The Potential Role of Indonesia's Universal Health Coverage in Management of Severe-To-Profound Hearing Loss through Cochlear Implantation

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ABSTRACT

This study aimed to evaluate the role of Jaminan Kesehatan Nasional (JKN) in improving the quality of cochlear implant services using Strength, Weakness, Opportunity, and Threat (SWOT) analysis. The study identified the internal factors of the cochlear implant center in Cipto Mangunkusumo Hospital as a consideration for developing hospital policies and the external factors to determine strategies for future development. The role of JKN was highlighted on the SWOT analysis, showing that the cochlear implant center was strategically located, thus increased the quality and the competitive factor compared to other hospitals. Strength-Opportunity strategy was recommended in improving service quality and identifying the possibility of JKN and other grants to cover the cost and improve the services, research, and education. The SWOT of the Cochlear Implant Center was identified as: 1. Good internal condition (average score of the strengths is superior to the weaknesses), 2. Good external condition (average score of the opportunities is higher than the threats), 3. Using strengths to maximize the opportunities and alternative strategy to be an aggressive strategy. 4. The role of JKN presented in the SWOT quadrants would give JKN a potency and important role in improving the treatment of severe hearing impairment in Indonesia.

Keywords: *JKN; SWOT analysis; cochlear implant.*

INTRODUCTION

BPJS that stands for *Badan Penyelenggara Jaminan Sosial* (Social Insurance Administration Organizations) administers the Indonesian National Health Insurance, *Jaminan Kesehatan Nasional* (JKN) or Indonesia's Universal Health Coverage. BPJS was established in 2014 to provide medical coverage for Indonesian. However, not all medical service is fully covered by the BPJS scheme. Hospitals claim through Indonesia Case Base Group's (INA-CBG's) tariff in JKN program based on data costing with several aspects that affect the cost of INA-CBG's, such as the main diagnosis, the presence of secondary diagnosis of comorbidity or complication, severity, intervention, and age. INA-CBG's tariff is paid per episode of health service, which is a series of patient treatments to complete. (Ambarriani 2014) The cost components that are included in the INA-CBG's package are not charged to the patient. This payment method may potentially cause loss or profit to the hospital, when there is discrepancy between hospital inpatient cost and INA-CBGs tariff of inpatient care. (Rahayuningrum et al. 2016)

Several hospitals have performed cochlear implants with comprehensive services (one roof), though in several centers, the services, such as the preoperative audiology examination, surgery, and postoperative evaluation, are not performed in one hospital. However, cochlear implant services in Indonesia may also be done at *Pusat Implan Koklea* or Cochlear Implant Center, in a hospital that provides all cochlear implant services under one roof.

Since the implementation of JKN services, the cost of preoperative and cochlear implant surgery is covered by the government through the JKN system, but not covering the cost of the device, though the development

of cochlear implant services since 2012 was not hindered by this obstacle. The Ear, Nose, and Throat (ENT) Department at Faculty of Medicine Universitas Indonesia (FKUI) – Dr Cipto Mangunkusumo Hospital (RSCM) performs cochlear implants with equipment from three distributors that are FDA approved. Med-El, Advance Bionics and Cochlear are mostly used. Cochlear implant data from the ENT Department, FKUI – RSCM showed that there have been 101 cases recorded since 2016. Specifically, there were 4 cases in 2012; 2 cases in 2013; 4 cases in 2014; 41 cases in 2015; and 50 cases in 2016.

Children with cochlear implants are expected to be able to receive sound to understand language and form words with the intention of speak and communicate effectively. Evaluation for the children after the cochlear implantation includes auditory perception, talking, and language, also other evaluation in accordance with the child's development, such as reading and writing. (Rubinstein et al. 1999)

RSCM, as Cochlear Implant Center, should be able to provide post-operative habilitation services to maintain the quality and standards of the service. (Suryatama 2014) An analysis method must be implemented to provide the best solution to overcome failure in providing a qualified holistic service. (Gasperz 2008) Factors causing this failure must be evaluated to improve the effectiveness and efficiency of tertiary/quaternary services in RSCM to provide qualified and sustainable cochlear implant services. In addition, Indonesia is now heading toward Sound Hearing 2030 which aim to optimize the level of auditory hearing health by 2030.

