

ABCD Analysis of Task Shifting – An optimum Alternative Solution to Professional Healthcare Personnel Shortage

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ABSTRACT

Task shifting is an optimum alternate solution in the healthcare system to address the acute shortage of professionally qualified healthcare workers in developing countries. This will temporarily help in solving the big problem of providing quality and timely health services to the needy people. Despite many trained health care professionals, our health care system is struggling to provide optimum services to the patients due to many reasons including the high burden of infectious diseases, emigration of trained professionals, difficult working conditions, and low motivation by country governments. Even though, the permanent solution to this problem is to create more professional doctors by increasing training courses, training facilities through modifying government policies and enhancing resources to do so, such actions and resultant solutions take a long time to realize in practice. Hence a quick optimum solution is needed to address the critical shortage of trained healthcare professionals. It is logically argued and in many places practically proven that out of many alternatives, the best alternative for healthcare executives in any hospital of primary health centres is the strategic decision of thinking and implementing the so called strategy of task-shifting. In this paper, we have analysed the process of task-shifting by considering its advantages, benefits, constraints, and disadvantages using an analysing technique called ABCD analysing framework. As per the ABCD framework, the various determinant issues of related to the task shifting for organizational health service performance are identified using focus group method are : (1) Organizational Issue, (2) Alternative Acceptors Issue, (3) Donor Physicians Issue, (4) Patients and Relatives Issue (5) Societal Issue, and (6) Country Issue. Each determinant issue has sub-issues called key attributes used for analyzing the advantages, benefits, constraints, and disadvantages which are the four major constructs of the framework. The factors affecting the various determinant issues of for task shifting for each key issues under four constructs are derived and 172 critical constituent elements (CCE) of these factors are listed under the ABCD constructs.

Keywords: Task shifting, Healthcare system, Patient care, ABCD analysis, CCE of task shifting.

1. INTRODUCTION :

In strategic Management of handling organizational situations, various types of strategies are used which include operational level strategies, business level strategies, and corporate level strategies. At the operational level, an organization struggles on how to

utilize resources optimally at low cost and less wastage to produce its products or provide its services. The effectiveness and efficiency in producing the product or in providing service play a major role in organizational success. At business level, an organization may use business level strategies like competitive strategy or red ocean strategy [1], monopoly

strategy or blue ocean strategy [2], sustainable strategy or green ocean strategy [3], and survival strategy or black ocean strategy [4]. At corporate level, the organization is supposed to expand its business to other industry sectors to add values across different businesses. The Implementation of these strategies sometimes needs a huge amount of resources and time. Due to organizational, business, or environmental constraints, many organizations may not be able to implement planned strategies to achieve their goal. In such cases, organizations can follow parallel strategy for a short term/time until a permanent solution to the problem is available. Such strategy is called “*Alternative Strategy*” and is finding attraction and followed by many organizations across industry sectors to provide a temporary solution to an intensive problem. Such an alternative solution has been seen in healthcare organizations in many developing countries where there is an acute shortage of professionally qualified doctors to cure intensive and long term infectious diseases.

Task shifting is an acceptable alternative strategy by the World Health Organization and it provides a quick solution to the problem of deficiency of health professionals by means of transferring clinical care responsibilities from more specialized professionals to less specialized professionals or specialized professionals from paramedical areas through proper delegation. This alternative strategy to realize the objective of providing healthcare to the needy people is one major objective of United Nations Sustainable Development Goals [5-10]. Even though, the permanent solution to this problem is to create more professional doctors by increasing training courses, training facilities through modifying government policies and enhancing resources to do so, such actions and resultant solutions take a long time to realize in practice. Hence a quick optimum solution is needed to address the critical shortage of trained healthcare professionals. Thus in healthcare management, providing healthcare services to needy people by shifting the task of from one cadre of health staff to another cadre based on providing sufficient training to handle the situations is considered as task-shifting. More precisely, Task-shifting describes a situation where a

patient care task normally carried out by a physician is transferred to a health professional with a different but related or lower level of education and training, or to a person trained specifically to perform a limited task only for a short period, without having a formal health education. Such innovative solutions in healthcare are promising for patient service through adopting alternative patient survival strategy to quickly expand the workforce in an emergency to meet the demand within the organization without much training. Many reviews have analysed the effectiveness of task-shifting process in various countries and in various healthcare organizations in treating various chronic diseases [11-19]. In this paper, we have analysed the process of task-shifting in healthcare organizations as an alternative strategy by considering its advantages, benefits, constraints, and disadvantages using an analysing technique called ABCD analysing framework [20].

