

## Strategy-making capability and performance of Slovak acute hospitals

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### Schopnosť uplatňovania stratégie a výkonnosť v nemocniciach akútnej starostlivosti na Slovensku

#### Abstract

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**Background:** Research of strategic management issues in the environment of Slovak Health Care System generally and in the environment of secondary health care providers partially is a relatively new approach of last decade. In continuity with research of western authors this pilot study approaches a specific area of strategic management that is strategy-making capability and its relationship to performance of hospitals.

**Aim:** Main goal of authors was to apply framework developed by Hart and test relationship of strategy making capability and performance in Slovak Acute Hospitals. Two hypotheses were developed for that purpose.

**Methods:** To conduct a test of both hypotheses a combination of three instruments was used. First was a set of 17 questionnaire items to tap the five strategy-making modes. Second was another set of 8 questionnaire items to tap the four perceived performance dimensions. Third was a current classification of Slovak acute hospitals and their levels. In summary data on twenty-five questionnaire – items were mailed to Chief Executive Officers (CEO) of 81 Slovakian acute hospitals within a larger survey co-ordinated by Ministry of Health.

Data were collected via a questionnaire survey of top managers from selected acute Slovak hospitals within December 1999 – February 2000. The sample was chosen from the list of acute care hospitals in the 1999 Report of the Slovak Institute for Health Care Information and Statistics.

**Results:** Being aware of certain limitations in such a construct results indicate that hospitals with higher level of strategy-making capabilities might outperform those with lower level of this capability. (Tab. 5, Ref. 21.)

**Key words:** capability, health, health care, hospital, strategic management, strategy.

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#### Abstrakt

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**Pozadie problému:** Výskum v oblasti strategického manažmentu v prostredí slovenského zdravotníctva a nemocníc je relatívne novým prístupom posledného desaťročia. V súlade s výskumom zahraničných autorov je táto pilotná štúdia zameraná na špecifickú oblasť strategického manažmentu, ktorou sú schopnosti (capability) organizácií tvoriť a realizovať stratégie a vzťah takýchto schopností k výkonnosti nemocníc.

**Ciel':** Hlavným cieľom autorov je aplikáciou modelu podľa Harta skúmať vzťah medzi schopnosťami tvoriť a realizovať stratégie a výkonnosť slovenských nemocníc. Testované sú dve hypotézy.

**Metódy:** Bola zvolená kombinácia troch nástrojov za účelom testu oboch hypotéz. Prvým nástrojom bol súbor 17 dotazníkových otázok zameraných na päť rôznych štýlov tvorby a realizácie stratégií. Druhým bol súbor 8 dotazníkových otázok zameraných na 4 dimenzie výkonnosti. Tretím je klasifikácia slovenských nemocníc podľa údajov ÚZIS roku 1999. Celkovo bolo v rámci širšej dotazníkovej akcie koordinovanej Ministerstvom zdravotníctva odoslaných 25 otázok do 81 nemocníc. Údaje boli zozbierané v období december 1999 až február 2000.

**Výsledky:** Napriek určitým limitáciám výsledky tejto pilotnej štúdie naznačujú, že nemocnice s komplexnejšou schopnosťou tvorby a realizácie stratégie môžu byť výkonnejšie ako nemocnice s menej komplexnou schopnosťou tvorby a realizácie stratégie. (Tab. 5, lit. 21.)

**Kľúčové slová:** schopnosť, zdravie, zdravotnícka starostlivosť, nemocnica, manažment stratégie, stratégia.

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All frameworks including Hart's model were developed for organisations operating within established economies. Little research has been performed on how this model operate within countries undergoing post communist transition. Moreover, minimum attention has been given to its implications on health care organisations. Hart's approach tends to offer a holistic view to strategic management issues, therefor it was chosen for pilot study on strategic decision-making processes within Slovak hospitals.

The five modes of strategy-making should be seen as a complex of interpersonal skills or better certain managerial competence that develops over time. Once developed and practised, different modes may be used simultaneously (Hart, 1992; Hart and Banbury, 1994; Šimo, 2000) contributing to strategy-making capability.