As a national referral center, RSCM provides secondary, tertiary, and quaternary care, one of which is the cochlear implant center. However, it is not yet optimal as the postoperative habilitation services are not available in RSCM. The habilitation services are provided by external habilitation organizations. (Sopacua and Pratiwi 2009) As a result, RSCM is unable to maintain and look over the quality and standards of the cochlear implant service post-operatively, also evaluate the result of the implant. Additionally, some preoperative examinations, cochlear implant device, and postoperative services or habilitation is not covered by JKN. It is expected that JKN coverage could assist children with hearing disabilities in all phases. Based on this issue, the internal and external factors that affect the cochlear implant service center are considered for determining company policy.

The primary aim of this study was to evaluate the role of JKN in increasing the quality of cochlear implant services through Strength, Weakness, Opportunity, and Threat (SWOT) analysis. First, the study identified the internal factors, the strengths and weaknesses of the cochlear implant center as a consideration to create hospital policies. Next, for external factors, the opportunities and threats of the center are weighed to determine the strategies for future development. Based on the results, a strategy for the cochlear implant services was developed in effort to improve the quality of services provided. Finally, the role of JKN in the strategy developed was highlighted based on the SWOT analysis that had been performed.

THEORETICAL REVIEW

Cochlear implants serve as a prosthetic cochlea that improve the hearing function among patients with severe deafness by directly passing acoustic impulses to the auditory nerve, by-passing the structures of the internal ear that is not functioning. Cochlear implants by-pass the damaged sensory cells of the internal ear and stimulate the auditory nerve by converting acoustic stimuli into electric stimuli and passing it to the brain until the sound is understood. (Sataloff 1966)

RESEARCH METHODOLOGY

This explorative descriptive study with an expose facto approach was designed to describe the condition of cochlear implant services provided and to identify information regarding challenges faced in the field. In preparation for this study, a literature search on cochlear implants and quality services was conducted. Studies were analyzed to identify various factors that play a role in improving service quality. Then, a team was assembled to assist the SWOT analysis, an important step in the research which required close attention.

Data were collected through direct observation or detailed evaluation regarding the services provided in the field for new patients from the pre-operative phrase for approximately 3 months. Observation was also performed for the facilities and equipment available in the cochlear implant center throughout the preoperative,

operative, and post-operative phase. Next, an observation of the post-operative services was done from January until March 2018 to further clarify the rehabilitation processes available.

To analyze the possibility for service improvements, in-depth interview and a focused-group discussion (FGD) was performed, focusing on the available resources in association with the service process, including the specialist involved, cochlear implant vendors or distributors, and patient families. (Rivai 2009) Qualitative data was translated into quantitative data through SWOT analysis. (Sugiyono 2008)

SWOT Analysis

The first step was to observe the current condition to identify the factors regarding the SWOT of the cochlear implant center. Next, document review and in-depth interview with the service provider were performed. Results of the discussion and the interview were grouped into internal and external factors which were then presented to the FGD team members. Based on the evaluation performed, these factors were grouped into Strength (S), Weakness (W), Opportunity (O), and Threat (T) from the stakeholders. Members of FGD team were asked to arrange the priority, then determined the weight of each factor identified in the four groups. As a result, a score for each matrix quadrant was obtained. (Rangkuti 2004)

RESULTS AND DISCUSSION

SWOT Analysis

SWOT analysis was performed to systematically identify various factors that play a role in organization or company strategy. The analysis was based on the logical approach of increasing the strength and opportunity, simultaneously reducing the weaknesses and threats. This instrument provides simple steps to predict the best method to perform a strategy. Additionally, this instrument helped to plan a strategy and identify the factors that need more attention.

Decision making in the implementation of a specific strategy is associated with a mission, aim, strategy and policies of a company, thus the planning of a strategy required the SWOT analysis presented in the current condition. SWOT analysis provides a picture of the condition that is faced and provides a solution to the problems faced. There are 4 components in SWOT analysis:

1. Strength–of the company or organization; functions against the prevailing competition.
2. Weakness–of the company or organization; cause problems in attaining the organization's goals and in facing the competition.
3. Opportunity–external factors; provide the possibility to improve the services in the future.
4. Threat–describes the current and future challenges or threats faced by the organization caused by various factors in the environment results in delays and losses.

