue to advance proposals, for instance to lend only to pre-qualifying countries, except in the case of a systemic need as proposed by the Meltzer Commission in March 2000 (Meltzer 2000), or to create two departments: a contingent-market department and a crisis department – a case advanced by Caballero (2003). Nevertheless, there are prominent defenders such as Stanley Fischer (1999), who advocates the need of the IMF as a lender of last resort.

While the scientific economic community should be pleased with these responses coming from the international economic organisations, we criticise this evolution for lacking rigorous ethical underpinnings. Some argue that the IMF and World Bank may in fact have contradictory goals since the crucial task of the IMF is to eliminate current account deficits, whilst that of the World Bank is to attract private capitals into a country, or simply to spur loans and aid towards low-income countries. The IMF is not an aid agency, but has in fact delivered concessional loans that have partially been forgiven, making loans equivalent to aid. Fabricius (2002), who draws on field research conducted in Ghana, Pakistan, Peru and Vietnam, recommends that the IMF and World Bank pursue a case-specific approach in deciding whether they should take the same stance. Yet, what critics do not seem to comprehend is that, even though the number of structural benchmarks is reducing, and even put under coordination with the World Bank, a combined actors' commitment to credible, long-term adjustment polices is still lacking. Even in view of the contradiction regarding theoretical IMF–World Bank outcomes, the fact is that any actual support for a programme cannot guarantee credibility and commitment; therefore, a mutually shared policy may encompass

the entire set of economic policies and transform such a possible contradiction into short- and long-term components of credible economic programmes. The IMF sets its conditions *de jure* or *de facto,* but in the light of a missing coordinated strategy, actors might blame the failure on something else and this might result in continuous shifting of responsibilities (Sergi 2003a).

The Effectiveness of Policy Design

An intriguing question is why ethics as well as the achievement of proper balance regarding domestic-external *raison d'être* have not been addressed in international economic relations, when economic institutions and actors should fit into a global ethical agenda representing stability and assistance. Financial and economic stability is a requirement for a global well-being to which all agents must adhere. The real world asks and wants supranational intervention of *ad hoc* agencies, keeping within the principles of ethics and capitalism, without a stopping momentum towards social economic justice. For instance, Novak (1993) defines the civil society project concerning government and social activism, in which civil society operates between community and state. The IMF and World Bank have been involved in domestic affairs since the international community in the 1960s called on the IMF to apply broader concepts regarding financial stability, while looking into real growth as well. This may be regarded as the first step concerning ethical innovation, bringing about more discussion, while strengthening IMF performance as lender of last resort. Nevertheless, the international community cannot first profess distinctive duties for the IMF, and then assess its policy as disruptive, causing a loss of national sovereignty. This contradiction exists because there has been an unclear institutional distinction between moral and ethical values, and the international community failed to recognise that these two concepts must fit the same operational agenda. Recent global economic realities have called out for international institutional supervision and national equilibrium, but this could only be accomplished if an ethical and moral value commitment were to be accepted at both international and domestic sides. A mere international involvement is not sufficient *per se* to achieve results. As long as the IMF and other organisations do not have to give away free money, a different ethical and moral commitment could pay off, securing a better business environment at home through a distinctive commitment by national leaders and agents.

Because ethical principles and the vast involvement of world institu-

tions are widely shared around the world, failure of past attempts was more a matter of naiveté, and, at times, of policies uncommitted to ethical guidelines, than of deliberately dishonest actions by international agents. Put in a different way, without a simultaneous involvement of all domestic and international economic actors, the responsibility of especially the IMF and other organisations may look omnipresent and always ineffective, yet nobody assumes national responsibilities. We should consider the structural adjustments sponsored by the IMF and the World Bank as being insufficient to introduce coordination and credibility, as these two concepts have been kept separated in the past. Instead, we reinterpret the concepts of ethics and morality so that an effective international moral agenda becomes compatible with ethical principles. To circumvent this criticism we propose a new way of reasoning based on four broad steps. First, the involvement in domestic affairs has to be reckoned in terms of morality. Second, the record of socioeconomic goals ought to be within the reach of coherent policies. Third, the choice of policy instruments that are available to policymakers must be viewed in terms of arranging a credible policy, in which both players adhere to ethical and moral obligations. Fourth, the outcome has to be coherent with devised policies and outcomes, which are answerable to all actors.

The first step for international institutions involved pertains to moral spheres. It is virtue-centred as an individual conception based on the ideals of reciprocal help (Smith [1759] 2002). In fact, international organisations have been established for these ends.

