

EVALUATION METHODS OF SWOT ANALYSIS

METODY VYHODNOCENÍ SWOT ANALÝZY

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Abstract

Strategic management is an integral part of top management. By formulating the right strategy and its subsequent implementation, a managed organization can attract and retain a comparative advantage. In order to fulfil this expectation, the strategy also has to be supported with relevant findings of performed strategic analyses. The best known and probably the most common of these is a SWOT analysis. In practice, however, the analysis is reduced to mere presentation of influence factors, which does not allow more precise determination of a strategic concept. The content of the article tries to remove this drawback, submitting for public discussion two possible approaches to evaluate the SWOT analysis providing important information for the selection process of an organization's strategic orientation.

Abstrakt

Strategické řízení je neoddělitelnou součástí vrcholového managementu. Formulací správné strategie a její následnou realizací může řízená organizace získat a udržet komparativní výhodu. Aby strategie naplnila toto očekávání, je mimo jiné nezbytné, aby byla opřena o relevantní závěry provedených strategických analýz. Nejznámější a zřejmě i nejpoužívanější z nich je SWOT analýza. V praxi je však analýza redukována na pouhé uvedení vlivových faktorů, což neumožňuje exaktnější určení strategické koncepce. A právě tento nedostatek se snaží odstranit obsah článku, kterým jsou odborné veřejnosti předkládány k diskusi dva možné přístupy k vyhodnocení SWOT analýzy poskytující významné informace pro process volby strategické orientace organizace.

Key words: management, strategy, SWOT analysis, municipality.

1 INTRODUCTION

One key area, which the top management of companies, institutions, municipalities and non-profit organizations (hereinafter referred to as an “organization”) deals with, is strategic management which results in formulating their own strategies. Veber's strategy means determining the direction the organization should develop. (Veber, 2007) However, the question is whether such strategic management has a sense under the existing conditions of dynamic development of globalized economy and society. In the publication *Strategic Management* (Keřkovský, 2006), the following arguments can be found: “Conditions are changing so fast that managers cannot plan anything, especially on a long-term basis.” Also, Peter Drucker asked questions based on a sceptical view of strategic management like these: “What may a strategy result from in phase of rapid changes and vast uncertainty, which is the period to which the world faces at the threshold of the 21st century?”, “Are there any premises which strategies of organizations, especially business organizations, could result from?” “Are there any certainties?”. (Drucker, 2000) Drucker sees the way-out in five phenomena he identified as present certainties: the collapsing birth rate in the developed world, shifts in the distribution of disposable income, definition of performance, global competitiveness, growing incongruence between economic globalization and political splintering. As we can see, the phenomena are more social and political rather than economic in their nature. (Drucker, 2000) There is no doubt that it depends primarily on the life philosophy and experience of managers, on their approach to the strategic management. Mainly in practice, but also in theoretical

considerations we can see some scepticism. However, the authors of the article are convinced that it is strategic management which can help to attract and retain a comparative advantage of an organization. Veber states in his book *Management*: “In terms of social and economic instability strategic management should be an anchor, which is intended to allow analysing current and expected future situation and suggest the most appropriate direction of development of an organization.” (Veber, 2007)

Under current turbulent conditions, the search for fixed points is certainly very challenging, but in our opinion necessary. The basis for this finding can be seen especially in the area of strategic analyses, since in accordance with Keřkovský: “every strategy should be formulated on the basis of real facts detected during analyses that are focused on significant events affecting strategic decisions.” (Keřkovský, 2006)

Management theory and practice in particular, know and apply a number of strategic analyses that focus on identifying internal and external environmental factors affecting an organization and prediction of their future development. The best-known ones include a PEST analysis, Porter's model, analysis of sources, BSG model and especially then a SWOT analysis.

Our article is devoted just to a SWOT analysis. The SWOT analysis is a widely used methodology which can be met not only in business practice, but also in the area of municipalities. The analysis frequently ends with the initial definition of various factors like strengths and weaknesses, opportunities and threats of an organization. This is an inadequate and misleading understanding of the SWOT analysis. The SWOT analysis should direct strategic management to a correct strategy or to its starting points based on the mutual comparison and evaluation of relationships between strengths and weaknesses, opportunities and threats. A mere listing of influence factors is insufficient to determine critical strategic positions of an organization. Therefore, we sought a way to establish a credible organization's strategic position on the basis of SWOT. We think we found an interesting way of evaluating SWOT analyses, on which we would like to inform the professional public.

