

SWOT Analyzes of an Egyptian Voluntary Maritime Search and Rescue System

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Abstract: The effective search and rescue service needs extraordinary readiness and co-operation between all available resources including volunteer's efforts. Therefore, one may find some countries' coasts apply the service while the coasts of other countries do not have such a service. The degree of significance in this vital aspect of the maritime transport industry among those countries-varies. The efforts of volunteers should be collected in a formal organization that incorporates volunteers into its programs. It helps build organizational strength and that strength comes from growing and retaining members and enhancing organization programs. Organizational structure helps in putting the right volunteer on the right job which can be done by selecting people according to their qualifications, skills, and experience. The context of the components of the volunteer maritime search and rescue system helps the organization address its weaknesses and strengthen its strengths, to capture the largest number of possible opportunities, avoiding threats, and improving its performance to ensure its survival and continuity.

Key words: Search and rescue, volunteers, weaknesses, opportunities, threats, SWOT analysis.

1. Introduction

The success of the organization and its ability to achieve its objectives, maximize its resources, and achieve the interests of the various parties has become linked to several criteria, the most important of which is its ability to adapt to its external environment. Any organization operating in a particular environment is subject to many constant variables. These variables may provide the organization with certain opportunities that can be exploited, threats to be avoided, as well as weaknesses that need to be addressed, and strengths that can be exploited. That's what's known as analysis (strength/weakness/opportunities/threats). The researcher relied on the analysis, on the following data collection tools, interviews, brainstorming sessions, objective observations, and interpretation.

Internal environmental factors (strengths and weakness points) are that can control, influence, and

change. External environmental factors (opportunities and threats) are that influence or otherwise affect. It means these general and private considerations including the general political ones, Economic, social, natural, technological, cultural. These variables are difficult for the organization to control and influence because of their comprehensiveness. The special factors are those close and associated factors as volunteers and resources.

Opportunities are described as a group of external factors and situations that help the organization to achieve its mission and reach its desired goals. The threats mean potential problems, disturbances, or damage, and have negative effects on the organization and its competitive position [1].

After identifying strengths, weaknesses, opportunities, and threats, the next stage begins with strategic semantics, by preparing the internal strategy matrix and the external strategic factors matrix. To prepare these two matrices, the following steps are followed.

- 1) Identify areas of strength, weakness, opportunity, and threats Depending on the

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- average values of the Strategic factors involved in the matrix.
- 2) Determining the relative weight of each strategic factor of the internal and external environment
 - 3) Order internal and external strategic factors.
 - 4) Calculate the weighted weights of each strategic factor expressed by the relative weight factor of each factor in its order.
 - 5) Collect weighted points for both internal and external factors to reach the overall performance of the organization.
 - 6) Completing the current situation analysis of the internal and external environment and preparation of Internal and external factors.
 - 7) Alternative Strategy Matrix Proposal as shown in Fig. 1.
 - Strategies to strengthen strengths and take advantage of external opportunities (S-O).
 - Strategies to strengthen strengths and avoid external threats (S-T).
 - Strategies to overcome weakness and take advantage of external opportunities (W-O).
 - Strategies to overcome weakness and avoid external threats (W-T).