The second step is to agree on economic targets, e. g. inflation, exchange rates, fiscal policy and privatisation, and this policy has an ethical dimension, because the international community has placed its trust for righteous and virtue-centred commitments with institutions created *ad hoc.* Nevertheless, we cannot deny that domestic authorities must follow rules of moral conduct in laying down the terms, objectives, instruments, and that they are fully committed to them. In other words, IMF experts ought to disentangle this second step in harmony with national policymakers who have a broader knowledge of domestic conditions. Ignoring this would be ethically unproductive.

The third step combines values with both agents and credible policies to which these values adhere. An international agency has to guarantee world stability and apply ethically accepted rules, but the country obtaining a loan has a moral duty to commit itself to policies in an effective manner in order to increase socioeconomic impacts and long-

term objectives. However, steps two and three may have an anomalous ethical impact as long as agents propose rival explanations concerning economic strategy, or domestic agents do not commit themselves to any cost-effective policy. Adam Smith ([1759] 2002), for instance, refers to a judicious recipient behaviour to obtain aid, but the commitment to conditions chosen by an international agency might be based either on implausible objective values or on the use of non-efficient instruments.

The above mentioned directs us to the fourth stage. If the IMF and other aid agencies were successful beforehand, this subject matter would not be confronted, since a superior, ethical commitment by these organisations would supplant further debate over conditionality. However, this has not been the case, because they had no full knowledge of domestic circumstances, and simply applied an unchangeable ethical programme that was in contrast with domestic and international short- and medium-term strategies. An economic strategy that is dictated or at best inspired by others than national experts and policymakers must be projected to help prevent a further lack of credibility, and establish a national commitment. As long as the international commitment fails, this policy is an ethical failure, which pushes back to the way in which stages three and two have been undertaken. As long as these two phases are absolutely set by an international ethics, the failure is unethical to the international institutions. When a proper reading of steps two and three is made and a definition of ethical sustainable commitment is ensured, then this sheds light on the moral commitment of a country with both the moral obligations and the ethical attitude of the international organisations.

In fact, how can we resolve the issue if the unethical failure is due to a recipient's uncommitted behaviour and not, say, to the IMF, but the IMF itself is to bear full responsibility for it as having forced a stabilisation or recovery programme that may be correct in theory but not properly accomplished by national authorities? Alternatively, what would happen if implausible discordance concerned both social and economic standpoints? These two hypotheses commonly surface. The failure of the IMF's and the World Bank's approach is that they have overemphasised mainstream theories and applied them everywhere without considering the differing national state of affairs, and have inspired their programmes without taking into account a country's programmes. These international organisations have simply misconstrued the second and third phase of international policy effectiveness and produced unethical results. There should be no autonomous approach at either extreme, that

is, these organisations should not simply force or inspire a conditionality based on their own ethics, nor should they finance countries with free money without asking them to engage in a moral commitment in a sort of agent problem. What is suspicious is that the objectives underlying prior approaches were not credible because they were defective in the social sphere, and tight economic policies had scarce credibility when carried out. This led either to uncertain commitment by domestic agents or, at best, to a series of compromises when a country was able to influence international decision-making. Yet, policies are credible when they are jointly and efficiently agreed by domestic and international agents, and do not fall under the economic guidance of the pure ethical orthodoxy of international organisations which – lacking the adequate domestic knowledge – generally imposed recipes that were not tailored to national commitment and capabilities, thus bringing about inconsistency and failure. As the recent commitment of the IMF and World Bank seems to go in the direction of a new ethical approach, which will broaden the involvement of national actors, all agents must arrange definitive operational procedures in a way to enable policy makers to deal with and commit themselves to realistic programmes. Agents ought to introduce the right balance between ethical long-term outcomes and judicious internal commitments by implying a full commitment through four stages of international experts, national government and the civil society or local experts.

Because a worldwide eye constantly oversees the economy, we do not side with those who find it realistic to dismiss the IMF and perhaps other multilateral agencies. Because they serve an essential global task, they could not be written off, but recent economic fears of world economic instability and the call for extending further aid to deprived populations have given us an opportunity to suggest the way these organisations might be working in an ethically superior manner, and we should not pass it up. We have to rethink the logical involvement of international and domestic actors according to their best interests, as so far the actions have been to some extent ineffective. If the risks were that these organisations would continue to draw on their theory, and simplistic approaches might stand in their way, the proposed approach would drive domestic players to a position of greater trust. In the end, responsibility for the programmes implemented or simply inspired by international economic organisations would be attached to all, and all players would be able to come to each other's support. Such a new ethics in international eco-

nomic relations requires us to look at a closer working relationship with national experts and policymakers on one side, and international experts on the other. This could help share information, knowledge and expertise in order to support effective policies that result from that networking. We could not implement an ethically satisfactory reshaping without a closer working activity among the actors.

