

## Developing IT Enabled Mechanism for SWOC Analysis: A Case Study

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### Abstract

*There is a huge competition in the education sector. Only those institutes that can adopt innovative teaching – learning methods and provide quality education will be able to survive this competition. In order to survive and merge ahead, institutes need to carry out detailed analysis of their strengths, weaknesses, opportunities and challenges. This case study presents a mechanism for carrying out the SWOC (Strengths, Weaknesses, Opportunities and Challenges) analysis of an educational institute. This paper focuses on the use of IT tools for SWOC analysis. Similar mechanism or methodology can be adopted in other institutes for carrying out the SWOC Analysis. This initiative will not only help the institute to focus and capitalize on the strengths, address weaknesses and deter challenges but also help in attracting students of higher merit and improving the quality of education.*

**Keywords:** SWOC analysis; mechanism; educational institute; global competition; quality education; IT tools.

### 1. Introduction

The world has witnessed tremendous competition in the educational sector. In fact the survival of an educational institution depends on its performance (Istvan et al., 2016). Several factors are important in creating and maintaining a sustainable competitive advantage for an educational institute (Mazzarol and Soutar, 1999). In order to survive in this intense competition, educational institutes need to monitor the present needs of the society, predict the future requirements and act accordingly. In this context SWOC analysis of an educational institute is very essential.

SWOC stands for Strengths, Weakness, Opportunities and Challenges. On one hand strengths and weakness of the institute represent the internal factors that can be controlled to some extent while on the other hand the opportunities and challenges represent the external factors that are more or less beyond the control of the institute (Aithal and Suresh kumar, 2015). It is essential to make use of all these factors to develop a sound mechanism so that the institute not only survives but thrives in the fierce global competition.

There are many advantages of carrying out the SWOC analysis. SWOC is a low cost method to analyze one's own business. Besides helping in setting up the objectives and planning for the future, it identifies the core competencies of the organization and assists in capitalizing the strengths and opportunities. Using SWOC, one can also address the weakness and deter the challenges. So far as the educational institutes are concerned, such initiative will also help in attracting students of higher merit and improving the ranking of the institution. The objective of this study is to develop IT Enabled Mechanism for SWOC Analysis for an educational institute. Proposed mechanism or methodology can be adopted in other institutes with little modification as per the needs of the institute. The rest of the paper has been organized as follows: next section discusses literature review followed by objectives of the study, design of the study and methodology adopted for the SWOC analysis and in the end findings, conclusion and references are presented.

### 2. Literature Review

SWOC analysis of student perception on the laboratory was carried out by faculty of Qatar

University (Wilby and Nasr, 2015). Perceptions of 25 students were measured on a post-questionnaire and summarized descriptively. Results indicated that the learning experience of the students was enhanced by mixed-methods instructional approach and that the students expressed their desire to continue with this approach. The authors have pointed out that creative redesign of instructional methods was effective to achieve positive student perceptions and that similar methods can be applied to other curricular areas.

Singh and Solanki (2017) have carried out the SWOT analysis of technical education in India. The authors state that education plays an important role in the growth and development of any country. Based on the survey and interactions with students, teaching staff, management and experts of various engineering and technical institutes, the authors have listed the strengths, weaknesses, opportunities and threats for technical education in the country. According to the authors, India will have to redesign institutions, policies, structures, procedures and processes in order to keep in pace with the rest of the world and adjust to the emerging realities of the educational sector.

In the literature it is observed that, many organizations have undertaken SWOC analysis to highlight important problems and threats confronting the higher and technical educational institutes in India (Dave et. al, 2018). The authors have listed the major strengths, weakness, opportunities and threats faced by the higher ad technical education system in India. The authors suggest that the higher and technical education authorities should develop a comprehensive database, update curricula to meet global standards and industry needs, provide grants to colleges and universities in backward areas and bring uniformity in distribution of technical education throughout the country.

A descriptive study on the management of the quality of cross-border higher education in India was undertaken by Usha Devi (2018). The study reveals that the present system of education focused more on academics but not on holistic development of

the students. The author has underlined the need for reorientation of the present higher education system in India. With the help of a student-centric conceptual model the author has suggested several initiatives to make India a role model for the higher education system in the world.

A study was undertaken to examine globalization scenario, determine challenges and conduct SWOT analysis of the education system in India (Shankar 2017). The author has listed some challenges faced by the Indian education system and has suggested a few solutions as a counter measure to overcome the threats.