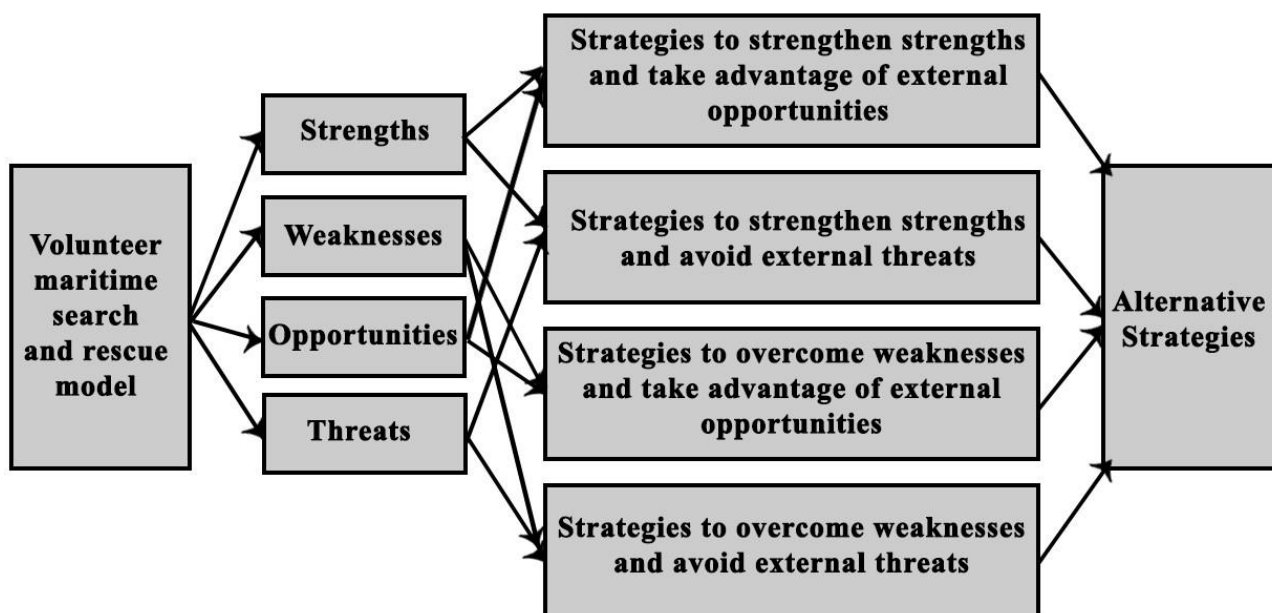


Fig. 1 Alternative strategy matrix.

2. Identifying SWOT elements

2.1 Internal Environmental and External Environmental Factors

Interview questioned is designed as a tool of study and applied to several experts. The elements of the interview composed of 11 strengths points, 11 weaknesses, 4 opportunities and 7 threats as shown in Table 1.

3. Results of SWOT Elements

First: internal environment Elements (strength and weakness Elements): the study results showed the following.

3.1 Strength Elements

With the calculation of average values extracted from the study sample responses on strength elements by calculating the average extent of impact and the average extent of presence, as well as the relative average weight, as shown in Table 2.

Table 1 Internal and external environmental factors.

