# Quantitative ABCD Analysis of Consumers' Intention toward Mitigation of Food Waste in Restaurants

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Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 798**

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## ABSTRACT

**Purpose:** *The primary goal of the ABCD Analysis Framework is to discover the variables that affect customers' intentions to mitigate food waste while dining in restaurants and to assess the underlying determinants and issues that underpin the model's advantages, benefits, challenges, and disadvantages. An appropriate score / weightage can be given for each component utilizing the ABCD model. Additionally, the framework intends to apply factor analysis and elementary analysis to get additional understanding of the subject.*

**Design:** *The published papers pertaining to the ABCD analysis framework have been extensively evaluated for this study. By giving proper weight to key attributes and using quantitative analysis through focus group interaction, the study was able to identify the key influencing variables and essential constituent aspects for the mitigation of food waste behaviour of consumers in restaurants.*

**Findings:** *Based on the ABCD analysis framework, it was discovered that many businesses and individuals adopt this new kind of approach that promotes sustainability or survival to get through their serious issues and find short relief. Through focus group discussions, the ABCD framework's assessment of consumers' intentions to reduce food waste has led to strong support for the advantages elements. Therefore, the results of this model will help back up the effectiveness of the mitigation of food waste in restaurants.*

**Originality/Value:** *The ABCD analysis method is used in this study to closely investigate consumers' intentions to reduce food waste while dining in restaurants. In order to comprehend the many aspects influencing customers' intention to mitigate food waste, the research utilizes determinant issues, key attributes, factor analysis and elementary analysis based on essential critical constituent elements.*

**Paper Type:** *Empirical analysis.*

**Keywords:** ABCD Analysis Framework, Factor Analysis, Elementary analysis, Quantitative analysis, Determinant issues, Key attributes, Consumers Intention, Mitigation of Food Waste in Restaurants

## 1. INTRODUCTION :

Due to the continued expansion of human culture, humanity has a significant challenge in figuring out the question to feed the world's population more effectively that is already overpopulated. A country is said to be in a condition of food security when all its people regularly have physical, social, and financial access to sufficient, nutritious food that fulfils their dietary needs and preferences. Food waste is a worldwide problem that impacts all three foundations of sustainable development: the environment, the economy, and society [1]. Food waste is the removal of food from the supply systems that is fit for consumption or which is spoiled or expired, primarily because of poor economic behaviour, poor stock management, or neglect. The production of more food in the supply chain can be limited by escalating competition for land, water, and energy resources [2]. As a result, it is critical to take another promising approach: reducing food waste. Food waste in the restaurant sector is not just an environmental problem

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 799**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

but also an economic and social one. To reduce the impact of food waste on the environment, consumers must minimize food waste in the food business [3]. The research stated food waste as the loss of food that could have been prevented under current circumstances due to people's irrational consumption goals and behaviours. It also defined food waste reduction as ordering food as necessary to prevent excessive waste, appreciating all types of food to decrease plate waste, and packing leftovers [4]. Food waste reduction helps feed more people, relieves strain on natural resources, and reduces the impact of greenhouse gas emissions from the food chain and biodiversity loss brought on by agricultural activities. These factors are all intimately related to food security [5]. The research reflects how essential it is to have an insight into the behaviours causing restaurant food waste [6]. Using the ABCD framework, knowledge should help to produce theoretical insights and practical consequences. These findings can help businesses and consumers to create more efficient strategies to reduce food waste at all levels. Determining specific food waste behaviours can also aid in the development of measures to reduce food waste. The reduction of total food losses in the food supply chain and the halving of per capita food waste at the retail and consumer level by 2030 are the major priorities. Given the significant quantity of food waste at the consumer level, preventing food waste at the very end of the food supply chain is crucial to minimizing negative on the environment. The ABCD analysis model is used to analyse and comprehend the suitability of this concept from the perspectives of various stakeholders. The effectiveness of a concept or idea in a particular environment is examined by using the ABCD analysis framework. This analytical framework was recently added to the business analysis framework. In addition, the ABCD analysis framework helps identify resources such as materials, equipment, information, and human resources for the goal of societal benefits [7]. Recently, the ABCD analysis framework has gained popularity as an analytical approach. Many studies use this framework to examine their business models since it identifies the determinant issues, key attributes, and critical constituent elements, as well as the knowledge of the affecting factors of the firm's success. In the quantitative analysis framework, each critical constituent element gives a score or weight utilizing the ABCD model. In empirical research, the total mean score for the constructs determines by evaluating the scores, which may then be accepted or rejected. Studies help to highlight the key ABCD framework-related organizational, operational, and administrative issues [8]. Once the challenges are identified, the advantages, benefits, constraints, and disadvantages must be determined through focus group interaction using the ABCD framework model. On the other hand, depending on the fundamental crucial characteristics, consumers' intention toward mitigating food waste in restaurants importance can be discussed and analysed. Therefore, the background of the ABCD model creation is studied, and quantitative ABCD analysis analyses customers' intentions to decrease food waste when dining in restaurants and identifies the key influencing factors for the research [9].

## 2. REVIEW OF LITERATURE TO KNOW CURRENT STATUS :

The renowned concept called as the ABCD analysis framework was a recently introduced business analysis framework during 2015 and is used for the purpose of analysing business concepts and systems, technology, business models or idea in determining various factors for chosen determinant issues under four essential constructs called advantages, benefits, constraints, and disadvantages [10]. Individual and system characteristics are included in the ABCD analysis framework; the efficiency of a concept or plan may also be studied using other methodologies in addition to ABCD analysis. The ABCD analysis model can also be used to analyse a given resource such as material, machine, information, or human resource based on its usefulness in society. The concept is further examined in the qualitative analysis utilising the ABCD framework by finding constitutional critical elements. Through empirical study, the quantitative analysis of ABCD framework assigns suitable scores/weightage to each of the critical constituent elements under each construct. The concept or approach will be accepted or rejected based on the scores of the various constructs calculated [11]. However, ABCD Analysis framework enables individuals to recognise and understand problems from the perspectives of several stakeholders, enabling the creation of an ideal solution.

