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Short Communication

A Dynamic Model for Promotion of Iranian Pharmaceutical and Biological Enterprises

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ABSTRACT

The purpose of this paper is to make explicit how companies in pharmaceutical sector can ensure their position in different markets by relying on a sustainable competitive advantages resulted from using a good defined marketing model. Various factors are highlighted including high research and development roles and costs, hard government regulation in frame of GMP standard, market analysis tools and framework and pharmaceutical marketing specific functions. The marketing model outlined in this paper was developed from both secondary and primary sources. To this end, a literature review, along with a number of personal interviews and a focus group session were conducted. These information sources were then completed by a field survey by selecting the research population which involved managers within pharmaceutical companies in Iran. The research strategy undertook was descriptive. The resulted marketing model can be used to interpret complex relationships that are evident in a marketing system .This model can also be used by marketing practitioners to enhance communication between corporate level staff and other lower levels staff and to implement and/or facilitate the strategic marketing concept within a pharmaceutical company. Besides, the model can be used to focus attention on risk reduction /elimination associated with market entry. In fact, the main advantage of this model is to study a market for introducing a new product and/or to enter into new markets for existing products.

Keywords: pharmaceutical industry, innovation, marketing models, market analysis tools, pharmaceutical marketing functions, GMP

INTRODUCTION

The pressure to develop new markets and products has increased (Cooper & Klein Schmidt 1987), and this has resulted in senior management thinking in terms of continuous(re) alignment, whereby there is a focus on internal and external factors (Fisscher & de Weerd-Nederhof 2001). Yeoh (1994) has noted that companies in the global pharmaceutical industry need to develop a sustainable competitive advantage through a reorientation of the new fields of market development strategy, which results in explaining marketing phenomena, but marketers working for pharmaceutical companies need to develop more focused marketing models that allow them to

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understand, interpret and predict events and issues relating to market performance. It can be argued that more research is required in order to establish how a marketing model can be developed. Emphasis needs to be placed on predicting product performance via a relevant marketing intelligence process. Hence, marketers working in the pharmaceutical industry need concepts, models and decision-making frameworks that allow them to implement effective marketing functions. The marketing model for pharmaceutical companies that has been proposed in this paper will help marketing managers to formulate appropriate marketing decisions, as it raises many issues relating to the decision-making process and how decisions can be formulated and implemented. The key point is that marketers can eliminate risk or reduce specific types of risk associated with a successful pharmaceutical market influence and/or to introduce new products, and then develop a foundation on which to build a brand positioning strategy or strategies that result in successful positioning within the industry. The model outlined in this paper was constructed using both secondary and primary data. Having undertaken a literature review, a number of personal interviews, focus group and finally the conceptual model was validated among some Iranian pharmaceutical companies as this research statistical population which involved managers within this sector. The used descriptive approach proved beneficial as it allowed the model to be tested and validated by managers who were active in this field. It is hoped that the findings will stimulate further research in the area by taking into account the complexities relating to various sectors mentioned by high rate public and private sectors authorized people.

MATERIALS AND METHODS

Seven major steps were used to construct and validate the marketing model of Iranian pharmaceutical companies:

Literature search. Identification of the sources (secondary data) used.

Literature survey. Utilization of the reference source and the extraction of the desired information.

Model construction. Construction of the model applicable to pharmaceutical companies (conceptual model)

Validation of the research marketing conceptual model. A focus group consisting of nine managers from the research population was formed to discuss the validity of the model. The focus group members were asked to comment and criticize the model after a presentation of the model by researcher. The discussion centered on the practicalities and implications of the marketing model of research.

Refinment of the marketing model. Modification of the model after the focus group discussion and recommendation.

Primary data collection. Descriptive study research encompassed personal interviews with some managers in pharmaceutical industry but the main information was collected by a questionnaire according to the model variables. As figure 2 shows the model has four variables as follows. The first three of them are the independent variables and the fourth is the dependent variable.

-Pharmaceutical products marketing functions.
-Innovation in pharmaceutical industry for marketing purposes.
-Framework for pharmaceutical market analysis.
-harmaceutical industry marketing performance.