Conclusion

This article tries to reinterpret the functions and roles of international economic organisations in today's global environment by offering a new perspective, which opens the way to a fresh logic of tackling national sufferings in global markets. Although international economic organisations have been established to deal with these issues, many observers regularly accuse them of causing economic adversities. The criticism has gone so far that some demand the closure of these organisations. The two Washington-based institutions and the Geneva-based WTO, for example, are blamed for being unethical in pursuing their statutory commitments. The economic rationale pursued by these organisations did not comply with unique domestic economic conditions and complex realities. Nor was it recognised that poor economies are unable to stick to western market principles overnight, although there is ample evidence that market principles are superior to non-market ones.

Nevertheless, the IMF as well as other organisations will operate well into the next decades and we do not join the chorus of who would derive pleasure from their disruption. In contrast, to achieve the most of the new economic agenda proposed in this article, we turn the attention to strategic economic guidelines shaped by those actors who are ethically and morally capable of designing a credible programme of recovery and structural reforms. Not counting the skill premium that international organisations convey and that may have been a roadblock to domestic involvement, the proposed novel involvement of domestic institutions and international experts must become answerable to results and to operational principles. Therefore, it is mandatory to take forward specific working procedures and plans in order to achieve economic results by way of ethics and morals. As it is unavoidable to design ethics and morals as two interrelated concepts, we must decipher the rationale that connects all economic agents to their respective obligations by considering specific national timing and asymmetries, and viewing national and international authorities as dependable and agreeable. A set

of policies that is operative must be arranged in a manner that compels all actors into sharing their own responsibilities for credible programme outcomes. Only by drawing up plans that are ethically and morally compulsory to all, is it possible to keep all actors fully accountable.

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Internal Marketing and Schools: The Slovenian Case Study

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Schools in Slovenia are expected to address and respond to the changing environment. Breaking through the rigidity of traditions is a complex process. Internal marketing can be used for doing this. It is a process that focuses on teachers and students in order to increase effectiveness and efficiency of schools and also the level of satisfaction of 'school customers'. The purpose of this paper is to discuss the elements of internal marketing which are essential for teacher and customer satisfaction and to indicate opportunities for the implementation of internal marketing philosophy and related strategies in Slovenian schools. The paper provides a theoretical framework, an analysis of the Slovenian legal framework and the results of the case study conducted in a grammar school. Data were collected through a group interview, a questionnaire and individual in-depth interviews. The findings show that although the concept of internal marketing is unknown to the participants in the study, its philosophy and focus are present in the school.

Key Words: education, marketization, marketing, internal marketing, human resource management
JEL *Classification:* I2, I21, M31

Introduction

Decentralization, deregulation and devolution of power are educational policies relating to marketization that are discussed in many countries (Kenway and Bullen 2001; Trnavcevic 2003). Dehli (1996) argues that the cover concept in discussing marketization is choice. Marketization is not the same as marketing nor is it only the application of marketing techniques into education. Our understanding of marketization of education refers to a range of educational policies associated with deregulation of education, lump sum financing and devolution of power to schools

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and, in Slovenia, deconcentration of power from the state to municipal level. Marketing refers to exchange relationships between providers and customers (Kotler and Fox 1985). In Slovenia, marketization of education has been a long process associated also with changes in society, while marketing in education has become evident in recent years. While there was extensive public discussion about decentralization, deregulation and devolution of power to schools, there has been little if any discussion about how public, compulsory and secondary schools understand and practise marketing. A research in the Slovenian educational context shows that marketing is still very much associated with selling and promotion (Trnavcevic 1995). A case study of two Ljubljana downtown schools showed that principals, teachers and school counsellors have different, often opposite attitudes toward marketing in education, although they practise and use some techniques and tools related to the promotion of schools (Trnavcevic 2002). Marketing is a broader concept than selling and promotion. It also embraces needs analyses, market segmentation, positioning and evaluation. Marketing is closely related to the concepts of quality schools and education and implies a 'marketing terminology'.[1]

Internal marketing can be understood as a process, as an organizational philosophy or as a business function. There is a thin line between human resource management and internal marketing. Although human resource management is well researched, especially in the field of business sciences, there is little research on internal marketing. In the Slovenian education context there has been no research on the latter.

Annual conferences of principals in Portorož, Slovenia, discussions with colleague principals and with teachers who attend leadership courses provided by the National School for Leadership in Education indicate a concern about teachers. But too often these discussions reveal a perception of teachers as 'sources' of school success and not as 'customers of a school' who need to satisfy their needs in order to satisfy students and other school stakeholders.