2 BASIC MATRIX OF SWOT ANALYSIS

Apparently, there is no professional publication dedicated to strategic management and planning, which would not mention the SWOT analysis. Keřkovský indicates its exact characteristics like this: “SWOT analysis is a valuable source of information when formulating strategy. The thing is that the basic logic of a strategy proposal is based on its very nature.” (Keřkovský, 2006) The analysis is usually described as a tool for the diagnosis of strengths and weaknesses, opportunities and threats of an organization. The description is often supplemented with an illustrative scheme of a relational SWOT matrix. We, in our opinion, present the most cogent view of the SWOT matrix, which appears in the publication *Management* by the authors Koontz and Weihrich (Koontz), see Tab. 1 and Fig. 1. The matrix both incites to the choice of an appropriate strategic direction and draws attention to the dynamics of internal and external environment, which is very valuable with regard to the use of the analysis to strategic purposes.

Tab. 1 : SWOT matrix for strategy formulation

<i>Internal factors</i>	<i>Internal strengths (S)</i> <i>Strengths of management, operations, finance, marketing, research and development, engineering.</i>	<i>Internal weaknesses (W)</i> <i>Weaknesses in the spheres mentioned in the cell “internal strengths”</i>
<i>External factors</i>	<i>SO strategy: Maxi – Maxi</i> <i>Potentially the most successful strategy which uses strengths of an organization for utilizing opportunities.</i>	<i>WO strategy: Mini – Maxi</i> <i>Such as a development strategy to overcome weaknesses in order to take advantage of opportunities.</i>
<i>External opportunities (O)</i> <i>(Consider also a risk) such as current and future economic conditions, political and social changes, new products, services and technology.</i>		
<i>External threats (T)</i> <i>Such as lack of energy, competitiveness and shortcomings in the areas mentioned in the previous cell “external opportunities”</i>	<i>ST strategy: Maxi - Mini</i> <i>Such as the use of internal strengths to overcome the threats or to circumvent them.</i>	<i>WT strategy: Mini - Mini</i> <i>Such as reduction, winding-up or joint venture.</i>

Source: Koontz [3]

However, scientific literature (e.g., Koontz, 1993; Keřkovský, 2002; Veber, 2007) does not usually describe how to evaluate the strengths and weaknesses, opportunities and threats. Certain guidance is provided by Kotler in his book *Marketing Management*: “Marketing opportunities can be classified according to attractiveness and success probability. Threats should be classified according to their seriousness and probability of occurrence. Strengths and weaknesses should be classified according to performance and importance.” Nevertheless, the guidance is more marketing-oriented and it is questionable whether it is applicable even outside the business sphere.

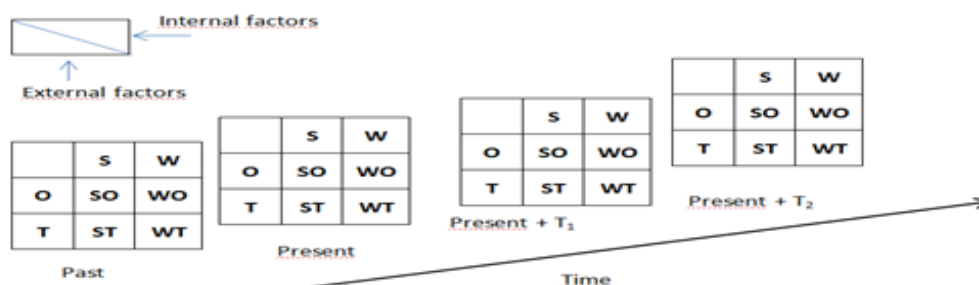


Fig. 1: Dynamics of a SWOT analysis

Source: Koontz [3]

If the assessment of a SWOT analysis is not standardized, an own approach is offered to analysts how to evaluate the information and pinpoint the direction of other strategic considerations. Often, however, as mentioned in the text above, a SWOT analysis ends with mere enumeration of influence factors, see Fig. 2.