It has been observed that most of the studies are of descriptive in nature and involve traditional ways in collecting and analyzing the opinion of the stake holders for the study of SWOC. In contrast, the present study employs IT tools like Google forms and Google sheet to collect and analyze data from the stakeholders. Besides quick and impartial responses, this system also ensures maximum participation and transparency.

### **3. Objective of Study**

The rapid growth and affordability of internet and computer technology has provided an immense opportunity for educational institutions to expand, enhance and perhaps replace traditional practices of Organizational Management and also in the Teaching and Learning Process (Hiltz, 1986; Lowych and Perre, 1997).

Use of internet and computers in the SWOC analysis will enhance the speed and also provides online collection of the data/responses from the stake holders through Google form and Google Sheet. Google form is an on-line tool which can be used for collecting the feedback and responses for the study. (Pramod et. al., 2006).

Internets offers many new potential benefits like remote participation of stake holders and also free and fair participation in the SWOC analysis because the identity of the participants can be protected. Computer and internet aided Google forms and Google Sheets aided data collection tools have

become the backbone of many organizations for the collection and management of the data. (Pramod et. al., 2011). This study has been carried out in K K Wagh Institute of Engineering Education and Research, Nashik, India. The objective of the study was:

- a. To develop IT Enabled Mechanism for SWOC Analysis for an educational institute.
- b. To develop SWOC Matrix for case study institute and to propose Short and Long-term Planning for enhancing Quality of the institute
- c. To suggest action plan to achieve short-term and long-term planning

#### 4. Overall Design of the Study

Herein, we describe the frame work and methodology used in this for SWOC analysis

#### 4.1 Methodology for study of SWOC

A Google form was designed to collect the opinion of staff and students about the strengths, weaknesses, opportunities and challenges faced by the institute. Other stakeholders such as parents, industry and society are not directly involved in the teaching-learning process and hence have been excluded from the present survey. SWOC analysis can be carried out by making use of IT tools or by inviting the stakeholders to participate in group discussion; documenting the opinions and then classifying these opinions. Instead of inviting the participants, a methodology was developed in the institute to explore IT tools for carrying out the SWOC analysis. Methodology followed for the SWOC analysis is shown in Figure 1.

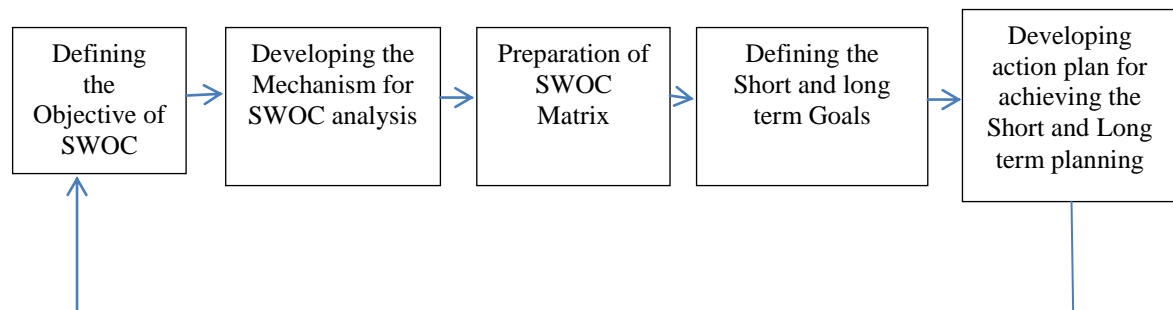


Figure 1: Methodology Adopted for SWOC analysis

#### 4.2 Design of the Google Form for Data Collection for SWOC analysis:

The required data for the study has been collected from the students and staff through the structured questionnaires by using the IT tools in the form of Google Form and Google Sheets. These questionnaires were designed after discussion between Principal, Heads of Departments, TPO and senior faculty members of the institute. The questions consisted of both open ended and multiple choice questions. Multiple choice questions were designed to collect the respondent's details like branch, class and also to know whether the respondent is a staff or student. Further, open ended questions were designed to capture the Strengths, Weaknesses, Opportunities and Challenges.

A separate Google form was designed to collect the opinion of the stakeholders. Screenshot of the Google form is shown in Figure 2. Students and staff were made aware about the contribution of the activity in development of the institute while filling the Google form. This form was sent to around 2000 plus staff and students of second, third and final year engineering as well as students from MBA and MCA. Last date was given for filling the said form. Regular reminders and importance of SWOC analysis were sent to stake holders to ensure maximum participation in the study. The first year students were excluded from the survey as they were the new entrants when the survey was conducted. Response was obtained from 1087 staff and students.