We could take a critical stance to discuss the marketization of education, marketing and internal marketing in schools. It could be associated with 'economic extremism flourishing in education' (Magyari-Beck 2003, 69) that is 'an attitude, which tries to solve all the problems of life on the basis of economics' (Magyari-Beck 2003, 70). We could also take a market fundamentalism concept and discuss its rise from 'the mar-

gins of debate to become the dominant policy perspective across the global economy' (Somers and Block 2005, 260) and one that can also be seen in education. Also a 'new managerialism' (Beckmann and Cooper 2004) that requires rethinking the purpose of education could present the ground for our discussion. However, schools in Slovenia and elsewhere are jeopardized by a decline in birth rate, by expectations that education will solve the national economy and gain competitive advantage in national and international markets, and also by a decrease in funding – 'rationalisation'. An enhanced audit culture related to international comparisons and measurement of achievements enforces marketing in schools. Schools try to respond to pressures and expectations of society and of educational policies also by introducing the marketing approach to education. In our study, we have not taken a critical stance toward the current educational environment and marketing education. Our interest has been focused on school practices that are grounded in marketing.

The purpose of this paper is to discuss the elements of internal marketing which are essential for teacher and customer satisfaction, and to indicate opportunities for the implementation of the internal marketing philosophy and strategies in schools. The paper provides a theoretical framework, an analysis of the Slovenian legal framework and the results of the case study conducted in a grammar school. Data were collected through a group interview and individual in-depth interviews. The findings show that although the concept of internal marketing is unknown to the participants in the study, there are some elements of internal marketing practices in the school under study which can support and enhance the school's effectiveness. The study will contribute to understanding the marketing as it is applied and understood in practice, and will provide a ground for further research.

The Legal Framework

The independence of Slovenia and its separation from the former Yugoslavia required major legislative changes and were also an opportunity for changing the educational policy. Between 1991 and 1996, when the package of legislation for under-graduate education was proposed, and in 1996 adopted by the National Assembly, there was an intense public and professional discussion about the role, structure, organization and financing of education in the new state. Expectations and solutions were embraced in the *White Paper on Education in the Republic of Slovenia*

(1996) and related Elementary School Act, Gimnazije Act, and Vocational and Technical Education Act. The concepts of choice, equal opportunities and secular education were emphasized in these documents.

The school legislation does not impose any explicit requirements for the implementation of internal marketing, yet there are some incentives that can be related to the principles of internal marketing. For example, Article 49 of the Organization and Financing of Education Act determines the obligations and duties of principals such as organizing, planning and leading work in the school, preparing school development plans, pedagogical leadership, encouraging professional development and training, recommending the promotion of teachers to professional titles, and making decisions on the promotion of teachers to pay grades. Staff management is an obligation and a duty of the principal.

The need for internal marketing in undergraduate education is, hence, implicitly embraced in the school legislation, for example in Pravilnik o napredovanju zaposlenih v vzgoji in izobraževanju v plačilne razrede (the Regulations on the Promotion of Workers to Professional Titles),[2] Pravilnik o nadaljnjem izobraževanju in usposabljanju strokovnih delavcev v vzgoji in izobraževanju (the Regulations of In-Service Training for Educational Professionals) and in the Act Regulating Wage Rates in Public Institutions, State Bodies and Local Community Bodies. Moreover, it emerges also from the need of a school to be successful in implementing changes and responding to the expectations of the environment. The satisfaction of teachers is related to the quality of services which are demanded from the school by both parents and students.

A number of regulations and rules are associated with teachers' promotion and the related increased income. For example, according to Pravilnik o napredovanju zaposlenih v vzgoji in izobraževanju v plačilne razrede (the Regulations on the Promotion of Workers to Professional Titles), teachers can be promoted to three professional titles/levels, and according to Pravilnik o napredovanju zaposlenih v vrtcih in šolah v plačilne razrede (the Regulations on the Promotion of Workers Employed in Education),[3] school staff can be promoted to five pay grades. Promotion and a monthly assigned financial reward provide the basis for internal marketing because teachers and other professional staff (the psychologist, pedagogue, social worker) have to attend a certain number of training and development programs and perform other tasks related to students and defined by the Annual School Plan. A principal, who is sensitive to the needs of students and staff, can support staff development

and direct it towards addressing the needs of students. The principal can support and develop the activities aiming at improving students' life at school. Professional staff has the opportunity to develop and implement activities that contribute to its professional and personal growth and development and that are also needed and appreciated by students and parents. The monthly reward (the flexible part of the salary) is another element that enables and enforces internal marketing. The principal makes an autonomous decision about the stimulation. It can be regarded as a motivation and a recognition of the qualitative work done outside the classroom.