Why is this capability important? Since hospitals are likely to posses different combinations of strategic processes it may contribute theoretically to their future competitive advantage as a difficult to imitate capability. Furthermore, once developed it may be a contributing factor to present competitive advantage as suggested by Barney (1991) and other proponents of resource based theory of competitive advantage.

At this point it might be useful to read Box 1 at the second page of this article to fall deeper into to the philosophy of strategy-making capability as it has evolved within last decade.

Hospitals relying upon any single mode may suffer from limitations and biases while those with more complex routines implicit in the five modes should experience fewer blind spots and enhance performance.

Generally, the higher the competence within a given mode, and the greater the number of strategy-making modes, i.e. high capability within the hospital, the higher should be its performance. Thus, following hypothesis has been developed:

**Hypothesis 1: The more hospitals are able to develop skill in multiple strategy-making modes (high strategy-making process capability), the higher their performance (Fig. 1).**

Controlling influence of contingencies — Level of hospital

Researchers of 1980s (e.g. Friesen and Miller, 1983; Miller, 1989; Frederickson and Mitchell, 1984) had adopted a contingency approach to the strategy-making-process performance relationship studies. In 1990s for example Hart's works continued in this trend. This paper continues in contingency approach and develops a hypothesis to examine the moderating effect of two contingencies, namely the size and location. Level of the hospital was chosen as a proxy to both mentioned contingencies.

It was possible to assume that there should be a positive correlation between level of the hospital and the size. As some authors suggest the greater the number of employees, the deeper the distance between top managers and organisational members and the strategy-making process becomes less centralised and more complex. On the other hand, this argument includes the condition of additional levels of management that are created with firm's growth (Mullins, 1998; Johnson and Scholes, 1999).

Hence, as different researchers (Hall, 1993) suggest the increasing complexity imply the co-ordination problems and in certain phase the Command mode sufficient for smaller units may

not be enough for more complex ones. Thus, as units grow in size, there is increasing pressure to develop not only more formal, but also more symbolic or mission-based and participative or involvement-based approaches to management (Hart and Banbury, 1994). "Greater involvement of organisational members in strategic processes seems to alleviate co-ordination problems and more effectively focus members' activities and resources" (Hart and Banbury, op. cit.).

To summarise, in future hospitals or merged providers with higher scalar chain and/or greater span of control might be expected to evolve from reliance on one or two modes of strategy-making (low capability) to a multiple mode process (high capability). The following hypothesis emerges:

**Hypothesis 2: Level is a moderator of the process-performance relationship. Moreover, strategy-making process capability should be positively associated with performance in hospitals of level two and three but not in those of level one.**

## Methods

To conduct a test of Hypotheses 1 and 2 a combination of three instruments was used. Firstly, a set of 17 questionnaire items designed by Hart and Banbury (1994) to tap the five strategy-making modes as developed by Hart (1992) were translated and adopted to health care conditions. Then, another set of 8 questionnaire items designed by Hlavačka (2000) to tap the four perceived performance dimensions was added. Finally, the current classification of Slovak acute hospitals and their levels from public sources has been attached. In summary data on twenty-five questionnaire items were mailed to Chief Executive Officers (CEO) of 81 Slovakian acute hospitals within a larger survey co-ordinated by Ministry of Health.

The data were collected via a questionnaire survey of top managers from selected acute Slovak hospitals within December 1999 — February 2000. The sample was chosen from the list of acute care hospitals in the 1999 Report of the Slovak Institute for Health Care Information and Statistics (UZIS, 1999).

## Measures

In accordance with prior researchers method of Principal Component Analysis as extraction method was employed to insure both validity and reliability of designed study. It was assumed that the use of self-reported data might create common method variance problems, which could either inflate or press the magnitude of investigated relationships. The factor analysis revealed eight components with Eigenvalues of more than 1, explaining less than 69 per cent of total variance. Then, descriptive statistics of variables was examined revealing the large standard deviations as a result of wide range of responses. These arguments should provide satisfactory evidence to the absence of common method variance. Moreover, the correlation among theoretically unrelated variables were less significant ( $p < 0.05$ ) than correlation among related variables ( $p < 0.001$ ) or insignificant. Thus, the results of this study were not affected by common method variance.