## 3. OBJECTIVES OF THE STUDY :

(1) To examine the applicability of the ABCD Analysis framework on consumers' desire intention to reduce and mitigate food waste in restaurants based on reviews of the ABCD qualitative and quantitative analysis.

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 800**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

(2) To enumerate the advantages, benefits, constraints, and disadvantages of consumers' intentions to reduce food waste while dining in restaurants.

(3) To identify various determinant issues for reducing consumer food waste while eating in restaurants.

(4) To identify the affecting factors for each important key attribute using the ABCD analysis framework.

(5) To analyse the identified critical constituent elements based on the ABCD Analysis construct for consumers intention to mitigate food waste by using elementary analysis technique.

(6) To assess the critical constituent elements for each ABCD construct.

## 4. ABCD LISTING FOR QUALITATIVE ANALYSIS OF CONSUMERS INTENTION IN MITIGATING FOOD WASTE BEHAVIOUR IN RESTAURANTS :

The ABCD analysis framework is a reliable tool for identifying the firm's behaviour, structure, and dynamics for evaluating the effects of changes. Following the qualitative study with the framework, one may list the advantages, benefits, limitations, and drawbacks of each identified determinant issue, introducing the approach of ABCD listing. As a result, the ABCD listing may provide a prerequisite for ABCD analysis [12].

### 4.1 Review of ABCD listing in existing scholarly papers :

The ABCD analysis framework was developed by Aithal, P. S. et al. (2015) to provide an easy guideline for identifying various factors affecting the determinant issues based on the four constructs advantages, benefits, constraints, and disadvantages to detect various issues impacting the system and provide a path for solutions. The model will also give fundamental knowledge and can be utilized as a predetermined criterion for ABCD study, known as ABCD listing. Thus, it makes it easier for the researcher to evaluate ideas, plans, and businesses in the best possible way. The study tries to identify the critical constituent factors from employers, employees, and operational and environmental issues for the work-from-home concept through the concept of focus group interactions [13]. Table 1 depicts several scholarly publications that rely on ABCD listing from the authors' point of view:

**Table 1:** Scholarly papers of ABCD listing

| S. No. | Area of Research | Contribution | Reference |
|---|---|---|---|
| 1 | Company Case Studies | In this study, the ABCD analysis framework has taken into consideration various business-related factors on identifying the situations, decision-making, and dilemmas that the managers face daily by analyzing business problems that belong to an organization. | Aithal, P. S. (2017). [14] |
| 2 | Analysis of ABC Model of Annual Research Productivity | The analysis attempts to support the organization's research culture. The learning atmosphere at this organization encourages enterprises to explore and provide new information. ABC model might use as a quantitative benchmark. It instils a sense of development and direction in the organization and the people who work there. The research fosters a research culture across the entire organizational learning environment and collaboration to provide a quantifiable benchmark for growing organizations. It offers the company a feeling of direction and growth, as well as the faculty inside the company. | Aithal, P. S., & V. T. Shailashri. (2016). [15] |
| 3 | Role of MUDRA | The framework aims to support the SHGs and agriculturally related activities, which is necessary to increase the MUDRA maximum | Mahesh, K. M., & Aithal, P. S. (2022). [16] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 801**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