Figure 2 Google form for data collection for the study

### 4.3 Analysis of the Data

Collected data was extracted and tabulated in the form of Google Sheets as shown in the Figure 3. Collected data was analyzed and it was observed that maximum respondents were students contributing around 94.02%. Details of respondents are shown in the Figure 4.

Responses obtained from the staff and students were grouped under strengths, weaknesses, opportunities and challenges. Further, every group was analyzed and

segregated under five sub-categories namely: Institute and Infrastructure, Staff, Teaching and Learning, Placement Activities and Mechanism or Policies for improvement. Grouping and analyzing of the data is explained in the Figure 5. Grouping of the responses under sub-categories has helped the institute to concentrate and develop a separate strategy for every aspect thus making the SWOC analysis more realistic and effective.

Timestamp	Name of Staff/ Student	Email ID	Mobile Number	Branch	Class	In your Opinion what are	In your Opinion what are	In your Opinion what are	In your Opinion what are	Suggestions for Institute
9/28/2016 9:33:49	Dr. Prashant Bhanudas K.	pbkushane@kkgwagh.edu	9890429879	Mechanical	Teaching Staff	low fees - better economy	Delay in faculty promotion	in financial rules, regulations	lack of self motivation	among the faculty
9/28/2016 16:18:50	Shruti Pratik Jivan	pratikshete22@gmail.com	9621363626	Chemical	TE	safe professional learning	nothing	Great campus selection	limited library hours	library should open 24*7
9/28/2016 15:19:54	Shashik Nagesh Shambhadas	shashiknagesh55@gmail.com	7607665535	Chemical	TE	Excellent teaching	No	great future	Small campus	No thanks
9/28/2016 15:20:07	Pratik patil	pratik_912official@gmail.com	9767908075	Chemical	TE	Faculty	Faculty again	Can compete with many	Hiring good staff	More practicals should be conducted than
9/28/2016 15:20:52	Andreas Sanket Sanjay	sam.andreas19@gmail.com	8800062787	Chemical	TE	Good Resources	Competition in lecture	Great	Small campus area	Should encourage for RND
9/28/2016 15:21:17	Sandesh Uttanwar	sandeshuttanwar237@gmail.com	8412889789	Chemical	TE	Management and Staff	No proper Campus	Campus Placements	To be the no one collage	improve as much as u can
9/28/2016 15:22:35	Dhawal Sridhartha Raju	sridhawalraj@gmail.com	9769362879	Chemical	TE	Excellent staff members	Limited resources for sports	To produce more campus	To develop students sport try to develop research attitude in students	
9/28/2016 15:24:09	Sunil Sushil Vijay	sunilvijay_107@gmail.com	9028151882	Chemical	TE	1) A safe, professional on campus availability	practical work is less	GET FIRST PLACE IN PL TO PROMOTE SC&ST STUDENT		
9/28/2016 15:25:19	SUNIL VISHVICKI	sunilvishnoi22@gmail.com	9168189735	Chemical	TE	best quality education	night library	training and placement	support for the better education and quality	
9/28/2016 15:25:20	patel mayank pravinbhai	patel.mayank328@gmail.com	7780202126	Chemical	TE	One of the best private in India	May be nothing	Will be best in university	Competition with other colleges	
9/28/2016 15:25:26	Pote Mahesh Ashok	legendmaheshp10.mpg@gmail.com	8605115648	Chemical	TE	Experienced Staff	Not availability of 24/7 hrs	Good campus for all bran	To be the no 1 collage	To bring more campus for every branches