## Strategy-making process measures

Strategy-making processes were investigated through seventeen items in the questionnaire. The items were projective in nature and asked the CEO to respond to each using a seven-point Li-

**Tab. 1. An integrative framework of strategy-making processes.**

Descriptors	Command	Symbolic	Rational	Transactive	Generative
Style	Imperial strategy driven by leader or small top team	Cultural strategy driven by mission and a vision of the future	Analytical strategy driven by formal structure and planning	Procedural strategy driven by internal process and mutual	Organic strategy driven by organisational actors' initiative
systems adjustment					
Role of top management	Commander provide direction	Coach motivate and inspire	Boss evaluate and control	Facilitator empower and enable	Sponsor endorse and sponsor
Role of organisational members	Soldier obey orders	Player respond to challenge	Subordinate follow the system	Participant learn and improve	Entrepreneur experiment and take risks

\*Adapted from Hart (1992)

**Tab. 2. Descriptive statistics of empirical constructs.**

Modes	Mean	S.D.	Alpha	Items	(n = 73)
Command	16.62	3.47	0.89	CEO sets the strategy CEO determines vision CEO makes & executes strategy Challenge our people 20 years corporate dream Personal example Written strategic plan Formal procedure Written mission statement Formal analysis Strategy is iterative Ongoing planning involving all People have input Market feedback People willing to risk Experiments encouraged Employees understand	
Symbolic	18.19	2.34	0.83		
Rational	18.08	5.42	0.87		
Transactive	21.26	4.40	0.90		
Generative	13.79	3.24	0.83		
Performance	Mean	S.D.	Alpha	Item	(n = 73)
Ability to retain patients	32.38	10.08	0.82	Importance Satisfaction	
Ability to control operational expenses	32.40	10.94	0.87	Importance Satisfaction	
Growth in overall revenues	16.60	10.66	0.70	Importance Satisfaction	
Return on services/facilities	21.45	11.39	0.78	Importance Satisfaction	
Contingencies proxy	Level 1 - local	Level 2 - district	Level 3 - regional	Item	(n = 73)
Label	n = 30	n = 32	n = 11	Frequency	

kert scale ranging from 1 (strongly disagree) through 7 (strongly agree). Table 2 contains a summary of the items and descriptive statistics for used mode factors. Also included is the standardised Alpha coefficient for each of the factors, which should indicate adequate reliability and internal consistency.

#### Perceived performance criteria

Four perceived performance criteria specifically relevant to hospitals have been used for this study:

Ability to retain patients (function of service quality, patient satisfaction, and employee behaviours)

Ability to control operational expenses (efficiency criterion)

Growth in overall revenue

Return on new services/facilities

Performance dimensions were measured using a translated and adjusted version of an instrument developed by Gupta and Govindarjan (1984) and modified by Kumar et al. (1997). The CEOs were first asked to indicate the importance that their orga-

**Tab. 3. Hospitals' Capabilities classification related to Hart's classification of strategy-making capability.**

Lower (n=16)	Lows (n=0)
	Singles (n=4)
	Doubles (n=12)
Middle (n=15)	Triples (n=15)
Higher (n=42)	Fours (n=17)
	Highs (n=25)

nisations attached to various dimensions of performance on a seven-point Likert scale, with 1 corresponding to "of little importance" through 7 to "extreme importance". Consequently, the respondents were asked to indicate on a similar scale with 1 for "highly dissatisfied" through 7 for "highly satisfied" to what extent were their hospitals currently satisfied with every measured dimension of performance. For each performance measure a weighted average was computed by multiplying the "satisfaction" score with the "importance" score.

#### Contingency measures

Three-level layers corresponding to current classification of Slovak acute hospitals has been used as a proxy to size and location of organisations. This contingency variable also served as control variable in the capability analyses. Following distribution has been identified within levels:

32 hospitals at level 1 — local, 35 hospitals at level 2 — district and 14 hospitals at level 3 — regional.

#### Data analyses

At the end of February 2000 up to 76 completed questionnaires were received, however, three of them were excluded due to partially missing data. Hence, 73 fully completed questionnaires (response rate 90,1 per cent) were considered as relevant for further processing. Tests for the non-response bias were considered unnecessary due to high response rate (Gupta and Govindarjan, 1984). The CEO subset minimised the possibility of confounded results due to mixed respondent data. Also by conducting the analysis within the homogenous sample of hospitals the results were not diluted or confounded by the inclusion of highly focused institutes. Since dominant part (n=78) of included hospitals was governmental with only three private hospitals, the ownership influence has not been analysed due to small sample of private hospitals. However, it should be noticed that all three private hospitals performed as higher capable with performance criteria in upper one third of all hospitals in the sample.