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| | | limit for the Schemes, raise awareness of the MUDRA loan for agriculturally related work and clinics, and clarify the role of MUDRA and NABARD in refinancing schemes for banks. | |
| 4 | Corporate Sustainability Disclosures | The ABCD considers how higher education institutions should disclose information on education in their corporate sustainability reports. It highlights its significance in the educational system and demonstrates how helpful it is to its stakeholders. | Nayak, P., & Kayarkatte, N. (2021). [17] |
| 5 | Indian Pharmaceutical Sector | The ABCD model provides a comprehensive view of the Indian pharmaceutical business, which has several benefits, chief among them the low production costs that have fueled its expansion. The industry's effects on the environment are by far its biggest drawback. | Shenoy, S. S., & Shailashri, V. T. (2022). [18] |
| 6 | Customer Perception towards Furniture | Purchasing items from a store is a dynamic activity that involves people. With the most valuable ABCD structure, people's perceptions of positive and negative sentiments are observed when using products that reveal numerous factors that attract customers to a multi-product store using traditional or digital marketing techniques. | Amin, V. S., & Kumar, A. (2022). [19] |
| 7 | Sofa Makers Customization Process. | In addition to being able to export their goods, sustainable business practices also give them the option to branch out into new product categories using their existing workers and equipment. | Amin, V. S., & Kumar, A. (2022). [20] |
| 8 | MSMEs and Sustainable development. | Numerous finance options that support the expansion of MSMEs engaged in green production are high lightened, and their prospects are focused. | Mahesh, K. M., & Aithal, S. (2022). [21] |
| 9 | Investors Cryptocurrency Adoption | Using the ABCD framework, the research regarding bitcoin users' behavioural intentions can develop a workable business strategy to remain competitive in the market. | Bhuvana, R., & Aithal, P. S. (2022). [22] |
| 10 | Green CSR Activities. | The study attempts to fulfill the dual objectives of social responsibility and brand value enhancement to draw and keep customers who employ green banking practices. | Nandini Prabhu, G., & Aithal, P. S. (2021). [23] |
| 11 | Fingerprint Biometric Attendance System. | By identifying the many determining issues including Security issues, Ease of use Issues, Input Issues, Process Issues, Performance Evaluation matrix Issue, this analysis provides a guideline to identify and assess the efficacy of Fingerprint Biometric Attendance System. | Krishna Prasad, K. (2018). [24] |
| 12 | Fashion Industry: Meta Platforms Inc. | Digital social media technologies are used to determine the company's marketing plans and the possibility of leveraging various corporate influencers as marketing tools. | Madhura, K., & Panakaje, N. (2022). [25] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 802**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 13 | Green education in higher education. | Traditional educational approaches should be abandoned, claims the research, to alter social learning and usher in a new era. A curriculum that caters to different backgrounds should create to guarantee fair involvement in problem-solving. The primary remedy will be to provide postgraduates and recent graduates with the knowledge they need to progress their professional careers as decision-makers in green education. | Aithal, P. S., & Rao, P. (2016). [26] |
| --- | --- | --- | --- |
| 14 | Smart library | As a result of technological development, physical libraries are replaced with digital ones in several countries. As a result, the general public and students everywhere can get the comprehensive and timely information they require. The proposed Universal Resource Center will represent a technological breakthrough that can make it possible for everyone on this planet to share intangible knowledge resources without any restrictions. | Aithal, P. S. (2016). [27] |
| 15 | B. COM Model in Corporate Auditing. | If the higher education system adopts new values to students that are advantageous to them, students' knowledge, skills, and employment prospects will increase. One such innovation is that students can take the C.A. exam without difficulty after finishing an undergraduate curriculum leading to a B. Com degree in Corporate Auditing. They will be able to pursue a professional opportunity by completing a C.A. after receiving a diploma which will enable them to face the challenges of the job market (IPCC). Students can get a dual degree or certification with the help of this integrated model. | Aithal, P. S., & Noronha, S. (2016). [28] |
| 16 | Diversity and Inclusion | For a business to be sustainable, diversity and inclusion are essential to having a varied workplace. | Krithi, & Ramesh Pai (2020). [29] |
| 17 | Social Engagement | The analysis demonstrates a wide range of advantages and benefits for the organization from CSR-related actions. As a result, social engagement can help an organization build a stronger brand. | Shailashri, V. T., & Kariappa, A. (2020). [30] |
| 18 | Impact of Green Energy | To combat global warming, the article focuses on using renewable energy production systems. | Aithal, P. S., & Acharya, S. (2016). [31] |
| 19 | Atomic Research Centres | The establishment and administration of an atomic research centre, a faculty-run micro-research centre, accelerates and intensifies the practice of individual research contribution. | Aithal, P. S., & Maiya, A. K. et al., (2022). [32] |
| 20 | Collaborative Social Engagement (CSE) | "Social Engagement" is a cutting-edge best practice model for higher education institutions. It combines the results of the NGO interventions, awareness campaigns, | Pradeep, M. D., & Aithal, P. S. (2022). [33] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 803**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

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| | | village school adoption, and public service initiatives, among others, to carry out social responsibility in higher education institutions. | |
| 21 | Green Financing | Industries must achieve overall green growth by putting several development activities that enable them to advance both environmentalism and commerce. Although green financing is still relatively new, it's beneficial. | Mishra, K., & Aithal, P. S. (2022). [34] |
| 22 | ICCT Technologies in Environmental Management | This study uses a qualitative ABCD analysis framework of ICCT in ecological management and implementation methods in ICCT's underlying technologies. | Aithal, P. S., & Aithal, S. (2022). [35]. |
| 23 | Digital Financial Inclusion | Financial institutions and FinTech firms should utilize the research as a guide to provide better digital services. It serves as a resource for DFI users interested in learning more about the benefits of financial inclusion through digital means. | Parvin, S. R., & Panakaje, N. A (2022). [36] |
| 24 | Corporate Social Responsibility in Public Sector Manufacturing's | Corporate sustainability initiatives have a positive influence on how employees view their employers and promote feelings of belonging to the organization and job satisfaction that boosts productivity. | Panakaje, N., & Bindhu, D. (2022). [37] |
| 25 | Agriculture Finance | For the purpose of obtaining financial assistance, land expansion, farm mechanisation, and irrigation, farmers must have access to agricultural financing. | Kambali, U. & Niyaz Panakaje, D. (2022). [38] |
| 26 | Women Entrepreneurship | Meal processing and preparation skills are generally strong among women. Women now have more work alternatives because of the expansion of the food processing sector. Many women start food processing businesses because they feel the need to participate in the processes of making money. | D'Silva, R. J., & Bhat, G. A. (2022). [39]. |
| 27 | Industry 4.0 Readiness Model | Indian engineering, which now generates the most foreign money, needs to establish a significant foothold in international markets if India is to become a worldwide economic giant. One such program, known as "Industry 4.0," has the potential to change the Indian engineering industry and make it more competitive on the world stage in a number of important areas. Using the ABCD framework, the suggested Industry 4.0 readiness model is qualitatively assessed. The framework is multidimensional and will assist enterprises in predicting how effective Industry 4.0 will be in their organizations. | Sony, Michael and Aithal, P. S. (2020). [40] |
| 28 | Industry 4.0 | Industry 4.0 is gradually expanding its influence in undeveloped nations since it requires large initial expenditures. The ABCD framework is applied to examine the impact of Industry 4.0 on various industries. | Sony, M., & Aithal, P. S. (2020). [41] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 804**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