Silné stránky		Slabé stránky	
<ol style="list-style-type: none"> Moravskoslezský kraj zůstává jedním z hospodářsky nejvýznamnějších regionů v České republice. Dobrá technická úroveň v některých oborech (kovovýroba, výroba papíru, celulózy, piva, klobouků, nářadí, farmaceutických výrobků, výroba automobilů a komponentů pro automobilový průmysl, výroba strojírenských celků a součástí, informační technologie apod.) a dlouhodobá tradice v dopravním a všeobecném strojírenství, výroba textilu a chemii. Připravené a připravované průmyslové zóny (současný stav – viz tabulka 5 v analýze). Existence přirozeného ekonomického a obchodního centra kraje v Ostravě s přílehlou průmyslovou aglomerací. Velké množství firem používajících v podnikání moderní informační a komunikační technologie. Existence podúonné podnikatelské infrastruktury, zejména pro malé a střední podnikatele. Region má dobré předpoklady pro rozvoj nových odvětví, zejména materiálového inženýrství, mikroelektroniky, informatiky a biotechnologií, založené na existenci připravené technické inteligence, vědecko-výzkumném a již i podnikatelském zájmu na několika pracovištích vysokých škol, výzkumných pracovištích a podniků. 		<ol style="list-style-type: none"> Nepříznivá struktura ekonomiky, daná historickým vývojem - silné soustředění průmyslové činnosti na obory procházející zásadní restrukturalizací a také velká územní koncentrace podniků těžebního, metalurgického, strojírenského a chemického průmyslu v regionu. Existence řady velkých podniků v obtížné finanční situaci vlivem nedokončené privatizace, vysoké zadluženosti, nereproduktivního majetku a špatného managementu. Zaostávání ve zvyšování technologické úrovně výrob (zavádění progresivních technologií), způsobující nízkou produktivitu práce, vysokou energetickou náročnost a vysoké režijní náklady u většiny podniků zpracovatelského průmyslu. Nedostatečná dopravní infrastruktura, která brání většímu přílivu průmyslových investic i dynamickému rozvoji některých podnikatelských aktivit. Nedostatečné propojení vysokých škol a výzkumu s podnikatelskou sférou. Nízká úroveň podnikatelského využití příležitosti v oblasti cestovního ruchu. Nedostatečná kapacita hraničních přechodů pro nákladní dopravu a nízký rozsah celních služeb (časový i věcný). Existence řady bariér pro dynamický rozvoj malého a středního podnikání na úrovni státu (obtížný přístup k finančním zdrojům, vysoké zatížení daňové a administrativní) i na úrovni kraje (nedostatek v odborné způsobilosti podnikatelů, ztížený přístup k financím pro malé a začínající firmy apod.). Nedostatečné množství programů a objemu finančních prostředků na úrovni kraje pro podporu rozvoje malých a středních podniků a pro využití stávající a rozvoj nové podnikatelské infrastruktury. Nekomplexnost služeb pro průmyslové investory. Nerovnoměrný ekonomický rozvoj na území kraje. 	
Příležitosti		Ohrožení	
<ol style="list-style-type: none"> Možnost využití restrukturalizace a privatizace průmyslu a finančních zdrojů alokovaných na podporu tohoto procesu k nastartování ekonomické revitalizace regionu a zhodnocení jeho konkurenceschopnosti. 		<ol style="list-style-type: none"> Ztráta tuzemských i zahraničních trhů v důsledku nízké konkurenceschopnosti podniků - snižující se exportní výkonnost kraje. 	

Fig. 2: Illustration of a SWOT analysis

Source: The development program of the Moravian-Silesian Region [8]

3 PROPOSALS OF SWOT ANALYSIS EVALUATION FOR STRATEGIC PLANS

The initial, if possible comprehensive identification of factors representing S (strengths), W (weaknesses), O (opportunities), T (threats) is insufficient to determine a strategic orientation. Therefore, we offer to expert discussion two relatively exact approaches for evaluating the intensity of their mutual relations and the intensity

of influence on the strategic orientation of an organization. We acknowledge the approaches are not very original, but their application in assessing a SWOT analysis is original.