#### Capability

Table 3. The hospitals were categorised according to their level of strategy-making process capability using a deductive approach as recommended by other authors (Hambrick, 1984; Hart and Banbury, 1994). Organisations were divided into one of five groups on the basis of whether or not they exhibited competence in one (Singles, n = 4), two (Doubles, n = 12), three (Triples, n = 15), four (Fours, n = 17) or all five of the strategy-making modes (High Capability, n = 25). A hospital was defined as possessing

competence in a given mode if its value fell into the upper one-third of the total score for the mode in question.

It should be, however, noticed that strategy-making capabilities were also identified inductively using Quick Cluster Analysis. The five clusters emerged corresponding (in 92 per cent) with classification mentioned above. Whilst cluster analysis produces groups which should be statistically different from one another, but not necessarily clearly conceptually different, the deductive approach was chosen as the preferred method for testing the hypotheses posed in this study.

Three new variables representing capability have been introduced using deductive approach. The hospitals were reclassified as those operating at lower (Lower, n = 16), in the middle (Middle, n = 15) and higher (Higher, n = 42) capabilities.

In order to determine influence of strategy-making capability on performance (Hypothesis 1) the Multivariate analysis of variance (MANOVA) test was then executed using capability types as independent variables and the four performance factors as the dependent variables. The Label proxy representing level of hospital was included as covariate. Full Factorial Model was chosen.

Finally, between-group differences and their significance were computed using MANOVA test with Difference Contrast option. The methods were used also for Hart's capability groups with insignificant results. Unfortunately, the low number of cases and variables in this study contradicted the use of full range capability-based analyses mentioned by Hart and Banbury.

#### Contingencies: Level as a proxy

The sample of hospitals was divided into three groups according to their level as mentioned at second page of this article. Finally, there have been included 30 local, 32 district and 11 regional hospitals respectively. MANOVA tests were used to test Hypothesis 2. The four performance factors were treated as the dependent variables, the three capability types were used as covariates.

#### Results

Table 4 contains the Pearson Correlation among key indexes and constructs used in the study. The correlation matrix shows that the five modes are strongly interrelated, but each relates with a different set of performance dimensions at the 0.01 level. For example the Symbolic mode (Symbolic) is highly correlated with Ability to control operational expenses (Costs) and Return on new services (Newserv) but even moderately with both Ability to retain patients (Patients) and Growth in overall revenues (Revenues). Rational mode (Rational) is highly correlated with Ability to control operational expenses (Costs) and moderately with Ability to retain patients (Patients). Transactive mode shows strong association with Ability to control operational expenses and moderate with other performance criteria. Generative mode (Generati) was the only process highly correlated with Growth in overall revenues (Revenues) and moderately with Return on new services (Newserv).

Contingency variable (Label) did not show any significant relationship with both strategy-making process and perceived performance variables. This bivariate results have indicated that the level of the hospital should not play a dominant role within strate-

Tab. 4. Pearson correlation of empirical constructs.

	COMMAND	SYMBOLIC	RATIONAL	TRANSACT	GENERATI	LABEL	PATIENTS	COSTS	REVENUES	NEWSERV
COMMAND	-									
SYMBOLIC	0.382**	-								
RATIONAL	0.313**	0.427**	-							
TRANSACT	0.133	0.584**	0.457**	-						
GENERATI	0.107	0.456**	0.414**	0.649**	-					
LABEL	0.601	-0.112	-0.139	-0.116	-0.012	-				
PATIENTS	-0.012	0.271*	0.259*	0.246*	0.090	0.084	-			
COSTS	0.002	0.379**	0.398**	0.352**	0.194	-0.152	0.482**	-		
REVENUES	0.174	0.265*	0.216	0.269*	0.309**	-0.094	0.128	0.178	-	
NEWSERV	-0.029	0.306**	0.196	0.285*	0.275*	-0.090	0.155	0.399**	0.324**	-

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

gy-performance relationship. Nevertheless, the next paragraphs will be focused on capability and contingency analyses.