Strengths	Weaknesses
1. The geographical coverage of volunteers in different specializations all over Egypt search and rescue region ESRR Improves the capabilities of maritime search and rescue service.	1. Absences of the laws and regulations governing volunteer work in maritime search and rescue to determine the tasks performed by the system, equipment used, and the permitted areas.
2. Positioned of volunteers' boats in different ports on both the Mediterranean and red sea coasts provide distinguished volunteer service for maritime search and rescue service.	2. Absences of agreements and memorandums of understanding to support the voluntary maritime search and rescue Organization physically, technically, and practically, from those with a relationship with the maritime community.
3. The application of the voluntary maritime search and rescue organization leads to sustainable development through the participation of civil society with maritime search and rescue	3. The scarceness of decision-makers to the idea of volunteering, by taking procedures that encourage spread of volunteerism idea, which helps of easily finding volunteers.
4. The voluntary maritime search and rescue organization improves rapid response in maritime search and rescue emergencies.	4. Delayed of responsible authorities to extract volunteers' permissions to participate in the emergency area, slowing the required response for search and rescue operations.
5. The voluntary maritime search and rescue organization helps in maximizing the resources available for the success of maritime search and rescue missions.	5. Lack of availability of the basic requirements, physical security, and self-stability of the volunteer leads to the feeling of non-security and safety from the surrounding community.
6. The voluntary maritime search and rescue organization supports the national economy by saving the general budget of the country.	6. Absences of comprehensive, detailed databases and periodically update information related to volunteers participating in the voluntary search and rescue organization leads to losing effective control of the ideal benefit of volunteers' efforts.
7. The voluntary maritime search and rescue organization helps in maximizing available resources for the success of maritime search and rescue missions.	7. Weakness of volunteer economic income, which makes them go to profitable jobs that help them to meet their basic needs.
8. The importance of voluntary work in supporting national identity through strengthening the sense of belonging among different segments of society and their participation in the field of voluntary maritime search and rescue.	8. The previous negative experience of the volunteer, which reflects negatively on the interest in volunteering declines about participating.
9. The spirit of cooperation between the volunteers in the field of maritime search and rescue, strengthens the volunteer search and rescue organization.	9. Lack of training programs for volunteers before they are assigned to work affects their safety.
10. The presence of government authority (EAMS)related to search and rescue, the safety of lives at sea, and supervision of ports facilitate the existence of the legal framework of maritime search and rescue organization.	10. Improvisation and the non-application of modern methods and systems in management science lead to inefficiency of volunteers SAR organization efforts.
11. Classification of volunteers and identification of their roles that may perform in maritime search and rescue organizations that support search and rescue authorities' missions.	11. Lack of efficient communications between volunteers and organizations leads to loss of effective control over SAR operations.
Opportunities	Threats
1. The possibility of regional cooperation in the field of volunteer's maritime search and rescue.	1. Participation and coordination absence in exercises and maneuvers with responsible authorities for providing search and rescue services.
2. Continuous development of volunteer resources.	2. Weakness of volunteer's performance during search and rescue tasks in terms of organization, execution, and rehabilitation.
3. Applying the latest technology to develop organization management and improves voluntary search and rescue organization continuity.	3. Absence of responsible authority's supervision to ensure volunteers' suitability of maritime search and rescue organization requirements.
4. Strengthen the relationship between volunteering and maritime search and rescue services, which helps to develop the system and improve its performance.	4. Fear to maintain motivation and continuity of volunteers to carry out voluntary duties in maritime search and rescue organization.
5. Increase in the number of survivors in marine accidents as a result of the presence of successful models in the response speed of the volunteer Maritime search and rescue systems.	5. The absence of social media to spread volunteerism culture and the definition of its fields and models, including maritime search and rescue, which supports voluntary search and rescue organization.
	6. Lack of media programs that encourage volunteer work in maritime search and rescue.
	7. Lack of regulations organizing voluntary search and rescue work.

Table 2 Strength elements.

No.	Sentence				
First: Strength		Serial no.	Average extent of impact	Degree of presence	Average relative weight
1	Improving emergency response.	S1	4.133	8.333	34.4
2	To make the most of the resources available for successful Maritime Search and Rescue missions.	S3	4	8.233	32.9
3	Floating units provide volunteers with basic infrastructure to provide distinguished volunteer service for Maritime Search and Rescue	S8	3.965	8.206	32.6
4	The availability of human resources from volunteers with different experiences improves the capabilities of the search and rescue system	S9	4.17	8.103	33.8
5	Improving the geographical coverage of Maritime Search and Rescue services at the republic level.	S11	4.166	8.2	34.2
167.9					

It is clear from the table that all 5 strength elements have a significant impact on the activation of volunteer work in maritime search and rescue operations. The arithmetic averages values responses of the study sample members of the extent of impact ranged from 3.965 to 4.17 and it's higher than 2.5 the arithmetic average. Also, the averages values responses of the study sample members of the degree of presence ranged from 8.1 to 8.3 and it's higher than 5 the arithmetic average. All of this showed the strength of internal factors such as those that promote volunteering, and this result was consistent with the component of the organizational structure model.

3.2 Weakness Elements

By the Calculation of average values extracted from the study sample responses on Weakness elements by calculating the average extent of impact and the average extent of presence, as well as the relative average weight, as shown in Table 3.