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| | | According to the analysis, the engineering sector can develop smart products and solutions. It also helps the theoretical requirement for assessing the effects of Industry 4.0 in poor countries. However, Indian Engineering Industries would profit strategically from this endeavour and will assist to capture emerging markets. | |
| 29 | Student Development & Service Delivery Model | An innovative higher education training model for students' whole holistic development will be displayed at the university level by assessing an existing university model as best practice in the university system. The analysis helps to produce quality graduates with employability and entrepreneurship skills, allowing them to become autonomous, confident, and successful citizens of the country. It is suggested that these best practices be shared to make higher education more student-centered and industry-integrated. | Aithal, P. S., & Maiya, A. K. (2022). [42] |
| 30 | Frameworks used to Analyse International Business | When making judgments about international commerce, a multi-nation should assess its internal performance in terms of research and innovation, better manufacturing procedures, reduced production costs, lower wastage, better marketing tactics, and commendable after-sales support. Frameworks for analyzing the environment that affects a company's operations are employed by many worldwide businesses, as well as their business system and strategy. To analyse international business strategies and environmental analysis frameworks, we have utilized the ABCD listing approach to determine the advantages, benefits, restrictions, and downsides of these frameworks. | Aithal, P. S., (2017). [43] |
| 31 | Students' Perception: Industrial Internship | The Industrial Internship Program is a valuable resource for expanding students' learning opportunities. It influences students' perceptions of the industrial internship program. The study presents a model for assessing students' perceptions, identifies numerous influencing elements using the ABCD analytic framework, and evaluates management students' perceptions based on their experiences with pre-placement operations, student industrial internship units, and host companies. Results generally indicate that students benefited from the internship training program; nevertheless, pre-placement processes may be enhanced for a better internship experience. | Frederick, D. P., & Shailashri, V.T, (2022). [44] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 805**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 32 | Online Pharmacy Model | The continuous invention has aided in the advancement of technology and the improvement of people's standard of living. Because there are no regulations, there is a greater proclivity for fraud. Furthermore, they are aware that although making laws in India is one thing, ensuring that they are rigorously followed is quite another. The online pharmacy model is examined, and the many concerns with online pharmacies and the elements that influence them are investigated using ABCD structures and the ABCD listing approach. Online drug sales appear to have an equal number of advantages and disadvantages. Even though internet pharmacies are government-approved, there is still the possibility of fraud. We can only hope that FDI and the health ministry would create sufficient restrictions before giving the green light to e-pharmacists. | Aithal, A., & Shabaraya, A. R. (2018). [45] |
|----|----|----|----|
| 33 | Livestream as an Innovative Marketing | Due to COVID, companies were always thinking of creative methods to connect with customers while many physical retail locations were closed and people were indoors. Livestream is an excellent platform for attracting partners and internal personnel inside the firm. Due to this, the Customers' access to sellers grew. The analyst has understood that participation should not be limited to only purchasers. With the ability to lock in business partners and internal staff members, the future of retail and e-commerce is live streaming. The coronavirus epidemic wiped out practically every industry. | Rajasekar, D., & Aithal, P. S. (2022). [46] |
| 34 | Growth & Fate Analysis: Mangalore International Airport | Mangalore International Airport benefits both the aviation sector and the Indian economy. The analysis tried to evaluate both the economic analysis and the entire history of the Mangalore International Airport's growth. The study presents PPP in aviation from the viewpoints of numerous stakeholders, including the advantages, benefits, constraints, and disadvantages (ABCD listing). It also emphasizes the prediction study of the upcoming situation in which the well-known Adani Group acquires the Airport operations through a Public Private Partnership. This will increase AAI income, which will be utilized to fund more AAI investments in Tier II and Tier III cities, as well as general economic growth through job creation in and around the city and infrastructure modernization. | Kumari, P., & Aithal, P. S. (2020). [47] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 806**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 35 | Performance Evaluation of Dabur | The study focuses on assessing Dabur India Company's performance using the profitability ratio and understanding its CSR activities and how the CSR activities will help the organization increase sales, which will help the organization increase profit. People's shopping habits have changed in recent years, particularly for consumables. They favor natural items over synthetic ones. The ABCD analysis will be used in this study to measure how concerned the corporation is about the public through its CSR programs. Because it boosts immunity, this medication was in great demand during the COVID pandemic. Dabur is more concerned about his social position. It invests significantly in CSR projects. Finally, it is possible to infer that Dabur, an ayurvedic firm, is profitable. | Mayya, S. R. (2022). [48] |
| --- | --- | --- | --- |
| 36 | IT-Virtualization | Everyone is aware of the constant growth and evolution of the information technology industry. Server virtualization has provided root to utilize this technology, as technical trends are helping businesses to remove whole server farms and offer a lot of ways to the company's cost-saving while also making the IT infrastructure more inexpensive and adaptable. All these barriers will be overcome through virtualization. The concept will be implemented across a wide range of devices, including smartphones, laptop computers, and routers. Using a virtual computer on a smartphone might be advantageous for business purposes. | Lathika, K. (2016). [49] |
| 37 | Six Thinking Hats for Lateral Thinking | The communal decision-making process is significantly more efficient than individual decisions. The efforts to assess the circumstance culminate in various options to examine. When a manager or team of managers strives to make sound judgments, the six thinking hats method may be a key component of the organizational problem-solving process with help of the ABCD analysis. Six Thinking Hat as a way will assist the management in efficiently controlling his difficulties. Managers will never stop looking for the best answer to organizational challenges as long as they consistently practice and apply the six-hat thinking strategy. | Rathnayaka, B. M. T. N. et al., (2021). [50] |
| 38 | Microbial Fuel Cell-Challenges | A microbial fuel cell is a bio-electrochemical energy generation device. Natural bacterial interactions create power here. The underlying idea behind producing power from MFC provides a clear picture of dirty soil or wastewater being ubiquitous in rural | Acharya, S., & Aithal, P. S. (2017). [51] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 807**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