2. ABCD ANALYSIS – A NEW FRAMEWORK FOR FACTORS & ELEMENTAL ANALYSIS :

To discuss the effect of Task shifting on various stakeholders, we have analysed the advantages, benefits, constraints, and disadvantages of task-shifting using our own developed ABCD analysis framework [20]. ABCD analysis framework [21] is suitable for analysing business concepts, business systems, technology, business models, business idea, a tool to be used in a task, or a material to be used in a device, etc. in terms of identifying various affecting factors for chosen determinant issues under four constructs called advantages, benefits, constraints, and disadvantages of some key attributes. In the qualitative analysis using ABCD framework, the concept/ system/ strategy/ technology/ model/idea/tool/material can be further analysed by identifying constitutional critical elements under each construct. In the quantitative analysis using ABCD framework [20], the appropriate score/weightage is to be given to each constituent critical element under each construct, through empirical research methodology, and the total score is to be calculated for each construct and by evaluating the scores, the concept/idea/system/ technology/strategy/tool/material for the

device can be accepted or rejected. Thus ABCD analysis framework can be used as a research tool in above mentioned areas and is a simple but systematic analyzing technique for business models/systems/ concepts/ideas /technology/ strategy/tools/material analysis [20]. ABCD analysis is used for analysing number of topics including Higher Education Stage Model [22], (3) National Assessment and Accreditation Council (NAAC) accreditation process [23], (4) Private University System in India [24], (5) Study of New National Institutional Ranking Framework (NIRF) System [25], (6) ABC organizational research performance model [26], (7) Elemental and factor analysis of the usage of dye-doped polymer films for photonic applications [27], (8) Online Industry Oriented Campus (OIOC) Placement Model [28], (9) Six thinking hats model for lateral thinking [29], (10) Analysis of 'Theory A' on Organizational Performance [30], ABCD Analysis of Recently Announced New Research Indices [31], Factor Analysis based on ABCD Framework on Recently Announced New Research Indices [32] and ABCD Analysis as Research Methodology in Company Case Studies [33]. In the above topics, ABCD framework is mainly used to conduct "factor analysis" (to determine affecting factors on various determinant issues of a topic) and/or used for "elemental analysis" to identifying various critical constituent elements under four constructs which affect the topic of research.

In this paper, as per the ABCD framework, the various determinant issues related to the task shifting for organizational health service performance are identified using focus group method. These determinant issues are : (1) Organizational Issue, (2) Alternative Acceptors Issue, (3) Donor Physicians Issue, (4) Patients and Relatives Issue (5) Societal Issue, and (6) Country Issue. The key attributes of each determinant issues have been used for analyzing the advantages, benefits, constraints and disadvantages which are the four major constructs of the framework. The factors affecting the various determinant issues of for task shifting for each key attributes under four constructs are derived and the critical constituent elements (CCE) of these factors are listed under each the ABCD

constructs [20].

3. OBJECTIVE OF PRESENT STUDY :

This type of study is necessary to align investment in human resources for health care services with the current and future needs of the population and of health systems, taking account of the supply market dynamics and education policies of the country, to address the shortages and improve distribution of health workers, so as to enable maximum improvements in health outcomes, social welfare, employment creation, and economic growth. The objective of the work is to assess the gaps in the healthcare system in order to fulfil the needs of patients who are suffering from chronic diseases and to find out the importance of task shifting.

4. ABCD LISTING OF TASK-SHIFTING :

The predefined condition for ABCD analysis as per its framework is ABCD listing [34-44]. In this section, the advantages, benefits, constraints, and disadvantages of Task-shifting as an alternative survival strategy are listed.

(1) Advantages of Task-Shifting :

- It is an alternative strategy for organizations to provide minimum patient care during critical situations.
- Task shifting allows quick remedy in organizations and countries where there is an acute shortage of qualified physicians.
- Optimum health solutions to needy people at the right time.
- Task-shifting strategy improves the quality of healthcare services in the country.
- It is a positive sum game where all the stakeholders get benefit.
- Temporary Relief to unemployment problem
- Use of local paramedical personnel with additional training in chosen area based on demand.
- Job opportunity for paramedical alternative health workers.
- Quality patient care through proper training to alternative health workers.