Internal Marketing

Marketing in education started to flourish in the late 1980s. A number of studies and papers are from that period, for example, the work of Gray (1991), Barnes (1993) or Marland and Rogers (1991). Kotler and Fox (1985) focus on marketing educational institutions, mostly in higher education, and transfer the business principles of marketing into education. In Slovenia, the question of marketing in education emerged in the 1990s and is associated with changes in legislation and with demographic changes (Trnavčevič and Zupanc Grom 2000). It is slowly 'entering' education and is still considered to be a 'business rooted and oriented' concept. It is not an uncontroversial concept although changes in education policies, demographic trends and some other factors push schools to be managed almost like businesses. If marketing in education is considered to be a concept transferred from business, then internal marketing, especially in education, is even more controversial and also theoretically blurred. There is a discussion about the relationship between human resource management and internal marketing. Some authors, like Caruana and Calleya (1998, 109–113), state that there are elements of human resource management in internal marketing and, vice versa, that some contents of internal marketing can be treated as part of human resource management. Varey and Lewis (1999, 931) provide a critical view of internal marketing. In their opinion, internal marketing has an undefined conceptual status.

In this paper, we take the stance that in internal marketing teachers[4] are considered to be the customers of a school. If so, schools need to pay attention primarily to the teachers, their needs, attitudes and values, and seek to satisfy them as much as possible. The underlying assumption is that satisfied internal customers/teachers can better serve external

customers, primarily students and parents. In order to satisfy customers' needs, organizations need to ground their work in a marketing approach while there are some 'consequences' that can be related to the focus of human resource management, i. e. employees' satisfaction and motivation for work.

Internal marketing is mostly discussed in service organizations. Papasolomou-Doukakis (2002), for example, studies the role of employee development in customer relations in UK retail banks. Internal marketing is often discussed as a philosophy, a set of techniques and as an approach to effective organizations.

As a philosophy, internal marketing is closely related to organizational culture (Snoj 1998; Snoj and Gabrijan 2004). Straughan and Cooper (2002, 253) argue that 'the link between internal marketing and service marketing goes beyond the traditionally stated objective of improving quality of service to external customers'. It is related to understanding teachers as customers, where 'the job experience itself is a service that is designed and delivered to internal customers – all teachers of an organization – and the internal customer satisfaction derived is a function of the quality of the internal marketing efforts of that organization' (Straughan and Cooper 2002, 253). From that point of view, internal marketing is a philosophy of an organization that means to 'care' about the teachers and consider them as internal customers. This understanding is built upon the relationship between teachers and the organization and is reflected in the process of change. The core concept of internal marketing as a philosophy includes needs, interests, expectations and satisfaction of teachers, which are as much as possible in tune with the needs of the organization, focused on internal and external customers and the achievement of organizational goals. Ewing and Caruana (1999, 20) claim that the emphasis of internal marketing is on the feelings of teachers who need to feel safe, cared for and accepted from the management side.

Keller (2002, 651) points out that 'if management wants its teachers to do a great job with customers, then it must be prepared to do a great job with its teachers'. Harris and Ogbonna (2002, 163) study service sabotage and develop a typology of it. Their starting point is that 'the attitudes and behaviours of frontline, customer-contact service providers are a significant factor in customers' perceptions and interpretations of service encounters'.

Keller (2002) also emphasizes the internal marketing mix, the elements

that are needed to satisfy internal customers' needs. His emphasis is laid on the strategies and techniques which can and need to be used in order to satisfy teachers' needs. Snoj (1998, 15) discusses internal marketing also as an approach to increase organizational effectiveness and efficiency, and states that the process of internal marketing in service organizations will be effective and efficient if:

- identifying teachers needs and forming and offering internal products is based on a continuous and accurate needs identification;
- people have their interests harmonized with the needs of the organization;
- teachers' needs correspond, to some extent, with techniques of marketing communication;
- effects of teacher satisfaction are reflected in the financial standard of efficiency.

Rafiq and Ahmed (2000, 450–453) mention three phases of the development of internal marketing: a) employee motivation and satisfaction, b) customer orientation, and c) broadening the internal marketing concept – strategy implementation and change management.

They define five main elements of internal marketing:

- employee motivation and satisfaction;
- customer orientation and customer satisfaction;
- inter-functional co-ordination and integration;
- marketing-like approach to the above;
- implementation of specific corporate or functional strategies.

All of the five main elements are joined in the definition which is (Rafiq and Ahmed 2000, 454):

> Internal marketing is a planned effort using a marketing-like approach (4) to overcome organizational resistance to change and to align, motivate and inter-functionally co-ordinate and integrate (3) teachers towards the effective implementation of corporate and functional strategies (5) in order to deliver customer satisfaction (2) through a process of creating motivated and customer orientated teachers (1).