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| | | India, where people rely on such soil or water for agricultural purposes. It is feasible to create electrical energy instead of wasting soil sludge, which is plentiful in rural areas, as well as wastewater from cow houses and residential usage. This energy can be used as a supplement to other renewable energy sources. | |
| 39 | Water Purifier System to Produce Potable Water | A water purification system removes both undissolved and dissolved toxins from water by using a filter that uses a fine physical barrier, a chemical process, an optical process, or a biological process. Any kind and quantity of dirty water are converted into 100 percent clean water by this process. The characteristics of the ideal water purifier system are identified and discussed to transform contaminated water into clean water and relieve drinking and irrigation water issues. According to the findings, a practical water purifier system based on nanotechnology-based filters is capable of enhancing performance toward ideal water purifier performance. | Aithal, S., & Aithal, P. S. (2018). [52] |
| 40 | Theories of X, Y, Z and A | Since the era of industrialization, people management in organizational behaviour has grown in significance to boost production through increased manager and employee effectiveness. Based on research done in various production-related organizations throughout the 20th century, a new organizational behaviour theory dubbed the Theory of Accountability has been established in the 21st century. As a result of changes in business models, automation of production processes, changes in technology and the business environment, and changes in people's perspectives have been made. Theory A may be put into practice using an implementation framework with eight stages and a set of four steps for each level. This approach relies on communal identification of the need, collective goal setting, collective responsibility, collective monitoring, and collective accountability. The selection of a work plan, motivation, and role models are all instruments for success. | Aithal, P. S., & Kumar, P. M. (2016). [53] |
| 41 | Ideal Drug & Realization Opportunity | The idea of using nanotechnology, which is gaining ground as an all-encompassing technology, and the concept of creating an ideal drug in practice were looked at. It also highlights the advantages, benefits, constraints, and disadvantages of using nanotechnology in drug research to enhance drug delivery systems. The last comparison | Aithal, A., & Aithal, P. S. (2018). [54] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 808**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

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| | | between conventional medicines and pharmaceuticals based on nanotechnology is conducted in terms of Ideal System Characteristics. The focus of this study is on fresh analysis-based interpretations of nanotechnology in the pharmaceutical industry as well as futuristic research and knowledge generation. | |
| 42 | Blockchain Services | This article demonstrates Blockchain and its structure, tools, and blockchain-as-a-service to move towards a frictionless network by facilitating simple functionality. ICCT is a crucial all-purpose technology that assists in addressing issues related to fundamental requirements. Using the ABCD analysis framework was investigated the Hyperledger and tools, and blockchain services for several sectors. | Bhuvana, R., & Aithal, P. S. (2020). [55] |
| 43 | Ideal Software | Business process automation demands the use of software designed expressly for that purpose. Developing software for many business processes is a more difficult and time-consuming task, with numerous firms involved in software strategy and development. The ABCD study utilizes considers the feasibility of building such software using existing and future accessible technologies, as well as the implications of such software products on the IT sector. | Aithal, P. S., & Pai T, V. (2016). [56] |
| 44 | Atomic Research Centre: Srinivas University | Srinivas University aims to establish its own as a novel means of enhancing the research engagement and effort of individual faculty members in higher education institutions, including universities. The main purpose is to establish an Atomic Study Centre to perform intensive and concentrated research on a micro-topic by themselves and through a micro-team of self, colleagues, and students at the research, post-graduate, and undergraduate levels. By utilizing its stakeholders as a best practice in the education industry and emerging as a leader for other universities, Srinivas Institution, a research, and skill-focused institution may realize its aim of increasing research contribution to society. | Aithal, P. S., Maiya, A. K. et al., (2022). [57] |
| 45 | Treasury Management of Urban Cooperative Banks | The research focuses on the cooperative banking business, with an emphasis on urban cooperative banks. A financial reference was given to urban cooperative banks that are forming a significant share of the cooperative sector in financial inclusion and money management in Karnataka's rural, urban, and semi-urban areas. Research gaps for further exploration were identified in the study flow, | Hemantha Kumara, M.G. & Bhat, S. (2022). [58] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 809**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | and they were looked at using the ABCD and SWOC models to understand in an academic way. The research will be more useful and successful in understanding how to handle finances in society and even in businesses. | |
|---|---|---|---|
| 46 | Certara's Simcyp PBPK Simulator | The study aims to comprehend the current state of model-based drug development simulation software, with a focus on Certara's Simcyp software, its features, and its clients' usage pattern to prepare new drugs, its usage in research and development contribution over the last 22 years, and stakeholder analysis of Symcyp as a Certara research division using the SWOC framework and analysis of Symcip as simulation software using the ABCD analysis framework. Symcyp is a well-known simulation application in the pharmaceutical industry for model-based drug research and development for a wide spectrum of illnesses, according to the findings. | Aithal, A., Aithal, S., & Aithal, P. S. (2022). [59] |

**Table 2:** Focus Areas and Determinant issues by different authors in various fields of research using ABCD Analysis framework.