(2) Benefits of Task-Shifting :

- Availability of alternative healthcare services.
- Better patient service using Acceptors.
- Cost-effective healthcare services.

- Creates an opportunity of increased job offerings for paramedical professionals with a comparatively better salary in developing countries.
- Long term treatment at affordable cost.
- Immediate health service to the patients.
- Task-shifting may retain the healthcare businesses locally.
- Maximize the efficiency of Alternative healthcare workers.
- Effective way of handling health professional's scarcity.

(3) Constraints of Task-Shifting :

- Difficulty in getting support from doctors/qualified physicians.
- Convincing the patients and his/her relatives on this alternative strategy.
- Convincing the society on this alternative strategy.
- Following strict policies, procedures and legal guidance to the entire process of Task-shifting.
- Maintaining quality of healthcare through Task-shifting.
- Educating & counselling the patients to know the importance of task-shifting.

(4) Disadvantages of Task-Shifting :

- Opposition from doctors/qualified physicians.
- Unqualified para-medical personnel starts treating the patients which may create legal and ethical problems.
- Societal acceptance is difficult.
- Risk to alternative healthcare workers.

5. ABCD ANALYSIS OF TASK-SHIFTING :

ABCD analysis framework methodology of strategy analysis consists of identifying various determinant issues related to Task-shifting as an alternative strategy. This is done by identifying various stakeholders of the system or strategy. Once the determinant issues are identified, the key attributes and the corresponding affecting factors under the constructs advantages, benefits, constraints, and disadvantages are to be identified. For every affecting factors under four constructs the critical constituent elements have to be determined.

5.1 DETERMINANT ISSUES:

Task-shifting is an organizational strategy in a

given country where availability of qualified medical professionals (physicians) are less in number and hence there is a scarcity of such professionals in healthcare organizations. This describes a situation where a patient care task normally carried out by a physician is transferred to a health professional with a different but related or lower level of education and training, or to a person trained specifically to perform a limited task only for a short period, without having a formal health education. In such emergency situations, the healthcare organization should be able to adopt an alternative strategy to expand its workforce to meet the demand of professional physicians. The various stakeholders of such situation are the country, the healthcare organization, the physicians as donors, the alternative professionals as acceptors, the patients, the patient relatives, and the society. Thus the determinant issues related to the task-shifting are : (1) Organizational Issue, (2) Alternative Acceptors Issue, (3) Donor Physicians Issue, (4) Patients and Relatives Issue (5) Societal Issue, and (6) Country Issue. ABCD analysis framework makes use of these determinant issues for determining the affecting factors as per the four constructs advantages, benefits, constraints, and disadvantages under each key attributes.

5.2 KEY ATTRIBUTES:

The key attributes of each determinant issues have been used for analyzing the advantages, benefits, constraints, and disadvantages which are the four major constructs of the framework. Each determinant issue may contain one or more key attributes. The ABCD constructs are determined for a given determinant issue using the identified key attributes. The key attributes for Task-shifting as an alternative survival strategy is listed in Table 1.

Table 1 : Various determinant issues and key attributes for Task-shifting alternative strategy.

S. No.	Determinant Issues	Key Attributes
1	Organizational Issue	1. Quality health service
		2. Quick service
		3. Strategy
		4. Demand
2	Alternative Acceptors Issue	1. Skills
		2. Training period
		3. Attitude
3	Donor Physicians Issue	1. Intention
		2. Support
		3. Honest
4	Patients and Relatives Issue	1. Service
		2. Fear
		3. Need
		4. Timeliness
5	Societal Issue	1. Scarcity
		2. Chronic diseases
		3. Health service
6	Country Issue	1. People health
		2. Health Facility to everybody
		3. Professional manpower
		4. Utilization

5.3 FACTOR ANALYSIS USING ABCD FRAMEWORK:

The framework allows the researchers to identify the affecting factors of Task-shifting corresponding to the different key attributes under four constructs advantages, benefits,

constructs, and disadvantages as shown in table 2. Depending on the number of determinant issues and corresponding key attributes, and the number of affecting factors may vary.