They state that this definition is sufficiently all-embracing; hence no other definition of internal marketing can avoid these elements.

A school performs services having all the characteristics of services. Schools also operate in an increasingly competitive environment. In the

current rhetoric of educational and school quality, measurement, effectiveness and 'audit culture', it is challenging to approach schools and school effectiveness through the perspective of internal marketing as a prerequisite for effective schools. From this point of view, efficiency and effectiveness of schools can be related to efficiency and effectiveness of internal marketing in schools.

Rafiq and Ahmed (2000, 453) discuss five needs which internal marketing is focused on, namely:

- the need to take an interest in teacher motivation and satisfaction;
- the need to be oriented towards teachers and the satisfaction of customers;
- the need to promote internal coordination and connection;
- the need to adopt marketing thinking;
- the need to present the specifics of an organization and a formal strategy.

In schools, these needs are relevant, too. Therefore, the concept of internal marketing might be valuable for schools as well as for other service organizations.

Case Study of a Grammar School in Slovenia

Grammar schools in Slovenia are confronted with higher demands from parents, students and higher education institutions. They are 'desirable' schools, in a way prestigious, as they provide general secondary education. The school under study is located 30 km from the capital of Slovenia and draws students from the surrounding geographical area. Just recently, because of good baccalaureate results and the reputation of being a 'good school', students from Ljubljana have started to enrol in this school although there is no special transportation arranged for them. The school has been operating for six years. The staff is quite 'young', the average teacher being 30 years of age and having a six years' work experience. A new program[5] is being implemented at the school and has been used by the authors for studying internal marketing in this school.

METHODOLOGY

The study was designed as an exploratory case study, as Bouma and Atkinskon (1995, 110) define it. The purpose of the study was to gain an insight into teachers' perceptions of internal marketing, the presence of

internal marketing in the school and the principal's role in internal marketing. We were interested in teachers' perceptions and practices that are central to the concept of internal marketing although we did not use the term 'internal marketing'. The study was guided by the following research questions:

- How do teachers understand internal marketing?
- How do teachers see the role of the principal in internal marketing?
- How does internal marketing lead to a successful introduction of a new program in school?
- What can be done to promote a 'new program' among teachers?

Data were gathered through a group interview and individual in-depth interviews. Since we assumed that the concept of internal marketing was not familiar to teachers, we started the study by asking all the teachers in the staffroom at break the following questions:

- Have you ever heard of 'internal marketing'?
- Could you, please, explain what 'internal marketing' means to you?

17 out of 26 full- and part-time teachers answered these questions. 11 teachers answered both questions with 'no'. Four teachers had heard of internal marketing but they did not know what it meant. Two of them were familiar with the term. On the basis of their answers we avoided the terminology which was unknown to the participants and used the 'introduction of a new program' as an example through which internal marketing in the school was studied.

The study was carried out in the following sequence. Firstly, a group interview was carried out and secondly, in-depth interviews were conducted.

The group interview was done with five teachers. They have all been employed in this school for more than two years and less than six years. One of the teachers has never worked before, while others had been employed at other schools.

We conducted in-depth interviews with five teachers. The group interview and individual in-depth interviews were recorded and transcribed verbatim.

The study has some limitations, one of them being the generalization of findings. We also have to mention that one of the authors of this paper is the principal of the school. Because of the 'researcher as principal' position, a lot of attention was paid to ethical issues. Firstly, in order to avoid possible recognition of participants in the group interview,

they were all given five-letter false names beginning with the letter D (Dunja, Darja, Denis, Dinka, David). The four-letter false names of the participants in individual in-depth interviews began with the letter T (Tine, Tone, Tomo, Tara, Tija). None of the teachers at school has any of the chosen names. Secondly, participants were informed that they could choose not to participate in the study or to withdraw at any time or stage of the study. Thirdly, they were informed about the findings when the study was completed.

Findings

The data were categorized as follows:

- orientation toward the satisfaction of students and the needs of the environment;
- readiness for change in the organization;
- orientation toward professional development and individual training;
- orientation toward social (job) security.

ORIENTATION TOWARD THE SATISFACTION OF STUDENTS AND THE NEEDS OF THE ENVIRONMENT

This orientation was reflected in the statements of participants. Denis pointed out that 'the school must choose a program which the environment needs'. In this statement the orientation toward the needs of students and environment is embraced. Dinka understood the 'readiness for change' as being informed about the content of the program. She emphasized that 'before the implementation of a new program students must be informed about its content'. Denis, Dinka and David discussed the employment opportunities for students by saying that 'the new program should provide students with better employment opportunities' and that 'the new program, when completed, should lead to university studies'.