The **first approach** is based on the evaluation of mutual relationships between strengths and weaknesses, opportunities and threats using the symbols +, - and 0, as follows:

- positive relationship +
- strong positive relationship ++
- negative relationship -
- strong negative relationship --
- no relationship 0

The evaluation itself is carried out in the following steps:

- 1) Depending on the intensity and direction of a relationship we assign the symbols (+, ++, +, 0, -, --) the interrelationships between strengths and weaknesses, opportunities and threats.
- 2) The symbols (+, ++, +, 0, -, --) will be substituted by numbers (2, 1, 0, -1, -2).
- 3) For the individual quadrants of the SWOT matrix, we set the strategic potential as a sum of values assigned to the relevant relationships.
- 4) The highest absolute value of the strategic potential defines the strategic orientation in the SWOT matrix.

The **second approach** is essentially based on the determination of weights for individual influence factors of the relational SWOT matrix. We proceed as follows:

- 1) The evaluation of the SWOT matrix factors with values in the interval of $\langle -10, 10 \rangle$. The evaluation is performed by an expert estimate. It results from the logic that weaknesses and threats are assigned a negative sign.
- 2) The entire SWOT matrix (strengths and weaknesses, opportunities and threats) is evaluated by the sum of the weights of items.
- 3) According to the evaluation numbers of the appropriate quadrants of the relational SWOT matrix the coordinates of the point which determines the resulting strategic quadrant, are defined. Zero of the coordinate system is located at the intersection of all four quadrants. In each semi-axis, the value of the relevant SWOT matrix area is highlighted. The larger absolute value of the pair of strengths and weaknesses, opportunities and threats determines the required coordinates of the point and the relevant strategic quadrant of the SWOT matrix.

For greater clarity, both approaches are applied to the SWOT analysis of the town of Vratimov.

4 SWOT ANALYSIS OF THE TOWN OF VRATIMOV

The town of Vratimov is a municipality located in the Moravian-Silesian Region, particularly in the northwest tip of the Frýdek-Místek District. It consists of two boroughs: Vratimov and Horní Datyně. Officially, it belongs to the Ostrava-City District and according to its cadastre it borders with the towns of Ostrava, Šenov and Paskov. Together with other 7 towns it belongs to the Silesian Gate Region and thus forms a gateway to the Beskydy Mountains Euroregion. [6] It performs tasks of separate competency to the extent provided by law and delegated competency in the District of Administration – Vratimov, Horní Datyně and Řepiště. [6]

According to the Czech Statistical Office there lived 6 850 inhabitants in Vratimov on 1st January 2010. Residents of the town of Vratimov mostly commute for work to conurbation of four large towns in surroundings – Ostrava, Frýdek Místek, Karviná and Havířov. The registered unemployment rate in Vratimov was 8,9 % on 31 December 2009. The total number of enterprises in Vratimov was 1,199 on 31 December 2010. [7]

Based on the examination of available information and results of own empirical investigation strengths and weaknesses, opportunities and threats of the town were identified, see Tab. 2.

Tab. 2: Overview of strengths and weaknesses, opportunities and threats of the town of Vratimov and weights of influence factors

STRENGTHS	WEAKNESSES
S1 – A favourable location of the town, public transport (10) S2 – Plenty of space for relaxation, recreation and sport (7) S3 – Very good conditions for cultural and social activities of citizens (7) S4 – A sufficient network of schools and school facilities (7) S5 – Cleanliness and plenty of green (8) S6 – A quality environment for living (8) S7 – Suitable areas for construction of new family houses (5) S8 – Supply and level of food shops (8)	W1 – Sewerage system not completed, in some parts of the town gas distribution (-7) W2 – A very poor condition of both local and state roads and pavements (-10) W3 – Problems with aberrant citizens of the town (-5) W4 – Lack of parking space (-6) W5 – Excessive traffic (-9) W6 – Industrial load, home heating with solid fuels – poor quality of air and environment (-10) W7 – Missing facilities for seniors, playgrounds and places for young people (-8)
average: 6; sum: 60	average: -7.86; sum: -55
OPPORTUNITIES	THREATS
O1 – New housing construction (6) O2 – Bring people to more active interest in the municipality development (9) O3 – Building up playgrounds (10) O4 - Strengthening missing services (competing pharmacy, grocery store in the outskirts of the town, confectionery, fast food, local TV, ...) (7) O5 - Improving care for seniors (retirement home, ...) (7) O6 - Building a new multi-purpose hall (10) O7 - Improvement draw-downs of grants from the EU (9) O8 - Development of small and medium businesses (5)	T1 – Traffic load (-10) T2 – Lack of finance (-8) T3 – Air pollution – local heating and large enterprises (-10) T4 - Increasing crime (-8) T5 - Failure to receive grant funding from the EU (-8) T6 - Industrial zone in the town centre, landfill, incineration of waste (-9)
average: 7.86; sum: 63	average: -8.83; sum: -53