As shown in figure2, the first variable itself has six main factors that measures it, the second has two and the third variable has four factors for the same function as the first. The research questionnaire which was used as the main tool for data collection from the population was formed by the mentioned factors. As explained before, the model should be validated by research population and the gathered information from selected sample and then by statistical techniques the resulted information

collected from the sample should be generalized to the related population as shown in figure 1. So for this purpose researcher has defined eleven research hypotheses that they measure the model validity and the variables relation. Statistical techniques for testing the mentioned hypotheses are as below:

-Run test-k-s test Chi-Square distribution (homogeneity test)

-T test -Friedman test -regression test

The *personal interview* method can be used to obtain data to answer a specific question(s), and to probe where necessary, thus achieving a better insight into the subject matter (Patton 1980, Trim 1998). The researcher selected the unstructured, interview method, in order that the respondents could express their opinions in a spontaneous manner (Cohen & Manion 1995). Managers were encouraged to express their views on the usefulness of the some dimensions of the model. *Focus group method* represents a form of group interview and usually involves a limited number of people (four to twelve) where the members of the group will discuss a specific topic under the guidance of a researcher (Hakim 1987). The focus group method is known to be a vehicle for providing unique perspectives on a research topic (Denzin & Lincoln 1994) and (Blumer 1969) has indicated that the focus group method can be used to provide valuable insights into various subject-matters. Although the focus group method can be classified inexpensive and flexible, it has been noted that an emerging group culture may emerge that interferes with an individual's views and opinions, and as a result "group-think" emerges (Denzin & Lincoln 1994). Being aware of issues such as hierarchy, the researcher asked the group members to express his/her views on the model, starting with the junior managers and ending with the senior managers. This approach allowed the junior managers to think through the subject matter and to express their views before the views of the senior managers were expressed. This was useful as it reinforced the concept of transparency.

Table 1. Statistical test results for pharmaceutical market environment

	Test Value= 3.6					
	T	df	Sig.(2-tailed)	Mean Difference	%95 confidence interval of the difference	
					Lower	Upper
FBDM	3.950	18	.001	.18474	.0865	.2830
MBS	3.958	5	.010	.30833	.1094	.5072
MSD	3.223	6	.018	.29929	.0721	.5265
MMB	5.929	5	.002	.25167	.1426	.3608

FBDM: pharmaceutical market environment
MBS: Healthcare system indices
MSD:Pharmaceutical industry indices
MMB:pharmaceutical marketing environment indices

Table 2. Statistical results for pharmaceutical marketing strategy designing.

	Test Value=3.6					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval Of the Difference	
					Lower	Upper
SBDT	7.498	38	.000	.26203	.2318	.2924
MRT	5.379	4	.006	.22500	.1089	.3411
TBD	6.694	4	.003	27500	.1609	.3891
MBB	7.449	6	.000	.24286	.1631	.3226
MSD	12.274	3	.001	.25000	.1850	.3150
JHP	8.918	4	.001	.26000	.1791	.3409
MTM	3.570	4	.023	.27600	.0614	.4906
TMD	5.310	3	.013	.29375	.1177	.4698
TJB	7.031	3	.006	.29280	.1603	.4253

SBDT: pharmaceutical marketing strategy designing
MRT: Market strategy nature
TBD: Pharmaceutical marketing researches
MBB: Market segmentation indices
MSD: Pharmaceutical industry state
JHP: Pharmaceutical products positioning, targeting and promotion
MTM: Pharmaceutical products development indices
TMD: Pharmaceutical products PLC& Portfolio
TJB: Pharmaceutical industry attractiveness analysis

RESULTS AND DISCUSSION

The research marketing model presented takes into account the factors which are necessary for successful marketing in pharmaceutical companies in Iran. The model forming variables were validated among pharmaceutical companies as research population and the researcher found the following results:

The identification ways of pharmaceutical market environment. As researcher stated to