Table 2 : Analysis of Task-shifting in Healthcare organizations using ABCD framework.

S. No.	Determinant Issues	Key Attribute	Advantages	Benefits	Constraints	Disadvantages
1	Organizational Issue	Quality health service	Up to acceptable level	Solution to shortage of Physicians	Identifying acceptors	Risk of compromising quality
		Quick service	Healthcare support	Healthcare service to needy patients	Short training required	Slow due to carefulness
		Strategy	Alternative for scarcity	Solution to healthcare problems	Not universally acceptable	Survival strategy
		Demand	Solutions to needy people	Low cost	Preparing Acceptors	Not long term solution

2	Alternative Acceptors Issue	Skills	Opportunity to cure patients	Job opportunity	Short Training requirement	Risk and fear of legal action
		Training Period	Short term Training required	Additional knowledge	Not skilled like physician	Inadequate training
		Attitude	Positive towards patient service	Possibility to get good name/ popularity	Low quality service	Poor Quality health service
3	Donor Physicians Issue	Intention	Getting help	Relaxation during unmanageable demand	Dilemma in task-shifting	Objection
		Support	Experience sharing	Support to Acceptors	Involvement on training	Physicians non-cooperation
		Honest	Accepting the task-shifting	Solution to scarcity of Physician	Oppose from colleagues	Protests from colleagues
4	Patients and Relatives Issue	Service	Availability	Patient care	Alternative professionals	Risk factor
		Fear	Acceptance of task-shifting by patients	Additional care	Acceptance of task-shifting by Relatives	Rejection of healthcare service
		Need	Support for task-shifting	Optimum solution	No alternative	Delay in disease identification
		Timelines	In time service	Service satisfaction	Delay in medication	Long time for curing
5	Societal Issue	Scarcity	Alternative solution may be cheap	Low cost and in time caring	Treatment by paramedical professionals	Risk in treatment
		Chronic deceases	Immediate treatment	Long term treatment at affordable	Delay in disease	Adjusting to task-shifting

				cost	identification	model
		Health service	Low cost service	Affordability for poor people	Support from qualified physicians	Compromise on quality healthcare
6	Country Issue	People health	Care in time	Good health service	Availability of acceptors with equal knowledge	Acceptance of the model
		Health Facility to everybody	Satisfactory healthcare service	At affordable cost	Convincing the organizations to follow such strategy	Model can be applicable only in certain areas of healthcare
		Professional manpower	Shifting the man power through training	Abundant manpower in healthcare sector	With compromised quality	Competitive and trained alternatives
		Utilization	Job for paramedical professionals	Temporary Relief to unemployment problem	Considering it as Country Policy	Acceptance of the Government and people

Depending on the number of determinant issues on a given subject of analysis, and a number of key issues/key attributes, the number of affecting factors may vary. In case of quantitative analysis, these affecting factors can be ranked by giving scores to them based on their weightage, which can be calculated using focused group method.

5.4 ELEMENTAL ANALYSIS USING ABCD FRAMEWORK :

As a part of the further analysis, the *constituent critical elements* for each construct have to be determined using its elemental analysis technique. For each ABCD construct of Task-shifting, the critical constituent elements have to be identified and listed so that four additional tables for four sets of constituent critical elements can be developed.

Further, in quantitative analysis, these critical constituent elements can be ranked based on their score/weightage in Quantitative analysis under each ABCD constructs to get quantitative result on the importance of each construct. The results on the sum of the total scores of advantages (construct A), the sum of the total scores of benefits (construct B), the sum of the total scores of constraints (construct C), and the sum of the total scores of disadvantages (construct D) have to be compared. The total sum of the scores of advantages and benefits should be more than the total sum of the scores of constraints and disadvantages, for real systems. But in this analysis we made an attempt to identify various critical constituent elements through focus group method and are listed in Tables 3 to Table 6.

Table 3 : Critical Constituent Elements based on Advantages of Task-shifting as an alternative strategy for Healthcare organizations.