| Table 2: Focus Area and Determinant issues of various scholarly publications using ABCD analysis framework | | | |
|---|---|---|---|
| **S. No.** | **Focus Area** | **Determinant Issues identified by different authors** | **Reference** |
| 1 | Feasibility of Doing Business in the Bop Market | Profitability, new market strategies, product policies | Raj, Keerthan & Aithal, P. S. (2018). [60] |
| 2 | Stress Coping Mechanisms | Irregular working hours, social isolation, work hassels, cabin crew stress | Shetty, P. K., & Aithal, P. S. (2022). [61] |
| 3 | Organic Food Product and Purchase Intention | Environment, awareness, attitude, farmers issues, consumer issues, company issues and society issues | Mendon, S., & Aithal, P. S. (2022). [62] |
| 4 | Business Models & Concepts | Technological, social, environmental, employees and employer issues, operational and organisational issues. | Aithal, P. S. & Shailashree, V. et al., (2015). [63] |
| 5 | Working From Home | Customers, environmental / societal point of view, stakeholders, organization. | Reshma, & Aithal, P. S. et al., (2015). [64] |
| 6 | Academic Administrative System Implemented at SIMS | Administrative perspective, organizational objectives, academic and stakeholders' perspective, student service. | Reshma, P. S., Shailashree, V., Acharya, S., & Aithal, P. S. (2015). [65] |
| 7 | Stage Model in Higher Education | Academic issues, student issues, faculty issues and organizational issues. | Aithal, P. S., & Shailashree, V. T. et al., (2016). [66] |
| 8 | Business Models, Business Strategies, Operating Concepts & Business Systems | Different possible affecting factors, comparison of ABCD analysis with other models, advanced ABCD framework | Aithal, P. S. (2016). [67] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 810**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 9 | Analysis of NAAC Accreditation System | Curricular aspects, Student support, learning resources, management, best practises. | Aithal, P. S., & Shailashree, V. T. et al., (2016). [68] |
|---|---|---|---|
| 10 | Dye Doped Polymers for Photonic Applications | Commercialization and Material issues, application issues, customer/student perspective, environmental and social prospective | Aithal, P. S., & Shailashree, V. T. et al., (2016). [69] |
| 11 | New National Institutional Ranking System | Infrastructure, Administration, faculty, learning resources, development and community. | Aithal, P. S., & Shailashree, V. T. et al., (2016). [70] |
| 12 | CCE Approach Of 'Theory A' On Organizational Performance | Managerial issues, Society and stakeholders' issues, individual and organization, operational concept. | Aithal, P. S. & Suresh Kumar, P. M. (2016). [71] |
| 13 | Choice Based Credit System in Higher Education | Choice based credit system, conventional education model, technology online ubiquitous model, new evaluation methods. | Aithal, P. S., & Kumar, P. M. (2016). [72] |
| 14 | Analysis of Systems & Technology using ABCD Framework | Nanotechnology, green technology, business, environment, organization and consumer issues. | Aithal, P. S. (2021). [73] |
| 15 | Mobile Banking | Financial data transactions, security, banking services, operational issues, customers. | Aithal, P. S., & Shailashree, V. T. et al., (2016). [74] |
| 16 | Application Of ABCD Analysis Model for Black Ocean Strategy | Corporate strategy, Organization, Employees, Internal Policies, External regulations, decision making | Aithal, P. S., Shailashree, V., et al., (2015). [75] |
| 17 | Red Ocean Strategy | Strategy, market competition, business, system performance evaluation. | Aithal, P. S. (2016). [76] |
| 18 | Private University System in India | Educational opportunities, learning resources, competitive exams, faculty development, student development, organization growth. | Aithal, P. S., & Shailashree, V. T. et al., (2016). [77] |
| 19 | Announced New Research Indices | Research publications, research contributions, citation databases, institutional ranking. | Aithal, P. S. (2017). [78] |
| 20 | Nanotechnology as green technology | Nanotechnology, markets, expansion, society, Information technology, sustainable technology | Aithal, P. S., & Aithal, S. (2018). [79] |
| 21 | Generating Wealth at The Base of The Pyramid | Stakeholder issues, multinational companies, societal development, business decision. | Raj, K., & Aithal, P. S. (2018). [80] |
| 22 | IEDRA Model of Placement Determination | Business systems, student placement, model schedule, student focused, campus interviews. | Shenoy, V., & Aithal, P. S. (2017). [81] |
| 23 | Institutions Risk Decisions Using Six Thinking Hats Analysis | Organizational, Conceptual issues, Operational & Managerial issues, Societal & stakeholders' issues. | Rangi, P. K., & Aithal, P. S. (2020). [82] |
| 24 | ABCD Analysis of On-Line Campus Placement Model | Online interview, online campus placement, Job aspiring, students, institutions, recruiters, society. | Shenoy, V., & Aithal, P. S. (2016). [83] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 811**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 25 | Task Shifting to Professional Healthcare Personnel Shortage | Alternative acceptors issues, donor physicians' issue, patients and relative issues, country issue, nursing professionals, efficiency. | Aithal, A., & Aithal, P. S. (2017). [84] |
|----|----|----|----|
| 26 | Online Shopping | Merchant issues, centralised financial institutions issues, customers, and logistics issues. | Frederick, D. P., Sujaya, H., & Salins, M. (2022). [85] |
| 27 | Online Food Delivery Services | Food delivery technology, restaurants, customers, delivery service, business. | Frederick, D. P., & Bhat, G. (2022). [86] |

**Table 3:** Quantitative ABCD analysis to know the weightage of ABCD constructs

| S. No. | Area of Research | Contribution | Reference |
|----|----|----|----|
| 1 | Organic Food Product and Impact on Purchase Intention | The research had revealed 98 key critical constituent elements under various constructs. The weightage ranking of Benefits discloses a high satisfactory level followed by advantages and disadvantages, and constraints with no satisfactory level that fulfils the performance of this study. | Mendon, S., & Aithal, P. S. (2022). [62] |
| 2 | Corporate Sustainability Disclosures by Higher Educational Institutions | A total of 52 critical constituent elements were considered in the analysis. According to the interpretation, the weightage for advantages was highest, followed by benefits, constraints, and disadvantages. As a result, higher educational institutions' concept of education for corporate sustainability disclosures is quite advantageous to its stakeholders as per the study. | Nayak, P., & Kayarkatte, N. (2021). [17] |
| 3 | Online Food Delivery Services | This quantitative ABCD research considered 48 essential constituent factors and discovered that the Advantages factors had the greatest influence on the performance of the business, followed by Benefits. There is no satisfactory level for Constraints and Disadvantages. As a result, the analysis supports the usefulness of various idea in Food delivery services. | Frederick, D. P., & Bhat, G. (2022). [86] |
| 4 | Generating Wealth at the BoP | The study identified 90 key constituent elements. In this analysis, the elements will be feasible by changing the disadvantages generated by constraints into advantageous possibilities that help firms in terms of growth, earnings, and expansion. Therefore, it may create money profitably by selling in BOP areas of emerging countries, and its efficacy in giving value to organizations and producing revenue due to its advantageous factor. | Raj, Keerthan and Aithal, P. S. (2018). [60] |
| 5 | IEDRA Model | The research uncovered 101 key constituent elements. The presence of high satisfying levels of the IEDRA Model was determined in this investigation as were the Advantages and Benefits factors, demonstrating the effectiveness of its existence at the service of job-seeking students on campus. | Shenoy, V., & Aithal, P. S. (2017). [81] |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 812**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 6 | Stress Coping Mechanisms | The research revealed 48 key constituent elements. Researchers strongly recommend workplace stress coping techniques since the advantages and benefits of this strategy outweigh the constraints and disadvantages. To increase employee productivity, it is advantageous to suggest that stress coping mechanisms be used. | Kumari, P., & Aithal, P. S. (2022). [61] |
|---|---|---|---|
| 7 | Online Shopping. | The study used 60 critical constituent elements to determine the most influencing aspects of online shopping, and the results show that the Advantages factor has the greatest influence on the country's success followed by benefits. | Frederick, D. P., Sujaya, H., & Salins, M. (2022). [8] |