The four components above make up the SWOT matrix which describes in real-time the opportunities and threats (external factors) faced by the organization, such that they may be dealt with appropriately according to their strengths and weaknesses of the organization. This matrix provides 4 alternative strategies possible.

1. SO strategy (Strengths – Opportunities) uses the strengths to obtain the opportunities
2. ST strategy (Strengths – Threats) uses the strengths to face the threats
3. WO strategy (Weaknesses – Opportunities) uses the opportunities to reduce the weaknesses
4. WT strategy (Weaknesses – Threats) uses a defensive approach in effort to eliminate the weaknesses and overcome the threats

Discussion with the ENT staff and service team at RSCM provides a picture of the current situation in the Cochlear Implant Center (show in Fig. 1).

Qualitative data from the SWOT analysis was translated into quantitative data by providing weights to the different factors using the Pearce and Robin (1998) method or by the weight agreed upon by the Cochlear Implant staff and department, involved in the service processes (shown in tables 1 to 4).

Based on the calculated weights, S-W was calculated for the X-axis and O-T for the Y axis to provide the Cartesian diagram for the Cochlear Implant services of FKUI – RSCM, as shown in figure 2.

SWOT Quadrant Analysis of the Cochlear Implant Services resulted in the first quadrant, reflecting an optimal situation for attaining profitable possibilities. As

a result, the first strategy may be used to develop (aggressive strategy) a more holistic service.

Determining the Strategy using the SWOT Matrix

SWOT Analysis was performed using cross-table analysis of TOWS known as the SWOT matrix. The qualitative approach of the SWOT matrix presents 8 boxes including 2 external factors (opportunities and challenges) and 2 boxes on the left with the internal factors (strengths and weaknesses). The four remaining boxes are the strategic ideas brought about by the point of intersection between the internal and external factors. This SWOT matrix is also known as the External Factor Analysis Summary (EFAS) and Internal Factor Analysis Summary (IFAS) matrix developed by Wheelan and Hunger, functions as an instrument to assists the development of four type strategies: SO (strength-opportunity), WO (weakness-opportunity), ST (strength-threat), and WT (weakness-threat). Matching the key of external and internal factors was the hardest part of developing the SWOT matrix and required proper evaluation. This method described:

1 The Strengths-Opportunities strategy; using the opportunities for development to use the prevailing strengths.
2 The Weakness-Opportunities strategy; using the opportunities for the internal weaknesses.
3 The Strengths-Threats strategy; using the strengths to avoid the threats.
4 The Weakness-Threats strategy; minimize the weaknesses, avoiding the external threats

SWOT Matrix

Based on table 5, the SO (Strength – Opportunity) strategy is recommended, using the strengths to maximize the opportunities and an alternative strategy which is to use an aggressive strategy.

Results of the SWOT Analysis

The internal condition of the RSCM Cochlear Center had a total score of 5.0, resulting from the addition of the weight of every strength and weakness factor multiplied by each strength and weakness factor. The internal condition was good because the average score of the strength is superior to the weaknesses.

1. The external condition gave a score of 4.52, obtained from the addition of the weight of every opportunity and threat factor, multiplied by each opportunity and threat factor in the discussion. This score is considered as good as the average score of the opportunity factors was higher than the average of the threats.
2. Based on the above diagram, the SO strategy is advised using the strengths to optimize the opportunities and an alternative strategy using an aggressive strategy.

The strategy chosen is:

a. Improve service quality in all the available facilities and gain support from the stakeholders.
b. Partnership with JKN may identify the opportunity to cover half of the costs for examination and surgery; thus, BPJS and other grants may aid in covering the costs of the cochlear implant device
c. Develop not only the service, but also research and education in the community and other sister hospitals for health promotion, prevention, therapy, and habilitation.

Implementation of the SWOT analysis showed that the cochlear implant center may increase the quality of patient services and competitive factor of the center compared to other hospitals, thus the SO (Strength-Opportunity) strategy is recommended, using all the strengths to maximize the opportunities as follows: 1. Improving service quality by utilizing all the facilities available and the support from the stakeholders; 2. Partnership with JKN to identify the possibility for JKN and other grants to partially cover the cochlear implant costs and develop the services, research and education in the community and network hospitals for promotion, prevention, therapy, and habilitation especially providing AVT. Evaluation of the strategy formulates a new strategy for JKN presented as a Strength, Weakness, Opportunity, and Threat with different weights and ratings. This interesting finding would require further investigation.