9/28/2016 15:27:31	Sagar S Kadi	ssasakadi09@gmail.com	8378074741	Chemical	TE	Excellent Teaching	small Campus area	Great Future	To be and stay on top	No thanks
9/28/2016 15:28:16	Prathap Prashanth Anilhar	prathapprashanth02@gmail.com	9027762050	Chemical	TE	Good quality education	No Night library	gaming selection	better teaching and qualif	open the back door of collage.
9/28/2016 15:28:44	Hemant G. Yedle	hemantg21@gmail.com	8605772521	Chemical	TE	nicer collage	they have facilities but th	to become a best collage	better teaching	provides a facilities they have
9/28/2016 15:31:17	Jayram tade	jayramtade21@gmail.com	9767873749	Chemical	TE	Best engineering culture	No strictness in attenden	Reputed industries campus	To create centre of excel	in library section the main newspapers are
9/28/2016 15:33:24	Santakshi Abhishek Nandk	abhishtakshi09@gmail.com	9657383694	Chemical	TE	Highly Qualified Faculty	Faculty	Can compete with other i	Campus recruitment pro	Decreasing the load of assignments while
9/28/2016 15:34:34	Bhavansh Minad Sunil	ninadbhavansh07@gmail.com	7988305413	Chemical	TE	regular lectures, good edu	night library	campus placement	quality teaching, practical	improve practical knowledge
9/28/2016 15:34:48	nigv pandey	nigvpandey02@gmail.com	8407062070	Chemical	TE	Good staff for teaching	no proper campus for che	campus selection	bringing more companies	do good for students
9/28/2016 15:35:28	Shyam Nivulshi Khelkar	shyamnivulshi02114@gmail.com	9657740949	Chemical	TE	good education	nothing	good campus & campus	quality teaching	practical knowledge improved
9/28/2016 15:35:45	maheesh sharan desale	maheeshdesale234@gmail.com	9622831506	Chemical	TE	high	smrfsa	sfssaga	sagsa	sagsa
9/28/2016 15:36:04	amol kashid	amolkashid0@gmail.com	7768855757	Chemical	TE	Name is enough also spo	lack of teachers	although its one of the be		
9/28/2016 15:36:19	ANISARI ZIA	ziaansari10@gmail.com	8683454699	Chemical	TE	Staff	Campus area	To provide more placem	To bring future technoloe	New facilities
9/28/2016 15:38:39	Pooja panganehane	2lipooja1901@gmail.com	950334250	Chemical	TE	nicer collage	they have facilities but th	to become a best collage	better teaching	provides a facilities they have
9/28/2016 15:38:07	shyam tade	shyamtade01@gmail.com	9167573749	Chemical	TE	Open wall campus	No campus selection for chemical			
9/28/2016 15:39:11	Dipika Ravindra	seguridipika@gmail.com	9175708534	Chemical	TE	Good staff for teaching	No proper campus for ch	Sport, NSS	To bring more companies	To do good for student
9/28/2016 15:40:50	Abid Husen Tandel Shaik	abidhustan1996@gmail.com	8805773744	Chemical	TE	good quality education	nothing	good campus interview	campus placement	better practical knowledge
9/28/2016 15:42:35	anand arun jadhav	anandajadhav71@gmail.com	8360412080	Chemical	TE	good education	night library	campus placement	practical education	improve teaching
9/28/2016 16:47:28	Kaladevashem 129@gmail	kaladevashem129@gmail.com	7387748677	Chemical	TE	good education	nothing	campus placement	to good practical knowled	improve teaching
9/28/2016 16:47:49	Shakha Mihir Tushar	shakha090101@gmail.com	9225110648	Chemical	TE	staff	nothing	teaching staff quality	in commode, modern	teaching staff