Denis and David said: 'If we want a new program and the environment does not feel the need for it, then it makes no sense (to have it). If the implementation of a new program brought more employment opportunities for failed students then there would be an interest for it. These issues should be specified.' Their discussion about the needs of the environment and students revealed an awareness and orientation toward

'the environment out there', which is not very common for schools. Foskett (1998), for example, argues that schools in his study were still very 'product and production' oriented.

READINESS FOR CHANGE IN THE ORGANIZATION

Participants discussed issues around the introduction of a new program to the school, and their readiness for change was reflected in their perceptions about the requirements that have to be met before the implementation of 'something new'. They specifically mentioned the vision of the program (Denis, for example). His view is interesting because he related the vision to the program not to the people who have already created a vision of the school and also not to the principal who is, according to the information from the participants in the courses at the Slovene National School for Leadership in Education, the person who is supposed to 'take care' of the vision. The vision is also significant (Leithwood, Jantzi and Steinbach 1998) for understanding the dimensions of transformational leadership. But the respondents assigned some important tasks to the principal. These are: sharing information (Denis), acquiring finances (Dinka) and also taking care of social/employment issues among the staff (David). The concern for job is very much associated with the decline in birth rate leading to less school population, with a 'reduction of groups' in some 'less attractive' and 'less wanted schools' and with a surplus of teachers in some areas and for some subjects. Their 'market orientation' and also 'internal marketing' are transparent also through their concern for students and the benefits that students will have after the change is implemented. Denis and Dinka specifically pointed out student motivation and their commitment to school.

Dinka said: 'I have not thought a lot about the appropriateness of the program because I accepted the information as if it was well thought through and weighted out and that, I guess, various social factors have been carefully considered.'

ORIENTATION TOWARD PROFESSIONAL DEVELOPMENT AND INDIVIDUAL TRAINING

Participants in the study also discussed their 'willingness' for professional development and individual training. The discussion was lively and they pointed out that the introduction of a new program as a change could be a personal/individual challenge (Dunja), which would result in the introduction of new teaching methods (Darja) and will also be a

good promotion for the school (Denis). They all agreed that the principal should support professional development and training. Professional development and training are also discussed through the perspective of a 'change process' (Fullan 2001; Goodson 2001). Goodson (2001, 45) discusses internal, external and personal segments of the change process. In his view 'In the new millennium it is argued that, as well as internal and external segments, increasing attention will need to be paid to the personal missions and purposes which underpin commitment to change process'.

One of participants said: 'I feel the need for change. Although I am flexible to content related changes, there is a need for improvement in order to keep quality and broaden things, also deepen them. The benefit of change is also in acquiring more knowledge and additional training.'

ORIENTATION TOWARD SOCIAL (JOB) SECURITY

This issue was specifically emphasized and seems to be of great concern to the participants. They discussed it from the following points of view: security, fearlessness and maintainance of good interpersonal relationships. Denis said: 'I guess everybody thinks what this would bring to him; would he have enough classes per week?' Dunja pointed out: 'For every individual it will be important whether he/she gets or loses classes. Maybe there is a need for a "written" version of the program. Then we can see what will be gained and what lost for individuals.' Darja opened a 'demographic perspective': 'From the point of view of the decline in birth rates, it might be better, in order to attract more students in the future, if there are two programs at our grammar school.' Denis said: 'Teachers must have all information about the new program so that they are fearless.'

Dunja was concerned with the relationships among the school staff. She expressed that concern by saying: 'For the introduction of the new program a lot of tolerance is needed, we need to solve problems collectively and come to mutual agreements. With such work we will maintain good relationships, and a harmony between teachers and students. Students will be able to achieve a sense of satisfaction and comfort.'

In conclusion

Regarding our research questions, the study resulted in the following conclusions, limited for 'the case' only.

Firstly, teachers were unfamiliar with the concept of internal marketing; however, on the basis of the introduction of a new program, they revealed practices that are central to the concept. We may therefore conclude that in the school under study internal marketing is in place as a process and a practice. Participants in the study provided conflicting data about the needs of the environment and ways of satisfying them. Teachers attributed great importance to the needs of their environment, they did not show resistance to the introduction of the program, and expressed their support for change if the introduction of the program is considered necessary by the school. However, they expressed some concerns about employment, structural changes and status. Their statements in this part were contradictory as they had previously advocated the needs of the environment. Their 'survival', however, is the fundamental issue. They need to know and be assured that they will keep their jobs. In this case, they are open to the challenges and needs of the environment.