JKN is a strength as it comes second with a score of 0.16 out of the total strength score of 2.51. It showed that despite being second, it is not as strong as the strategic location of RSCM and partnership with professionals overseas that also ranks second. JKN only covers the costs of preoperative preparations, surgery, and post-operative treatment, without covering the cochlear implant itself. On the other hand, the cost of cochlear implant device must be covered by the patient or a grant.

Covering the preoperative, operative, and post-operative treatment of the patient is one internal factor that serves as a strength of the Cochlear Implant Center.

JKN is also a weakness as the policy states a small subsidy of 1 million rupiahs is given in every 5 years to replace the hearing aid. The cost of a cochlear implant device is around 100 – 150 million rupiahs, thus presenting as an obstacle to the cochlear implant center. Therefore, if a patient uses more than the amount covered, the additional cost is borne by the patient of the hospital.

JKN is also an opportunity for the cochlear implant center, showing that JKN insurance for the preoperative treatment and the surgery provides an opportunity for the patient with hearing disability to undergo cochlear implant surgery. This has increased the number of surgeries performed in RSCM since 2014. Many examinations performed during the preoperative phase determine the suitability for the cochlear implant candidate. Preoperative examinations begin from the ENT examination, audiometry and Brain Evoked Response Audiometry (BERA), ear Magnetic Resonance Imaging (MRI) and computed tomography (CT) scan, pediatricians, medical rehabilitation, laboratories, etc. which might be expensive if the patient must pay for themselves. Hence, though JKN covers part of the costs, it provides some opportunity for the cochlear implant patients to receive services from the center.

JKN is also a Threat for the cochlear implant center. The rise in the number of patients using JKN insurance which only cover half of the costs also increases the costs that must be covered by RSCM. Till date, this is a threat that must be avoided by the RSCM cochlear implant center.

As a result, an appropriate strategy must be chosen in attempt to improve the cochlear implant services. JKN and ministry of health policies for children with severe hearing disabilities who require cochlear implants must be performed nationally. There should be a change in the perception of the hearing aid in the Hearing Health Center or even JKN. (Thabrany 2014) Much debate occurs related to the term Hearing Health Care, defined by WHO as the management of ear and hearing disabilities and put audiology and hearing aid in the UHC/JKN scheme. Several countries have attempted to implement a hearing health care model, including Canada, UK, Brazil, China, and Russia, though they all use government insurance system supported by a private sector component.

This may be an implemented example to overcome the hearing disabilities with occurrence rate of 1 – 3 in 100 live births. The mentioned private sector may form a partnership with the cochlear implant distributors or Corporate Social Responsibility (CSR) or even other private sectors. (Yuniarti et al. 2015)A broader government policy scheme and JKN along with partnerships with the private sector and specific prevention programs may serve as part of the National Strategy to Overcome Hearing Disabilities and Deafness Sound Hearing 2030. (Permenkes no 879/Menkes/SK/XI/2006)

CONCLUSIONS AND SUGGESTIONS

Conclusions

Based on the SWOT analysis, the SWOT of the RSCM Cochlear Implant Center was identified. 1. Good internal condition as the average score of the strengths was higher than the weaknesses, 2. Good external condition as the average score of the opportunities was higher than the threats. 3. Use the strengths to maximize the opportunities and an alternative strategy may be to use an aggressive strategy (quadrant 1).

The strategy chosen is: a. Improve the service quality by using all the available facilities and support from stakeholders. b. Partnership with JKN to identify the possibility/opportunity to cover part of the examination and surgery costs, and for JKN or other grants to pay for the cochlear implant device. c. Develop the service, along with research and education in the community and network hospitals for promotion, prevention, therapy, and rehabilitation d. The role of JKN in the strategy to improve the cochlear implant center services, presented in the SWOT quadrants gave JKN a very important role in leveraging treatment of severe hearing impairment in Indonesia.

Suggestions

1. There has to be national policies from the ministry of health and JKN to manage severe hearing

disabilities in children who require cochlear implants.