**4.2 ABCD Listings of Consumer Intention for Reducing Food Waste in Restaurants :**

The advantages, benefits, constraints, and disadvantages of consumer intention for mitigating food waste in restaurants are listed based on the literature reviewed in section 4.1. The following are the ABCD listings of Consumer Intention in mitigating food waste in restaurants.

**ADVANTAGES:**
(1) Cost savings can happen when purchasing only as much food as required.
(2) It can reduce carbon footprint and methane emissions from landfills.
(3) The Pollution that occurs due to the production, transportation, manufacturing, and preparation of food can be reduced with better energy and resource management.
(4) Reducing food waste while dining not only helps the environment but saves money on disposal in restaurants.
(5) The environment benefits from food waste if proper food waste decomposing practices are followed for it reduces the need to extract resources and the likelihood of contamination.
(6) By participating in campaigns or drives to reduce food waste, individuals can lessen the impact on the environment's carbon footprint.
(7) Consumers who practice environmentally responsible behaviour while dining out significantly reduce food waste and benefit the environment.
(8) Consumers who are focused on ensuring food safety, preserving the environment, and leading healthy lifestyles are the ones who are interested in preventing food waste.
(9) The influence of sustainability and new developing ideas in reducing food waste has flourished and has resulted in different approaches concerned with societal and environmental concerns.
(10) Food waste quotes or posters improve consumers' minds, leading them to avoid food waste and instilling a positive mindset toward consumers' aim to reduce food waste while dining in restaurants.
(11) Consumers who bring containers or doggy bags to restaurants to take leftover food for later use or to feed their pets or animals aid in reducing food waste and the environmental effect that results from it.
(12) As consumer awareness of food safety has increased, environmental and health concerns have become increasingly important in encouraging them to order the proper amount and avoid food waste.
(13) Consumers and restaurants can help the environment and society by managing food properly through ideal consumption and preparation practices. Doing so will also lower the costs associated with food preparation by restaurants.

**BENEFITS:**
(1) Sustainable food systems will help communities adapt to a changing global environment, reduce food waste, and fight poverty, which will benefit all sectors of the economy.
(2) Consuming healthy food with dietary considerations in mind is an investment in leading a healthy lifestyle. It helps to prevent food waste as restaurant meal purchases are pre-planned

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 813**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

when consumer behavior is influenced by dietary concerns.

(3) By offering different portion sizes to consumers, restaurants may rethink how to customize meal orders that will help to reduce food wastage.

(4) Consumers are given doggy bags where they may take their leftovers home and enjoy their dinner, saving restaurants money on waste disposal.

(5) Planning meals in advance and avoiding impulsive purchases might help consumers waste less food and spend less money.

(6) Establishing self-service in the buffet can benefit consumers to serve and consume given food and avoid plate waste.

(7) Restaurants that put an effort to prevent food waste by adopting environmentally sustainable practices will inspire consumers to be drawn to and uphold their social commitments.

(8) Engaging in food waste composting practices can reduce food waste which can be a cost-effective and environmentally friendly way to enhance the health of the soil and reduce greenhouse gases.

(9) Through educational campaigns and food waste drives, food waste may be prevented and minimized at the consumer and producer levels. As a result, hunger, poverty, and ecological damage are reduced which can benefit society and the environment.

(10) Teaching children the value of food from home and setting a good example by sharing and not wasting food will help reduce food waste. In this way, people will use these practices wherever they eat and contribute to reducing food waste while benefiting themselves and society as well.

**CONSTRAINTS:**

(1) The government's ability to impose policy changes may force restaurant owners to alter their business practices and adhere to their standards. This is an emerging area hence lacks standardization.

(2) There is insufficient training and experience in managing sustainability concerns in restaurants.

(3) The fact that portion sizes have grown dramatically over the past years and are sometimes two to eight times higher than USDA or Federal Drug Administration (FDA) guideline portions is a constraint leading to food waste generation.

(4) Food preparation practices, ingredient storage practices, and failure to use food trimmings and waste by kitchen staff members can all lead to food wastage.

(5) Even more, waste occurs from the frequent practice of keeping buffets well-stocked during business hours rather than letting items run out just before closure.

(6) Buffets waste food more than other types of meals because of health code regulations that prevent leftover food from being donated or lawfully repurposed.

(7) There is a lack of awareness about food waste initiatives, very few restaurants are aware of and consider it.

(8) The negative eating habits linked to lifestyle, upbringing, and ignorance contribute to food waste leading to higher levels of food waste behavior.