#### Capability

Results for Multivariate analysis of variance (MANOVA) tests were significant and in the predicted direction. Results of Higher capability group contrasted with results of Middle capability group displayed positive and statistically significant differences in all the performance dimensions. Furthermore, results of Middle capability group did not show any significant differences when compared with results of Lower capability group.

Therefore, Simple Contrast analysis was executed to compare results between both Higher and Lower capability groups and Middle and Lower capability groups. Also this analysis shown, however, less significant differences between results of Higher and Lower capability groups, but no significant differences between Middle and Lower capability group.

These findings correlate with Hart and Banbury's finding that "the capability-performance relationship does not appear to be linear since intermediate levels of capability did not exhibit any consistent pattern of relationship to performance." Overall, the results provide support for Hypothesis 1: The more hospitals are able to develop skill in multiple strategy-making modes (high strategy-making process capability), the higher their performance. However, this relationship should not be considered as exactly linear.

#### Contingency – Level as a proxy

Results of Multivariate analysis of variance (MANOVA) conducted on the different Label levels within this study do not show any significant relationship with any perceived performance construct. Moreover, bivariate correlation and univariate tests do not reveal any significant association. These results indicate that Hypothesis 2: Level is a moderator of the process-performance relationship. Moreover, strategy-making process capability should be positively associated with performance in hospitals of level two

and three but not in those of level one; should be refused within this study design.

It is possible to argue that the level is not a significant moderator of strategy-performance relationship in Slovakian acute hospitals and exactly insignificant between-level differences were found. The only one difference that has emerged at 0.1 level was in Ability to control operational expenses between groups of district and regional hospitals. This fact should be, however, treated with care since other contingencies might have influenced this result. For example, the hospitals in regional capitals can operate in more competitive environment than hospitals in district capitals. Furthermore, prior research has indicated that the size of the hospital can influence its access to capital (Swineheart and Zimmerer, 1995). On the other hand, it was also assumed that the size of the hospital could be a source of economies of scale (Hlavacka, 2000). Finally, with more rural environment the level of competition tends to decrease and it can be argued that the leading position within district could allow lower control of the operational expenses.

To summarise, the results of measures applied in this study do not support arguments postulated by Hypothesis 2. Table 5 shows homogenous distribution of three capability subtypes on three levels of Slovak acute hospitals.

#### Discussion

It is necessary to note some important limitations of the study prior discussing the results and drawing conclusions. First, the single respondent design calls for cautious interpretation of results gathered in this study. Clearly, additional research will be necessary to perform on a multiple respondents both from top management and organisational members. Some authors suggest that the degree of organisational consensus about strategy-making processes is an important extension of research like this. Hence, the measures for organisational members must be developed in order to capture the strategy-making process also from their point of view.

**Tab. 5. Distribution of three capability subtypes on three levels of Slovak acute hospitals.**

(n=73)	Lower capability (n=16)	Middle capability (n=15)	Higher capability (n=42)
Local level (n=30)	8	5	17
District level (n=32)	6	8	18
Regional level (n=11)	2	2	7

Second, the absence of objective performance data in unexplored samples like that of Slovak acute hospitals postulate question, whether publicised correlation coefficients are transferable to different environmental settings. It is evident that only further research designed to exploring the relationship between perceived and objective performance dimensions can give relevant answer.

Finally, in contrast with prior research on large samples of western firm, the dimensions of perceived environment were not included to data analyses. However, there was an attempt to use translated and to conditions of Slovak environment adopted questionnaire developed by Tan and Litschert (1994) for electronic industry in transition economy of China. Following preliminary tests it was assumed that the perceived environment in the sample of this study appears to show insignificant differences among individual hospitals. Generally, the environment could be defined as hostile and unstable. Moreover, the sample of Slovak acute hospital was smaller and much more homogenous than those studied by prior researchers. Hence, the environment has not been analysed in detail in this study. Nevertheless, it should be investigated using more appropriate measures.

Hart and Banbury (1994) assumed that the deductive approach to classifying organisations provided a direct test of capability hypothesis. It, however, does not discriminate among specific combinations of strategy-making process modes. Thus, the lack of results for the intermediate capability levels may mean that in aggregating hospitals with double and triple mode skills, both functional and dysfunctional combination are combined. This may result in confounding of the results.