It is clear from the Table 3 that all 5 elements of Weakness in the table impair the activation of volunteer work in maritime search and rescue operations. The arithmetic averages values responses of the study sample members of the extent of impact ranged from 3.76 to 4.1 and it's higher than 2.5 the arithmetic average. Also, the averages values responses of the study sample members of the degree

of presence ranged from 7.7 to 8.2 and it's higher than 5 the arithmetic average.

Through the results of evaluating the matrix of elements of the internal environment to determine and arrange the relative weights of strength and weakness elements, it is clear that the total average relative weight of strength elements (167.9) more than the total relative averages weight of weaknesses elements (158.9) which makes it clear That on the activation of volunteer work in maritime search and rescue operations got a lot of strengths more than existing weaknesses elements.

Second: external environment Elements (opportunities and Threats Elements): the study results showed the following.

3.3 Opportunities Elements

As a result of average calculation values extracted from the study sample responses on opportunities elements by calculating the average extent of impact and the average of occurrence possibility, as well as the relative average weight, as shown in the Table 4.

It is clear from the table that all 5 elements of opportunities in the table have an immense impact on the activation of volunteer work in maritime search and rescue operations. The arithmetic averages values responses of the study sample members of the extent of impact ranged from 3.96 to 4.1 and it's higher than

2.5 the arithmetic average. Also, the averages values responses of the study sample members of occurrence possibility ranged from 7.8 to 8.38 and it's higher than 5 the arithmetic average. All of this showed the

opportunities of external factors such as those that promote volunteering, and this result was consistent with the component of the organizational structure model.

Table 3 Weakness elements.

No.	Sentence				
Second: Weakness		Serial no.	Average extent of impact	Degree of presence	Average relative weight
1	Lack of laws and regulations regulating the voluntary search and rescue of the sea to determine the tasks performed by the system, equipment, tools used, and permitted areas.	W2	3.966	8.066	32
2	Failure to conclude agreements and memorandums of understanding to support the voluntary Maritime Search and Rescue system materially, technically, and training, between them and those related to the community	W3	3.965	8.241	32.7
3	Ignorance of the mission of volunteer work in Maritime Search and Rescue.	W4	3.933	8.133	32
4	The officials of the volunteers are late in obtaining their permits to participate in the emergency, which slows the response speed required for search and rescue.	W5	4.1	8.1	33.2
5	Lack of data on volunteers wishing to participate in volunteer Maritime Search and Rescue	W6	3.766	7.7	29
158.9					

Table 4 Opportunities elements.

No.	Sentence				
Third: opportunities		Serial no.	Average extent of impact	Degree of presence	Average relative weight
1	Using social media to attract volunteers to participate in Maritime search and rescue.	O1	4	8.321	33.3
2	Provides resources to support volunteer search and rescue work.	O3	4	8.107	32.5
3	Successful experiences of volunteer organizations in other countries can be informed of their plans to develop volunteer work in the field of research and rescue.	O6	3.962	8.111	32.2
4	Provides grants from international bodies to enroll volunteers in external courses in the field of volunteer Maritime search and rescue to gain experience.	O9	4.071	7.821	31.9
5	Increase in the number of survivors in marine accidents as a result of the presence of successful models in the response speed of the volunteer Maritime search and rescue systems.	O10	4.153	8.38	34.8
164.7					

3.4 Threats Elements

As a result of average calculation values extracted from the study sample responses of threats elements by calculating the average extent of impact and the average of occurrence possibility, as well as the relative average weight, as shown in the Table 5.

It is clear from the Table 5 that all 5 elements of

threats in the table have an immense impact on the activation of volunteer work in maritime search and rescue operations. The arithmetic averages values responses of the study sample members of the extent of impact ranged from 3.2 to 4.3 and it's higher than 2.5 the arithmetic average. Also, the averages values responses of the study sample members of occurrence possibility ranged from 6.4 to 8.03 and it's higher than

5 the arithmetic average.

Through the results of evaluating the matrix of elements of the external environment to determine and arrange the relative weights of opportunities and threats elements, it is clear that the total average relative weight of opportunities elements (164.7) more

than the total relative averages weight of threats elements (134.9) Which makes it clear That on the activation of volunteer work in maritime search and rescue operations got a lot of opportunities more than existing threats elements.