Sl. No.	Issue	Factors affecting	Critical Constituent Elements
1.	Organizational Issue	Up to acceptable level	Cure of disease
			Controlling pain
		Healthcare support	Availability of acceptors
			Acceptance by patients & relatives
		Alternative for scarcity	Transferring responsibility
		Solutions to needy people	Training acceptors
			Fulfilling the demand
2.	Alternative Acceptors Issue	Opportunity to cure patients	Patient satisfaction
			Skill development
		Short term Training required	Skill utilization
			Quick training
		Positive towards patient service	Confident to treatment
			Positive Attitude
			Sympathy in patient service
3.	Donor Physicians Issue	Getting help	Low cost model
			Helping large number of patients
		Experience sharing	Problem solving using alternatives
			To support Acceptors
		Accepting the task-shifting	To support Patients
			Honest effort in Patient care
			Training Acceptors to Task-shift
4.	Patients and Relatives Issue	Availability	Demand based Service to patients
			Availability of Alternative
		Acceptance of task-shifting by patients	Fear about Severeness of disease
			Effort on quick recovery
		Support for task-shifting	Urgency in patient support
			Availability of alternative as acceptors
		In time service	Medicine in Time
Cure in minimum time			
5.	Societal Issue	Alternative solution may be cheap	Scarcity of doctors need alternative
			Task-shifting leads cheaper alternative
		Immediate treatment	Care for Chronic deceases
			Patient satisfaction
		Low cost service	Health service for everybody
			Quality health service for Pooors
6.	Country Issue	Care in time	Satisfactory health services
			Improved healthcare level
		Satisfactory healthcare service	Satisfied Patients
			Improved quality of health services
		Shifting the man power through training	More Professional manpower for healthcare
			Quality health services
		Job for paramedical professionals	Paramedical personnel Utilization
			Utilization of country resources for alternative solution

Table 4 : Critical Constituent Elements based on Benefits of the Task-shifting as an alternative strategy for Healthcare organizations.

Sl. No.	Issue	Factors affecting	Critical Constituent Elements
1.	Organizational Issue	Solution to shortage of Physicians	Quality health services for everybody Attainment of organizational goal
		Healthcare service to needy patients	Quick service to Patients No rejection of Patients
		Solution to healthcare problems	Alternative Strategy Optimum solution
		Low cost	Managing the Demand Service to poor people
2.	Alternative Acceptors Issue	Job opportunity	Utilization of Skills Enhanced employment
		Additional knowledge	Confidence through Quick Training Trained Professionals
		Possibility to get good name/ popularity	Changed Attitude Positive thinking Opportunity to extended serving
3.	Donor Physicians Issue	Relaxation during unmanageable demand	Positive thinking for solution Managing the situations
		Support to Acceptors	Enhanced team members More Acceptors through training
		Solution to scarcity of Physician	Involvement in Training Creating more professionals for treating a particular disease Involvement in solving country problem
4.	Patients and Relatives Issue	Patient care	Quality Service Quick service at affordable cost
		Additional care	Additional care removes fear Proper counselling removes fear
		Optimum solution	Needy patients Proper guidance
		Service satisfaction	Healthcare in time Timely service through Acceptors
5.	Societal Issue	Low cost and in time caring	Optimum solution to scarcity of doctors Affordable cost during high demand
		Long term treatment at affordable cost	Long time satisfactory care for chronic deceases Avoiding self-medication in society
		Affordability for poor people	Health service to everybody Social justice
6.	Country Issue	Good health service	Good health index Healthy citizens
		At affordable cost	Low cost Health Facility to everybody Quality services to poor at low cost
		Abundant manpower in healthcare sector	Need based enhanced Professional manpower Improved quality healthcare services
		Temporary Relief to	Enhanced employment opportunity

		unemployment problem	Utilization of paramedical acceptors through training.
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Table 5 : Critical Constituent Elements based on constraints of the Task-shifting as an alternative strategy for Healthcare organizations.