Again, further research on strategy-making modes and development in statistical analyses should be aimed to identify specific combination of modes in order to overcome this limitation.

## Conclusions

### Conclusion 1

Even when accepting limitations, the results reported in this study introduce deeper insight to strategy-performance relationship among Slovak acute hospitals. The data shown, that more than fifty per cent of Slovakian acute hospitals pursue higher capabilities in strategy-making processes. This fact can be explained by increasing environmental pressure to restructuring and downsizing within the hospital industry (Mick and Wise, 1997)

and partly by specific nature of health services (Griffith, 1997). As a response to environmental pressures within the time the hospitals struggle to survive and they may develop higher forms of strategy making processes capability.

Despite the fact that the criteria for assigning skill in any given mode are tighter in this research design than those for firms in Hart and Banbury's (1994) study, 25 acute hospitals shown high capability and another 17 have combination of four modes. These hospitals are simultaneously directive and participative, controlling and empowering, visionary and detailed oriented. Thus, their strategy-making processes do appear to constitute a resource that offers the potential for competitive advantage.

Therefore, as expected, results indicate the higher capability in strategy-making processes is a significant predictor of hospital performance. Hospitals able to accumulate several modes of strategy-making process capability appear to outperform less-process capable organisations on virtually every dimension researched in this study. It is possible, however, that also other strategy-related factors are associated with performance. For example competitive strategy and industry structure (Porter, 1980) or accounting practices and control systems (Hart and Banbury, 1994).

### Conclusion 2

The second conclusion emerges as a consequence of previous paragraph. It is that capability counts. The more hospitals in the study were able to develop competence in multiple modes of strategy making-processes, the higher their performance. This conclusion, however, needs some comments.

Findings of other researchers in business and service industries raise the questions about the use of accounting measures of profitability (ROI, ROA) as the main dependent variables in strategic process research. For example Mick and Wise (1996) used profitability and liquidity as two dimensions of financial performance in his study on 797 US rural hospitals. He used annual total margins, calculated as the difference between total operating and non-operating revenue and total operating and non-operating expenses divided by total operating and non-operating revenue. Additionally, he used the percent change in total margin over two year periods. The liquidity was measured as annual hospital's current ratio, and also percent change in current ratio between two fiscal period.

Furthermore, Hart and Banbury (1994) recommend for future research in this area dependent constructs relating to new product development, innovation, and social responsiveness along with more traditional constructs of profitability and sales growth. This advice has been partly fulfilled by design of the study relating Hart's strategy-making typology in Slovak acute hospitals to selected performance criteria. However, the cross-sectional nature of this study did not allow studying long term effects in different performance constructs. Hence a longitudinal design would also help to reveal the strategy-making processes and dimensions of perceived hospital performance. The possibility that performance itself is a contingency that has moderating effect on strategy-making process can not be excluded.

### Conclusion 3

The level as a proxy of contingency factors does not appear to be an influential predictor of performance. Many authors on

health care management studies developed more sophisticated measures to control contingencies. They are related to environment-market (Munificence, Complexity, Dynamism), census division, and hospital itself (i.e. Natural log operating beds, Case mix index, Number of head administrators, and many others). However, one of aims of this study has been to examine whether data collection instruments and constructs developed by western writers are applicable to capture strategy-making items in Slovak under transition. The above described measures might be adopted and translated in order to conduct further research in the field of strategy making processes and even in strategy issues generally.

No doubt that regulatory and economic changes in these dominantly governmental organisations restrict the range of possible actions and strategic directions. Furthermore, as Griffith (1997) suggests, the community hospital, with its independent physicians, cost-based reimbursement, and voluntary board is dead in developed health care systems and since 1999 also the changed system conditions in Slovakia will tend to re-arrangement of individual hospitals or even their groups. New millennium will bring dramatic changes to classical hospitals and increasing lack of resources yields for system solutions.

Nevertheless, it should be a long journey, since like in other countries, this fact remains hidden in transformational chaos. In accordance with resource-based theory proponents, those hospitals that have embedded higher strategy-making capabilities may be winners of the future. There appear to be few, if any costs to accumulating capabilities in strategy-making process.

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