Table 5 Threats elements.

No.	Sentence				
Fourth: Threats		Serial no.	Average extent of impact	Degree of presence	Average relative weight
1	The size of the authorities responsible for providing search and rescue services	T1	4.379	8.034	36.4
2	Some voluntary community entities refrain from participating in the field of maritime search and rescue.	T2	3.733	7.433	27.8
3	Lack of community confidence in the efficiency of voluntary Maritime search and rescue services.	T3	3.2	7	22.4
4	The weakness of social media in spreading the culture of volunteering in Maritime search and rescue.	T4	3.413	6.413	21.9
5	Lack of media programs that encourage volunteer work in Maritime search and rescue.	T5	3.6	7.333	26.4
134.9					

Table 6 Internal and external environment of volunteering as shown by the study results.

	Strength	Weakness
Internal environment	<ul style="list-style-type: none"> Improving emergency response. Make the most of the available resources for successful Maritime Search and Rescue missions. Availability of volunteers floating units provides distinguished Maritime Search and Rescue service. The human resources availability with different experiences improves search and rescue system capabilities. Improving the national geographical coverage of maritime Search and Rescue services. 	<ul style="list-style-type: none"> Lack of laws and regulations regulating voluntary maritime search and rescue service to determine performed tasks, equipment, tools, and permitted areas. Failure to conclude agreements and memorandums of understanding to support the voluntary Maritime Search and Rescue system financially, technically, and training, with related community authorities. Unawareness of volunteer work in Maritime Search and Rescue mission. Delayed in obtaining volunteers participation officials permissions, slows search and rescue response. Lack of volunteer data wishing to participate in volunteer Maritime Search and Rescue.
	Opportunities	Threats
External environment	<ul style="list-style-type: none"> Attract volunteers through social media to participate in Maritime search and rescue. Availability of resources to support volunteer search and rescue work. Other countries' successful experiences of volunteer organizations can develop volunteer work in the field of research and rescue. Provides grants from international bodies to enroll volunteers in external courses to gain experience in volunteer Maritime search and rescue. Increase in the number of survivors in marine accidents as a result of successful models in the rapid response of volunteer Maritime search and rescue systems. 	<ul style="list-style-type: none"> The decline of responsible search and rescue services authorities for coordination in training and maneuver with volunteer SAR system. Cease of the voluntary community participating in maritime search and rescue system. Lack of community confidence in the efficiency of voluntary maritime search and rescue services. The weakness of social media in spreading volunteering culture in maritime search and rescue. Lack of media programs that encourage volunteer work in Maritime search and rescue.

Table 7 Internal and external environment of volunteering total average relative weight.

Strength	167.9
Weakness	158.9
opportunities	164.7
Threats	134.9

Subtract Weakness from strengths ($167.9 - 158.9 = +9$) as well as threats from opportunities ($164.7 - 134.9 = +29.8$), while the result of these operations is positive in the external and internal environment. There is no objection to the implementation of the resolution under review because the organization has good strengths and significant access to it.

Table 8 SWOT analysis table.

Internal	External	Decision
Positive	Positive	There is no objection to the implementation of the organization under review because the organization has good strengths and significant access to it.
Negative	Negative	Some weaknesses and threats have a high impact; the implementation will waste the organization's resources, and reduce available opportunities.
Positive	Negative	Highlighting the organization's important strengths that will help implementation.
Negative	Positive	Clarification of weaknesses that have an important impact on the organization's declining performance level, which will hinder implementation.

4. Conclusion

After Presenting and analyzing SWOT analyzes and discussing its results which illustrate the possibility of implementation of a volunteer search and rescue system in Egypt.

Recommendations

Establishing Maritime volunteer search and rescue services covering all Egyptian coastlines.

Qualifying and training volunteers to work as supervisors and coordinators in the volunteer search and rescue system in Egypt.

References

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