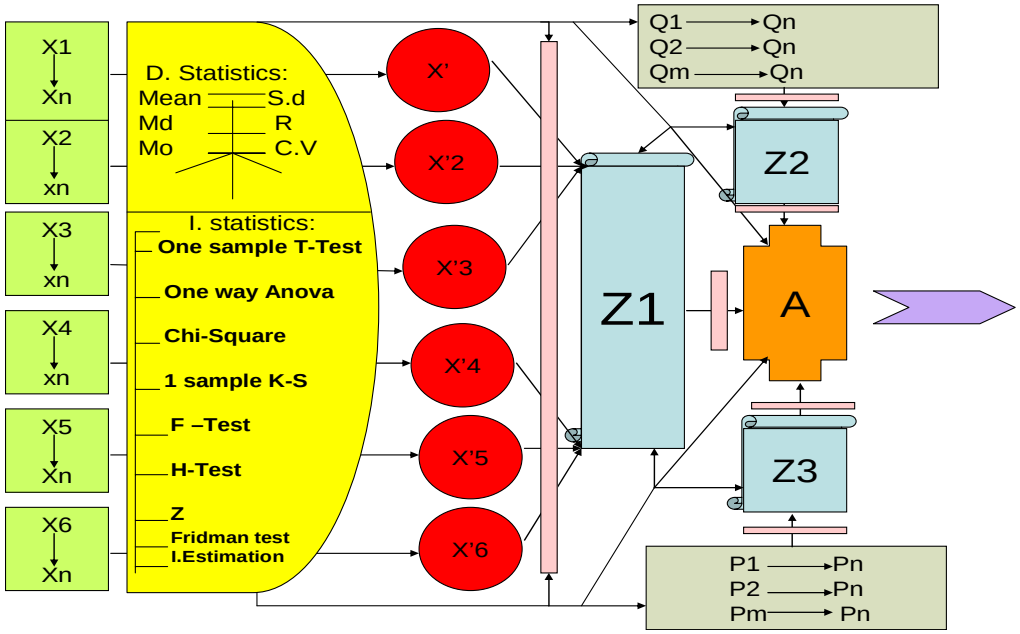

Figure 1.The Model of Statistical Methods

enter any market, specific factors must be measured to understand if that market is suitable for a company to introduce its products. These measuring factors for pharmaceutical products are defined in figure 2. They were tested among pharmaceutical companies in Iran and the outcome results are shown in Table 1. As presented in table 1, the values of T and significant area research population validate this part of model.

Table 3. Statistical test results for Pharmaceutical products distribution strategy.

	Test Value= 3.6					
	T	df	Sig. (2-tailed)	Mean Difference	%95 confidence interval of the difference	
					Lower	Upper
STMD	7.105	12	.000	.62932	.4363	.8223
KKT	7.041	5	.001	.72917	.4629	.9954
MZA	3.962	6	.007	.54374	.2080	.8795

STMD: Pharmaceutical products distribution strategy
KKT: Pharmaceutical products distribution channels functions
MZA: Pharmaceutical products supply chain indices

The identification of pharmaceutical marketing strategy designing. By collected information from the research population, this item of the model was tested by statistic tools and the results are shown in table 2. As tabke 2 shows, significant area is smaller than 5%, so the factors are validated by the research population.

The identification of Pharmaceutical products distribution strategy. This item of the model like the other one was tested among the research population by statistical tools. Outcome results are exhibited in table 3. All factors were validated by them because of high value of T-test and significant areas.

Table4. Statistical results for communication and promotion techniques.

	Test Value= 3.6					
	T	df	Sig. (2-ailed)	Mean Difference	%95 confidence interval of the difference	
					Lower	Upper
PCP	13.499	14	.000	.40667	.3421	.4713
AGM	8.593	5	.000	.40000	.2803	.5197
EGM	9.861	8	.000	.41111	.3150	.5072

PCP: Pharmaceutical products pricing strategy
AGM: Pharmaceutical products pricing indices
EGM: Pharmaceutical products pricing factors

Identification of Pharmaceutical products pricing strategy. This item of the model was tested by statistical tools and results are presented in table 4. Due to value of the

significant areas, this part of the model was confirmed by the population.

Identification of communication and promotion techniques in pharmaceutical industry. These techniques are for promotion of pharmaceutical products in different markets.

Table5. Statistical results of communication and promotion techniques.

	Test Value=3.6					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval Of the Difference	
					Lower	Upper
TCPD	17.292	29	.000	.53917	.4754	.6029
AEH	7.957	5	.001	.55417	.3751	.7332
FTB	5.669	4	.005	.62000	.3163	.9237
MTB	7.465	7	.000	.54688	.3736	.7201
KSF	10.392	4	.000	.45000	.3298	.5702
BSF	13.191	5	.000	.52083	.4193	.6223

TCPD: communication and promotion techniques in pharmaceutical industry
AEH: Integrated communication factors
FTB: Interaction process in pharmaceutical market
MTB: Advertisement mix in pharmaceutical market
KSF: Sale styles of pharmaceutical products
BSF: Pharmaceutical products Web marketing

Therefore to check the validity, they were tested among research population and outcome results are shown in table 5. Due to value of the significant areas, this part of the model was confirmed by the population.

Table6. Statistical results of forecasting, planning and evaluating process.