They believe that the satisfaction of students lies in providing sufficient information about the program, in new forms and methods of work, in relations of teachers to students and personal characteristics of teachers, such as openness and readiness to help students in the field of their studies.

Secondly, teachers assign a significant role to the principal. Before the introduction of the new program, they expect extensive information about it. According to them, the school has good prospects for the future, which have to be preserved also after the introduction of the new program. They pointed out that students achieve good results and that the atmosphere in the school is good, which shows a relationship between school and loyalty. Trust in school leadership was mentioned several times. Teachers are convinced that the management knows the reasons for the introduction of the program.[6] They see the principal as the link between the staff and the vision. On the basis of this vision, he is expected to gain support from the staff by explaining his expectations, clearing every doubt related to the introduction of the new program, encouraging the teachers at work and training and helping them in case of problems. Teachers believe that their responsibility towards students lies in the way they teach and prepare themselves for teaching, introduce the research work, use different teaching methods, show a positive attitude towards students, in mutual trust, and in accomplishing high results at graduation and in competitions.

Yet, leadership, vision and similar issues are the 'principal's businesses'. They view education from the point of view of communication, rhetoric and business. It seems that they trust the principal and expect him to take care of their social security, which they do not put in the first place. For them, their social security consists of providing a student-friendly approach in teaching and through the satisfaction of their needs. They see that as a prerequisite for a better enrolment of potential students in the future.

Thirdly, the introduction of the program represents a challenge for teachers. At the same time they feel the need to advance their education and gain additional professional knowledge. They want to improve their knowledge in both subject-related and pedagogical areas, which would lead to the improvement of their work with students.

The 'effects' of internal marketing practices found in the school under study were reflected in good opinions of teachers about the school, their trust in the school and leadership, in their commitment to the school, and in their concern and motivation to serve the customers/students and the environment well.

At this point, the findings can be related to human resource management. Namely, the processes of internal marketing 'result' in motivation, trust, commitment and readiness to work toward a successful implementation of a change (the new program). The awareness and readiness for an individual's professional development and consequently the 'growth' of an organization are also the elements of human resource management. We are, however, careful in claiming that staff development, motivation and satisfaction are simply consequences of internal marketing processes in the school. We also do not claim that these elements 'belong' to either internal marketing or human resource management only and have not long pre-existed in schools generally. The theoretical, internal marketing perspective and related research findings provide sufficient grounds for saying that the leadership based on the processes of internal marketing seems to lead to employees' readiness for change, trust, commitment and motivation in the school under study.

Fourthly, the key role in promoting the change (new program) to teachers was assigned to the principal, who should promote the introduced changes in a way in which teachers would see the satisfaction of their own needs regarding education, social security and promotion. The findings indicate that promotion of a new program should address the individual's needs.

Teachers 'do' internal marketing without being explicitly aware of it. Does it mean that they do not have to be aware of it at all and simply keep doing it? Or, might it be assumed that explicit awareness of internal marketing could change the culture of the school significantly and bring into focus exchange relationships between school customers – employees and/or students? On the basis of the findings, it seems that it is not an issue whether a concept or philosophy, and processes are labelled as long as they are practised. However, in order to assign meaning to the concept, include it in a broader educational framework and theorize about the implications, reflective practice is needed.

Notes

1. Terminology is an essential means of representing the marketing perspective. From this point of view education is seen as a service aiming at satisfying the needs of different customers and stakeholders.
2. Regulations and Decrees are not available in translation to English language.
3. The amendments were adopted as follows: 1994, 1995, 1996, 1997, 1999, 2001, 2002.
4. When discussing organization and culture, we need to focus on all employees in an organization. For the purpose of this study, we only studied teachers because they were the only group associated with the introduction of a new program.
5. The school has applied for and aquired funds from the local Development Centre to initiate a new curriculum/program called Entrepreneur Grammar School. The program is expected to address the needs of the local community and of the region where employment opportunities are mostly related to the initiative of private entrepreneurs. The stimulus for change hence originates in the external environment and is not an internal (school) need. Despite the fact that the school delivers the national grammar school curriculum and that the students who successfully complete the program continue with their studies at the university level, entrepreneurial skills and knowledge are needed for employment. The program has to be accredited and approved by the national committee. The approvement is in process. Currently, there is no other program like this in Slovenian secondary education. It is a novelty in terms of the content, structure and syllabi. As any other change, also the implementation of this program is expected to be resisted by most of the teaching staff. Other employees are very little if at all affected by this curriculum-related change.

6. This trust can be challenged by the fact that the school is relatively new (7 years of existence), well positioned in the environment and also appreciated by the parents who see better educational opportunities for their children in this school than in a school in the capital Ljubljana.

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