Sl. No.	Issue	Factors affecting	Critical Constituent Elements
1.	Organizational Issue	Identifying acceptors	Committed acceptors Qualified acceptors
		Short training required	Training the Acceptors Choosing right paramedical professionals
		Not universally acceptable	Acceptable Strategy Counselling the patients and relatives
		Preparing Acceptors	Demand based training Confidence and hard working
2.	Alternative Acceptors Issue	Short Training requirement	Upgrading the Skills Upgrading the attitude
		Not skilled like physician	Improving the skills through quick Training Deciding the training period
		Low quality service	Changing attitude on quality service Awareness of their responsibility
3.	Donor Physicians Issue	Dilemma in task-shifting	Intentional decline to train & guide Ethical Issue
		Involvement in training	Involved Support Training & support to Acceptors
		Oppose from colleagues	Honest Involvement Honest contribution
4.	Patients and Relatives Issue	Alternative professionals	Having doubt in quality Service Acceptance of health service
		Acceptance of task-shifting by Relatives	Fear on genuine service Accepting the ability of Alternatives
		No alternative	Need based acceptance Bargaining in Fee
		Delay in medication	Delay in diagnosis Delay in medication
5.	Societal Issue	Treatment by paramedical professionals	Scarcity of Alternatives Training Alternatives
		Delay in disease identification	Lack of experience in handling chronic diseases Scarcity in sophisticated instruments
		Support from qualified physicians	Attitude problem in health service Making them to contribute to solve the problem
6.	Country Issue	Availability of acceptors with equal knowledge	Compromise for People health Providing good quick training
		Convincing the organizations to follow such strategy	Organizational acceptance Arranging the alternatives by Healthcare Organizations
		With compromised quality	Patient acceptance Professional manpower

		Quality health service in the country
	Considering it as Country Policy	Upgrading the skills of Internal resources
		Utilization of internal resources

Table 6 : Critical Constituent Elements based on disadvantages of the Task-shifting as an alternative strategy for Healthcare organizations.

Sl. No.	Issue	Factors affecting	Critical Constituent Elements
1.	Organizational Issue	Risk of compromising quality	Failures in diagnostics
			Failure in medication
		Slow due to carefulness	Dissatisfaction due to slow service
			Delayed medication may increase the duration of hospitalization
		Survival strategy	Effect on brand value
			Effect on revenue
		Not long term solution	Decrease in Demand with time
Compromising the revenue			
2.	Alternative Acceptors Issue	Risk and fear of legal action	Hesitation to Accept due to lack of Skills
			Difficulty in improving and matching skills
		Inadequate training	Effect on quality treatment due to short training.
			Inability of Alternatives to improve skills during short training
		Poor Quality health service	Quality may not a criteria for Acceptors
			Affects the Task-shifting strategy
Serving without responsibility			
3.	Donor Physicians Issue	Objection	Not supporting
			Not involved in training
		Physicians non-cooperation	Non-cooperation in case problems
			Spreading gossips against task-shifting strategy
		Protests from colleagues	Opposing the strategy
			Agitating against the strategy due to predicted fall of their importance
4.	Patients and Relatives Issue	Risk factor	Doubt in cure of diseases Service
			Doubt in the ability of Acceptors
		Rejection of healthcare service	Fear on validity of diagnostics
			Fear in acceptance of Medication
		Delay in disease identification	Doubt in medication process
			Delay in cure due to problems in belief.
		Long time for curing	Fear of delay
			Fear of wrong treatment
5.	Societal Issue	Risk in treatment	More failure rates
			Adoptability
		Adjusting to task-shifting model	No alternative for treatment of chronic deceases
			Cheap service with compromised quality
		Compromise on quality healthcare	Quality of Health service may deteriorate

			Quality of Physicians may also effected
6.	Country Issue	Acceptance of the model	Compromise in People health
			Compromise in quality of healthcare
		Model can be applicable only in certain areas of healthcare	Imbalance in quality of healthcare services between countries
			Many organizations may take the advantage even if qualified Physicians are available.
		Competitive and trained alternatives	Dependency of alternative paramedical Professionals
			Quality of paramedical professionals
	Acceptance of the Government and people	Over utilization of Paramedical professionals	
		Under utilization of Qualified Physicians	

6. CONCLUSIONS :

Task shifting is a promising policy option for healthcare organizations, governments, and society to increase the productive efficiency of the delivery of quality healthcare services, increasing the number of services provided at a given quality and cost or to improve the quality and decrease the cost of health services. Task-shifting may lead to the development of new professional cadres or use of parallel cadres such as pharmacists, physiotherapists, Nursing professionals, or any other paramedical graduates that evolve with technology-specific and country-specific alternative human resources. The ABCD analysis of task-shifting is performed in this paper by considering six determinant issues Twenty one key attributes, eighty four affecting factors, and the analysis also brought about 172 critical constituent elements which satisfy the success of this analysis methodology.

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