2. There should be a change in the perception of the hearing aid as part of the Hearing Health Care or JKN. There is much debate regarding the term Hearing Health Care, defined by WHO as the management of ear and hearing disabilities, and how audiology and other hearing aids are part of the UHC/JKN scheme.
3. The government JKN system combined with the private sector may cover the cost of the cochlear implant device.
4. There should be a policy or scheme from the government related to the JKN package that is broader, covering the cochlear implant services, in partnership with the private sector and programs for preventing hearing disabilities that is part of the National Strategy for Overcoming Hearing Disabilities and Deafness to reach Sound Hearing 2030.

In general, a successful program for Cochlear Implants in Indonesia requires raising the awareness of Cochlear Implants and hearing impairment in general. Building infrastructure, securing financial resources, improving outcomes of cochlear implantation, and educating surgeons, health professionals, and governmental officials have been the main challenges for the cochlear implants in Indonesia.

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Table 1. *Strength*

No	*Strength*	Weight	*Rating*	*Score*
1	RSCM is the national referral center	0.12	3	0.36
2	Located at the city center	0.12	2	0.24
3	JKN Preoperative, surgery and post reimbursement	0. 8	2	0.16
4	Complete human resources	0. 9	2	0.18
5	Complete facilities	0. 8	3	0.24
6	Vast experience	0.11	3	0.33
7	There is a Cochlear Implant Community in RSCM	0. 8	2	0.16
8	Networking with experts from overseas	0.12	2	0.24
9.	Overseas training	0.10	3	0.30
10.	Update in knowledge	0.10	3	0.30
	Total	1		**2.51**

Table 2. *Weakness*

No	*Weakness*	Weight	*Rating*	*Score*
1	Lengthy process	0.18	3	0.54
2	Cost of equipment/devices is not covered by JKN	0.20	3	0.60
3	Continuously changing staff and at times not available	0.8	1	0.8
4	Same queue for patients who have registered online and on-the-spot at RSCM	0.10	1	0.10
5	Patients come from vendors	0.15	2	0.30
6	No habilitation services available at RSCM	0.15	3	0.45
7	Maintenance of equipment is difficult	0.14	3	0.42
	Total	1		**2.49**
	S+W			**5.0**

Table 3. *Opportunity*

No	*Opportunity*	Weight	*Rating*	*Score*
1	JKN give the opportunity to top up for the device, partnership through grants/ private sector	0.28	3	0.84
2	RSCM Kiara has complete facilities	0.24	2	0.48
3	Cochlear Implant Community in RSCM is available	0.26	2	0.52
4	Access to the Ministry of Health and JKN	0.22	2	0.44
	Total	1		**2.28**

Table 4. *Threat*

No	*Threat*	Weight	*Rating*	*Score*
1	RSCM is surrounded by hospitals that also provide cochlear implant facilities	0.28	2	0.56
2	Staff at other hospitals becoming more qualified	0.24	3	0.72
3	Ease of access in other hospitals	0.27	2	0.54
4	Implementation of JKN policies for cochlear implant's tariffs that does not match with hospital tariff (unit cost)	0.21	2	0.42
	Total	1		**2.24**
	O+T			**4.52**

Table 5. SWOT Matrix

	Strength (S)	**Weakness (W)**
Internal Factors	1. RSCM is the national center for referrals 2. Located at the center of the city 3. JKN preoperative, surgery and post reimbursement 4. Complete human resources 5. Complete facilities 6. Most/highest experiences 7. There is a cochlear implant community in RSCM	1. Lengthy process 2. Cost of device not covered by JKN 3. Continuously changing human resources 4. Long queue, same for patients who register online and on-the-spot at RSCM 5. Patients come from vendors 6. No habilitation services in RSCM