	Test Value=3.6					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval Of the Difference	
					Lower	Upper
FPEP	16.645	27	.000	.43571	.3820	.4894
FPP	5.347	7	.001	.30000	.1673	.4327
PPP	14.977	8	.000	.45000	.3807	.5193
EPP	26.042	10	.000	.52273	.4780	.5675

FPEP: forecasting, planning and evaluating process of pharmaceutical marketing
FPP: pharmaceutical marketing forecasting indices
PPP: pharmaceutical marketing planning indices
EPP: pharmaceutical marketing evaluating indices

Identification of forecasting, planning and evaluating process of pharmaceutical marketing. Pharmaceutical industry is more sensitive to external environment changes, so the most companies in this industry have various scenarios to face with changes. So researcher has defined concerning indices for this item of the model, then tested them by the population ideas that outcome results are presented in Table 6. If you compare calculated T in the table to standard $T_{5\%,df}$ and significant area to α=%5, all factors are validated by the population.

Table 7. Statistical results for marketing –oriented innovation factors in Pharmaceutical industry.

	Test Value= 3.6					
	T	df	Sig.(2-tailed)	Mean Difference	%95 confidence interval of the difference	
					Lower	Upper
MOIN	6.695	14	.000	.48333	.3258	.6382
INF	5.679	7	.001	.51875	.3028	.7347
EXF	7.208	6	.000	.58571	.3869	.7845

MOIN: Marketing–oriented innovation factors in pharmaceutical industry
INF: Internal innovation factors in pharmaceutical industry
EXF: External innovation factors in pharmaceutical industry

Identification of marketing–oriented innovation factors in pharmaceutical industry. Marketing –oriented innovation factors were perceived as the most valuable variable in the research model and viewed as an acceptable element that could be used to guide senior managers in this industry to optimize their marketing efforts.

Table 8. Statistical results for SWOT as analysis too for Pharmaceutical market.

	Test Value=3.6					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval Of the Difference	
					Lower	Upper
SWOT	19.542	35	.000	.54375	.4873	.6002
NS	13.373	9	.000	.57000	.4736	.6664
NW	4.804	7	.002	.46563	.2364	.6948
OM	12.628	7	.000	.58438	.4749	.6938
TM	16.693	9	.000	.54750	.4733	.6217

SWOT: Tool for Pharmaceutical market environment analysis (*S*trongness, *W*eakness, *O*pportunities , *T*hreats)
NS: Internal strong points
NW: Internal weakness points
OM: External opportunities
TM: External threats

So after determining the concerning factors, they were judged by the research population and tested by statistical tools for generalization

purpose. Results are presented in Table 7. This part of the model was validated by pharmaceutical companies as this research population and this point derived from smaller significant area to α=%5.

Table 9.1. Statistical results for Market analysis tool

Model	R	R Square	Adjusted R Square	S. Diviation
1	.389	.151	.126	.39857

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Market analysis tool	.311	1.674	.389	.181	.854
	.992	.404		2.459	0.019

Table 9.2. Statistical results for Pharmaceutical marketing functions

Model	R	R Square	S. Diviation
1	.329	.085	.29716

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Pharmaceutical Marketing Functions	2.946	.656	.329	4.488	.000
	.361	.168		2.149	.038

Table 9.3. Statistical results for Marketing –oriented innovation

Model	R	R Square	Adjusted R Square	S. Diviation
1	.743	.552	.518	22.78

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Market analysis tool	1.020	.864	.743	1.181	.259
	.845	.211		4.002	.002

The identification of a tool for Pharmaceutical market environment analysis. As explained, the simplified Aaker (1995) framework was described as comprehensive tool to analyze pharmaceutical market environment, so for this purpose, the recommended tool SWOT was selected as applicable tool for analyzing in base of indices were defined. Then the defined indices tested among research population that the resulted information are in table 8. As comparing significant area to α=%5, all factors were confirmed by pharmaceutical companies in Iran. The relationship among independent variables and dependent variable in the research model.

As stated there are three independent variables (Z_1, Z_2, Z_3) and a dependent variable (A) as shown figure 2 and their functional relation is as below: $A=F(Z_1, Z_2, Z_3)$

In other words, the model indicates the importance of the each variable in pharmaceutical marketing performance and we prove their direct and positive relation by using statistical technique "regression", resulted information is presented in tables 9-1, 9-2 , 9-3. According to the value of R, B, and significant area, all claims were confirmed. Finally, all validated parts of the model in frame of different factors has presented in figure 2.