Source: inherent processing

In order to perform the evaluation of the SWOT analysis, we applied the above two approaches. The results of the assessment of strengths and weaknesses, opportunities and threats by the application of the *first approach* are given in Annexes 1 to 3. Annex 1 shows the evaluation of the relational SWOT matrix factors using symbols. Annex 2 then illustrates their numerical representation. Annex 3 is derived from Annex 2 and shows the strategic potential of individual quadrants of the SWOT matrix.

The annexes, especially then Annex 3, show that the highest absolute value of strategic potential is 34, which corresponds to the strategic quadrant S – O. Therefore, the strengths and opportunities dominate in Vratimov. The second highest absolute value of 30 represents the strategic quadrant S – T that is followed by the

quadrant W – T (19) and the last quadrant is W – O (5). The management should, therefore, formulate a strategy based on the strengths of Vratimov, while leveraging opportunities that occur for the town.

The SWOT analysis can be evaluated using the *second approach we proposed* as well. Its application means that the influence factors of the SWOT analysis are assigned weights, see Tab. 2. Once weights are assigned to the factors, they are add, giving us the evaluation numbers of the relevant SWOT matrix quadrants, see Tab. 2. Subsequently, these numbers are plotted in a coordinate system, see Fig. 3. The last step is to find a point that defines the strategic target quadrant. The searched coordinates of the point are given by a higher absolute value of numbers on the horizontal and vertical axes, see Fig. 3.