Figure 3 Overview of the responses obtained by using the electronic spreadsheet

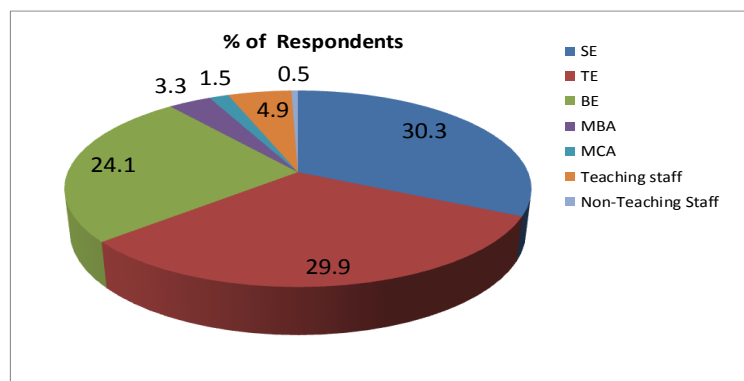


Figure 4 Class wise and branch wise details of participants

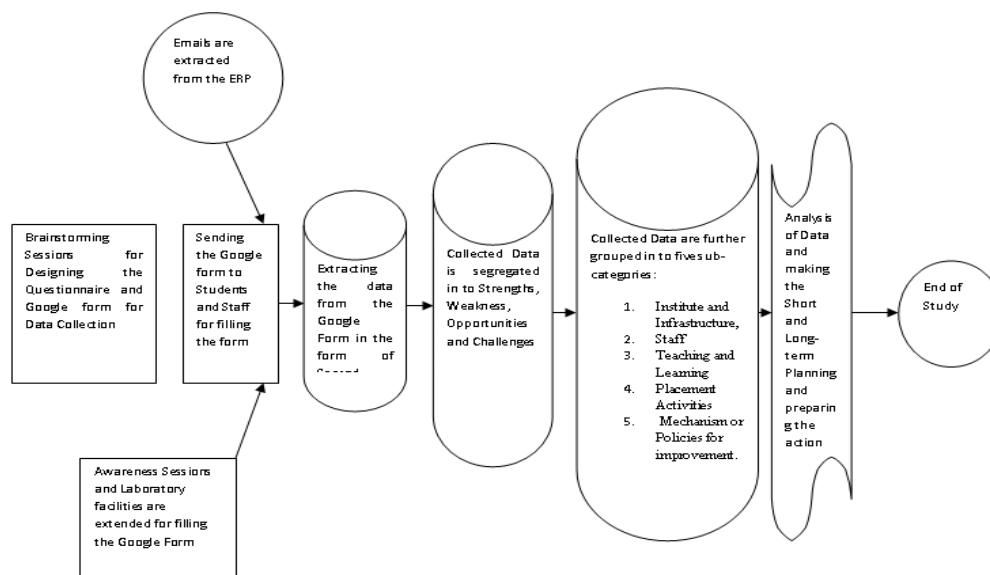


Figure 5 Grouping and Analysis of Data

#### 4.4 Preparation of SWOC Matrix

Overwhelming response of staff and students has been observed with the implementation of IT tools in collecting data for SWOC analysis. The collected data were analyzed and tabulated in a SWOC matrix. A SWOC matrix showing some of the important responses for sub-category "Institute and

Infrastructure" is shown in Table 1. Similar matrices were prepared for the remaining sub-categories namely Staff, Teaching and Learning, Placement activities and Mechanism or Policies. The remaining matrices are not shown here for space reasons.

Table 1 SWOC Matrix for sub-category "Institute and Infrastructure"

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>Strong Educational background, good management ,Great vision, clean,green campus, Good brand name and trustworthy</li> <li>Excellent Library with E-learning facilityandWonderful playground and sports facility</li> <li>Strong alumni network in India and abroad, Social reach of the institute is good</li> <li>High merit Students, MoU's with Industries,Very good Training and Placement Cell</li> </ul>	<ul style="list-style-type: none"> <li>No Night library and non availability of 24/7 library</li> <li>Limitednumber of RO water purifiers</li> <li>Conventional Classrooms</li> <li>Conventional Washrooms</li> <li>Non autonomous college</li> <li>No ATM machine in college campus</li> </ul>

Opportunities	Challenges
<ul style="list-style-type: none"> <li>To become 1<sup>st</sup> college in Pune University and in Maharashtra State</li> <li>Institute should start the Learn and Earn program.</li> <li>To start an own University</li> <li>MoU's with Foreign University for Staff and Student exchange programs</li> <li>Undertaking interdisciplinary research / projects</li> </ul>	<ul style="list-style-type: none"> <li>Cut throat competition with other colleges</li> <li>To stay on top by Maintaining the rank of institution</li> <li>Admission of students and attracting talented students from the pool</li> <li>To produce good engineers which will help growth of India</li> <li>Challenge from emerging competitors.</li> <li>Increase of institutes in Nashik</li> </ul>

Based on the SWOC matrices, short term and long term action plan for the institute was prepared. These were presented to the higher authorities and detailed discussions were carried out. Few such short term and

long term plans and corresponding action initiated to overcome the weakness, address opportunities and challenges at the institute level for the sub-category Institute and Infrastructure have been shown in Table 2.

**Table 2 Proposed Short Terms and Long Term Action Plan**

Short-term Goals		Long-term Goals	
Short Term Plan	Action initiated	Long Term Action	Action initiated
To extend library timing for the students	Library time has been extended.	To get Accreditation from the regulators	Applied for NAAC and accredited with A grade and applied for NBA
To Make IT enabled classrooms	Smart board and IT tools are used in the class room	To become an autonomous institute	
To improve the facility of potable drinking water	More number of RO purifiers are installed	To Sign MOU's with foreign Universities for Staff and Student exchange	Foreign Universities are being explored
To undertake interdisciplinary research projects	New incentives are provided to students for undertaking the interdisciplinary research Projects. Separate Institute Innovation Council is formed to encourage innovations	To start its university	It is being explored

## 5. Conclusion

This case study presents a mechanism for carrying out the SWOC analysis by using IT tools. IT enabled SWOC study ensures the transparency and protects the identity of participants in the study there by helping them to put their views fearlessly. Further, IT enabled SWOC enables the stake holders to participate in the study from their respective locations. Similar mechanism or methodology can be adopted in other

institutes for conducting the SWOC study by modifying the Google form as per the needs and objectives. The current study has enabled the institute to focus on the short and long term initiatives and actions. The outcome of this SWOC study has also benefited the institute in obtaining accreditation from NAAC.

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