Conclusion. The methodological approach adopted allowed a practical and applicable marketing model to be created which enables marketing managers in pharmaceutical companies to identify methods of marketing. As the research hypothesis showed, all dimensions of the model (Figure 2) were confirmed by Iranian pharmaceutical company's expert managers, so deep attention to *pharmaceutical marketing main functions, marketing –oriented innovation and market analysis* cause the establishment of a strong position in markets. The model can also help marketing managers to incorporate the pharmaceutical industry facts and to identify strategic and tactical decisions to be taken on

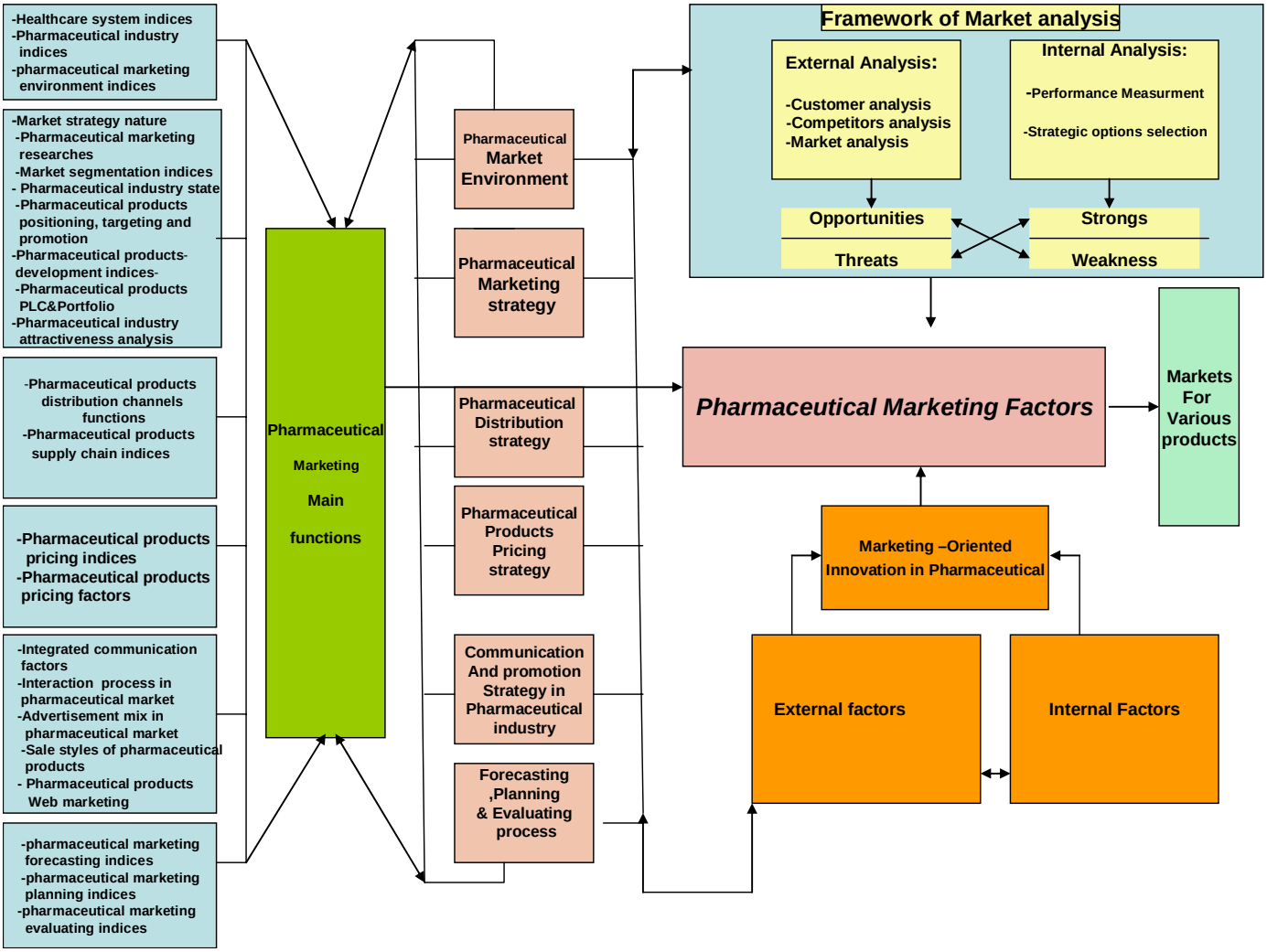

Figure 2. Pharmaceutical Marketing Model for Iranian Companies

marketing issues. The issued marketing model can facilitate buyer-supplier relations as it provides a mechanism for enhanced marketing communications. The presented model can also be used to evaluate marketing situations. Another important aspect of the model is innovation that lets marketing managers keep it as an advantage in their competition program. The final point about this model is the analysis tool which derives from Aaker' (1995) simplified framework "SWOT" for pharmaceutical market environment. Fortunately, the results obtained from the research statistical operations are in correspondence with the focus group members' ideas and the theoretical concepts.

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