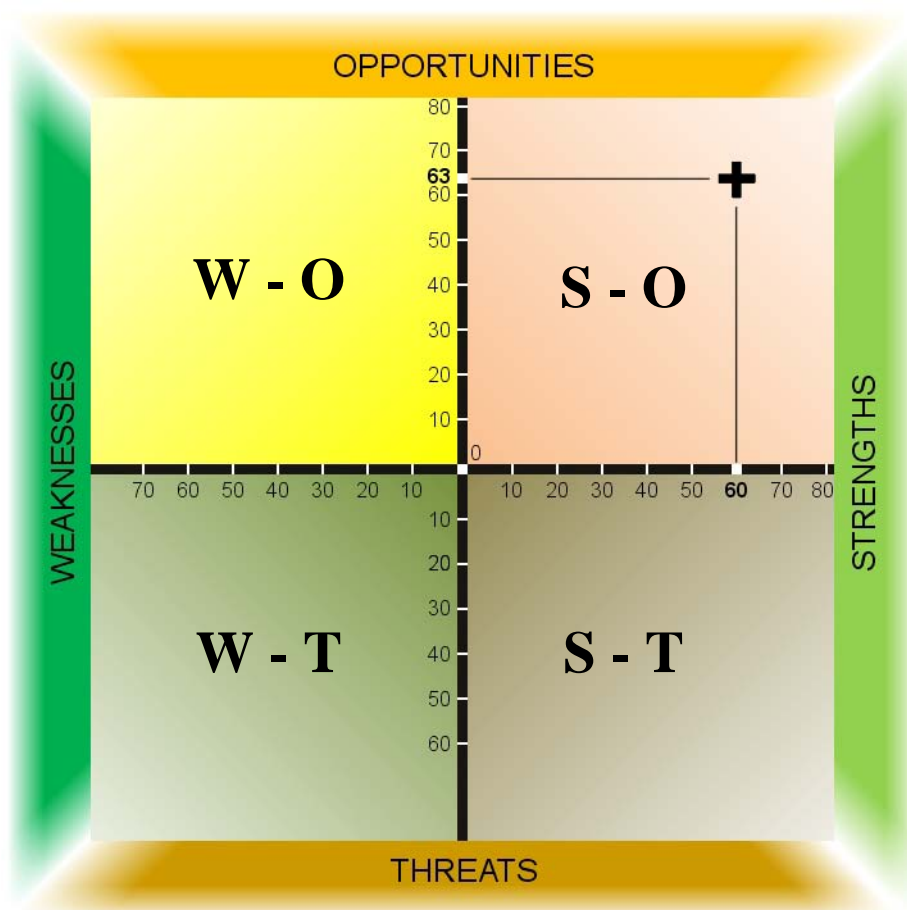


Fig. 3: Determining the strategic quadrant

Source: inherent processing

The figure shows that the target strategic quadrant is the quadrant S – O.

5 CONCLUSIONS

Both our proposed approaches for the SWOT analysis evaluation in case of the analysis of the town of Vratimov resulted in the target S – O strategic quadrant. To generalize this conclusion, the management of an organization can receive with this quadrant some guidance for the formulation of a specific strategy.

As indicated in Fig. 2, the analyst should not forget about the dynamics and thus the possibility of changes or development of the items under consideration in time. It can therefore be recommended to conduct the SWOT analysis in a time perspective to obtain more stereoscopic vision for strategic considerations.

The aim of this paper was not to carry out a SWOT analysis of the town of Vratimov, but to inform the professional public about our proposed procedures for its evaluation. We believe that the advantage of the proposed approaches is the efforts to extract exact information from SWOT analyses for identifying and verifying strategic concepts of organizations. We also believe that this-way-set conclusion of strategic analysis allows building a future strategy of a managed organization much harder to prevent frequent changes in strategic plans. It is understandable that so-called strategic gaps cannot be completely eliminated, but a clearer assessment of SWOT analysis can help to reduce their size and frequency.

Whether our proposed approaches for the evaluation of a SWOT analysis will fulfil their ambitions, it depends mainly on taking our suggestions into practice.

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RESUMÉ

Jednou z klíčových oblastí, které se věnuje vrcholový management podniku, instituce, municipality i neziskové organizace (dále jen organizace) je strategické řízení, které vyúsťuje ve formulování vlastní strategie. Manažerská teorie a zejména praxe zná a užívá řadu strategických analýz, které se zaměřují na identifikaci ovlivňujících faktorů vnějšího a vnitřního prostředí zájmové organizace a predikci jejich dalšího vývoje. Mezi nejznámější patří PEST analýza, Porterův model, analýza zdrojů, BSG model a SWOT analýza.

A právě SWOT analýze se věnuje i náš článek. SWOT analýza je široce používanou analýzou, se kterou se můžeme setkat nejen v podnikové praxi, ale i v oblasti municipalit. Odborná literatura však obvykle nepopisuje, jak vyhodnotit silné a slabé stránky, příležitosti a hrozby.

Samotná identifikace položek hodnocených oblastí je nesporně přínosná, avšak dle našeho názoru nedostatečná. Proto k odborné diskuzi nabízíme dva naše přístupy.

První přístup je založen na ohodnocení vzájemného vztahu silných a slabých stránek příležitostí a hrozeb pomocí symbolů +, - a 0. Druhý přístup je v podstatě založen na určení vah jednotlivým položkám SWOT. Pro větší názornost byly oba přístupy aplikovány na SWOT analýze města Vratimov.