		8. Networks with professionals overseas 9. Training overseas 10. Update of knowledge	*7.* Difficult equipment maintenance
Opportunity (O)	1. JKN, Donations 2. RSCM Kiara has complete facilities 3. There is a cochlear implant community in RSCM 4. Access to ministry of health and JKN	**Strategy S - O:** 1. Improve service quality by using all the facilities available and support of the stakeholders 2. Part of the examination and surgery costs covered by JKN, there is a chance for JKN and other grants to cover the cochlear implant **3.** Development of services, along with research and education of the community and network hospitals in the field of promotion, prevention, therapy, and habilitation	**Strategy O - W:** 1. Present the findings of the ENT community to JKN and the ministry of health regarding coverage of the cochlear implant 2. Make a special room for the cochlear implant service in RSCM Kiara and a scheduled service at that center **3.** Addition of AVT with the facilities and human resources available
Threat (T)	1. RSCM is surrounded by hospitals that facilitate cochlear implant services (RS Proklamasi, RS PIK, RS Islam Cempaka Putih, RS Premier Jatinegara, RS Salemba Satu) 2. Human resources in other hospitals becoming better at the services 3. Ease of access in other hospitals 4. Implementation of JKN policies in the cochlear implant tariffs.	**Strategy T - S:** 1. Maximize RSCM status as national referral center to improve service quality 2. Improve the quality of human resources by skills and soft-skill training 3. Maintain the trust of customer by maintaining the quality of services and patients' satisfaction 4. Present an approach to JKN to achieve a new scheme for cochlea implants	**Strategy T - W:** 1. Add qualified human resources 2. Maximize the partnership with JKN

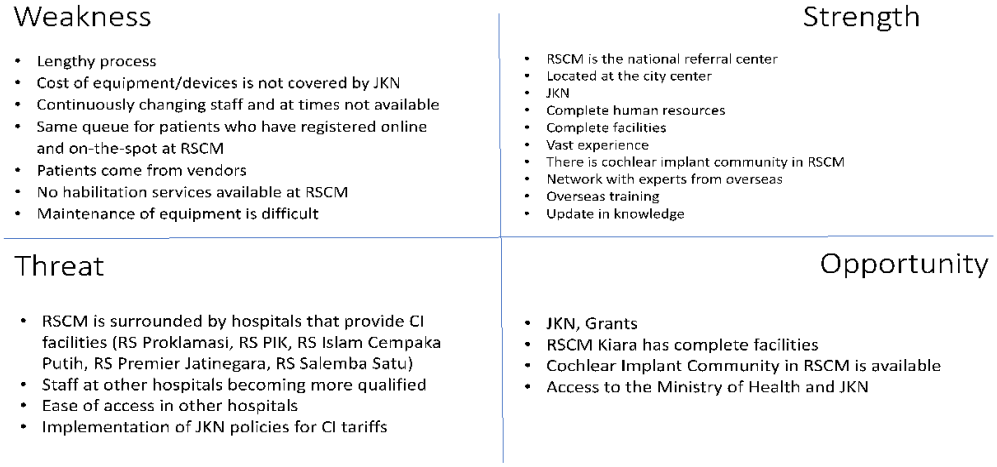

Figure 1. SWOT

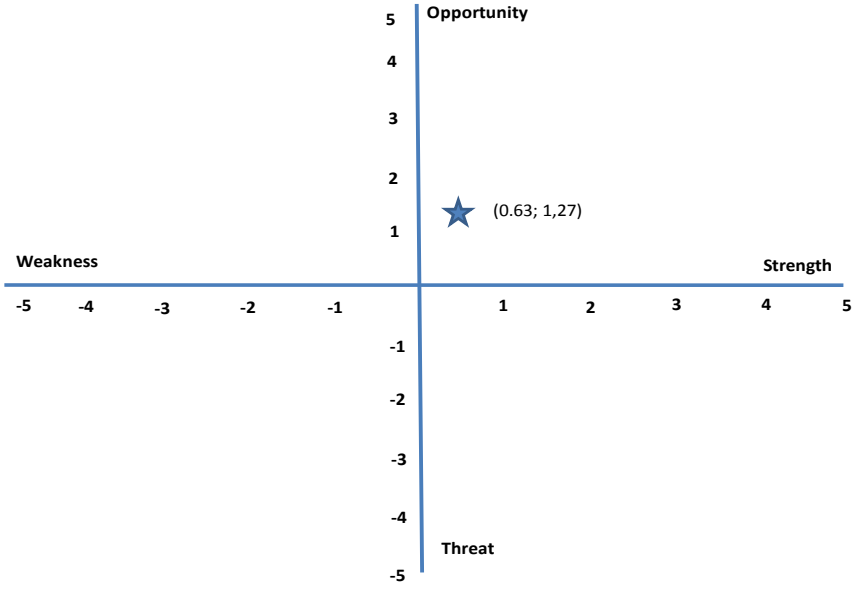

Figure 2. SWOT Quadrant Analysis of the Cochlear Implant Services at RSCM