Annex 1: Evaluation of the relational SWOT matrix factors using symbols

	<i>Opportunities</i>								<i>Threats</i>					
	<i>O1</i>	<i>O2</i>	<i>O3</i>	<i>O4</i>	<i>O5</i>	<i>O6</i>	<i>O7</i>	<i>O8</i>	<i>T1</i>	<i>T2</i>	<i>T3</i>	<i>T4</i>	<i>T5</i>	<i>T6</i>
<i>S1</i>	++	0	0	+	0	0	+	++	-	0	0	0	0	-
<i>S2</i>	0	+	++	0	0	++	++	0	-	-	--	0	-	-
<i>S3</i>	0	+	0	0	0	0	+	0	0	--	0	0	-	0
<i>S4</i>	0	0	0	0	0	0	+	0	0	-	0	0	-	0
<i>S5</i>	++	+	0	0	0	0	+	0	--	0	--	0	0	--
<i>S6</i>	++	+	0	0	0	0	+	0	--	0	--	-	0	--
<i>S7</i>	++	+	0	+	0	0	+	0	-	0	--	0	0	-
<i>S8</i>	+	0	0	++	0	0	0	++	0	0	0	0	0	0
<i>W1</i>	--	0	0	0	0	0	--	0	0	0	0	0	--	0
<i>W2</i>	0	0	0	0	0	0	0	0	--	-	0	0	0	0
<i>W3</i>	0	0	0	0	0	0	0	0	0	0	0	--	0	0
<i>W4</i>	-	0	0	0	0	0	0	0	-	0	0	0	0	0
<i>W5</i>	-	0	0	0	0	0	0	0	--	0	--	0	0	-
<i>W6</i>	-	0	0	0	0	0	0	0	-	0	--	0	0	--
<i>W7</i>	-	-	+	0	+	+	+	0	0	-	0	0	0	0

Annex 2: Numerical representation of the relational SWOT matrix factors

	<i>Opportunities</i>								<i>Threats</i>					
	<i>O1</i>	<i>O2</i>	<i>O3</i>	<i>O4</i>	<i>O5</i>	<i>O6</i>	<i>O7</i>	<i>O8</i>	<i>T1</i>	<i>T2</i>	<i>T3</i>	<i>T4</i>	<i>T5</i>	<i>T6</i>
<i>S1</i>	2	0	0	1	0	0	1	2	-1	0	0	0	0	-1
<i>S2</i>	0	1	2	0	0	2	2	0	-1	-1	-2	0	-1	-1
<i>S3</i>	0	1	0	0	0	0	1	0	0	-2	0	0	-1	0
<i>S4</i>	0	0	0	0	0	0	1	0	0	-1	0	0	-1	0
<i>S5</i>	2	1	0	0	0	0	1	0	-2	0	-2	0	0	-2
<i>S6</i>	2	1	0	0	0	0	1	0	-2	0	-2	-1	0	-2
<i>S7</i>	2	1	0	1	0	0	1	0	-1	0	-2	0	0	-1
<i>S8</i>	1	0	0	2	0	0	0	2	0	0	0	0	0	0
<i>W1</i>	-2	0	0	0	0	0	-2	0	0	0	0	0	-2	0
<i>W2</i>	0	0	0	0	0	0	0	0	-2	-1	0	0	0	0
<i>W3</i>	0	0	0	0	0	0	0	0	0	0	0	-2	0	0
<i>W4</i>	-1	0	0	0	0	0	0	0	-1	0	0	0	0	0
<i>W5</i>	-1	0	0	0	0	0	0	0	-2	0	-2	0	0	-1
<i>W6</i>	-1	0	0	0	0	0	0	0	-1	0	-2	0	0	-2
<i>W7</i>	-1	-1	1	0	1	1	1	0	0	-1	0	0	0	0

Annex 3: Strategic potential of the relational SWOT matrix quadrants

	<i>Opportunities</i>								<i>Threats</i>					
	<i>O1</i>	<i>O2</i>	<i>O3</i>	<i>O4</i>	<i>O5</i>	<i>O6</i>	<i>O7</i>	<i>O8</i>	<i>T1</i>	<i>T2</i>	<i>T3</i>	<i>T4</i>	<i>T5</i>	<i>T6</i>
<i>S1</i>	<i>34</i>								<i>-30</i>					
<i>S2</i>														
<i>S3</i>														
<i>S4</i>														
<i>S5</i>														
<i>S6</i>														
<i>S7</i>														
<i>S8</i>														
<i>W1</i>	<i>-5</i>								<i>-19</i>					
<i>W2</i>														
<i>W3</i>														
<i>W4</i>														
<i>W5</i>														
<i>W6</i>														
<i>W7</i>														