**DISADVANTAGES:**

(1) Lack of public awareness and knowledge about reducing food waste.

(2) Lack of expertise in customer service requirements on food waste reduction methods.

(3) Ineffective recycling practices and poor waste management practices can increase the carbon footprint.

(4) Environmental research receives insufficient attention due to a lack of strict regulations and inconsistent guidelines regarding food waste.

(5) Insufficient infrastructure for managing food waste disposal results in poor community collaboration around food waste.

(6) A growing population may result in more waste and damage to the environment.

(7) Food waste results from a failure to consider individuals consumption pattern.

(8) Consumers may waste food as a result of poor quality or overly large servings.

## 4. STRUCTURE OF ABCD ANALYSIS FRAMEWORK :

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 814**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

The ABCD analysis framework of a concept is studied by effectively recognizing and assessing constructs such as Advantages, Benefits, Constraints and Disadvantages by considering determinant issues and key attributes by quantifying the critical constituent elements, as shown in Figure 1.
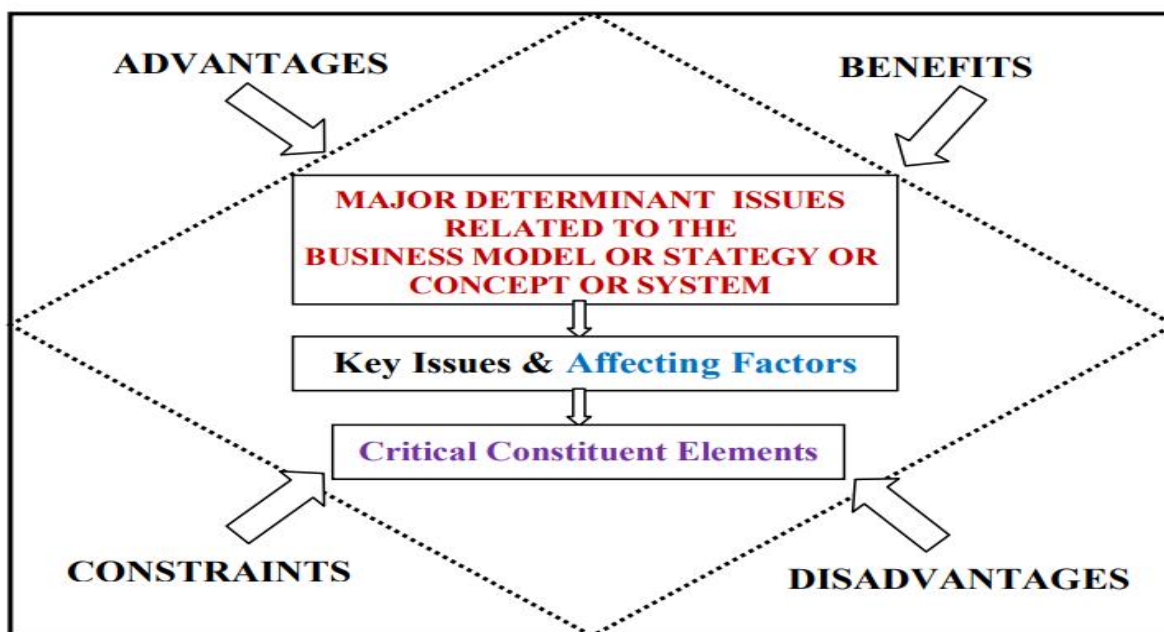


**Fig. 1:** The Block diagram of the issues affecting the Business Model, or Concept or System as per ABCD analysis framework.

## 5. KEY ATTRIBUTES AFFECTING CONSUMERS INTENTION TOWARDS MITIGATION OF FOOD WASTE IN RESTAURANTS :

The main aspects affecting the concept of consumers' intention for food waste reduction in restaurants are studied and analyzed, with specific significant attributes of each determining issue identified. The significant attributes are the key attributes of the determinant issues for establishing the contributing factors of every construct which are advantages, benefits, constraints, and disadvantages. The key aspects of the determinant issues are evaluated in order to reduce the duration of the analysis. Table 4 depicts the determinant issues which are related to consumers' intentions toward food waste reduction in restaurants. The identified key attributes are shown in the table 4 for each issue.

| S. No. | Determinant Issues | Key Attributes |
|--------|--------------------|----------------|
| **Table 4:** List of determinant issues and their possible key attribute Consumers food waste mitigation in restaurants |||
| 1. | Consumer issues | Intention, Attitude, Health Concern, Consumption pattern |
| 2. | Society Issues | Subjective Norms, Knowledge, Societal Contribution Environment |
| 3. | Company issues | Training & Development, Competition, Research & Innovation, Business growth |
| 4. | Government issues | Awareness, Policies, Involvement, Investment |
| 5. | Environmental Issues | Ethics, Environmental Literacy, Environment Citizenship Social Responsibility |

## 6. FACTOR ANALYSIS OF CONSUMER INTENTION TOWARDS MITIGATION OF FOOD WASTE IN RESTAURANTS USING ABCD FRAMEWORK :

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 815**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

The factor analysis for the affecting factors of consumer intention towards food waste mitigation in restaurants is to analyse several determinant issues such as Consumer Issues, Society Issues, Company Issues, Government Issues, and Environmental Issues. The qualitative analysis uses focus group interactions. Table 5 shows the factor analysis for affecting factors regarding consumer intention towards food waste mitigation for the identified determinant issues and key attributes.

**Table 5:** Factor analysis for affecting factors regarding consumer intention

| Determinant Issues | Key Attributes | Advantages | Benefits | Constraints | Disadvantages |
|---|---|---|---|---|---|
| Consumer Issues | Health concern | Dietary concerns | Healthier choice | Excess ordering | Affects public health |
| | Attitude | Positive | Mitigation of food waste | Negative | Increase in landfills |
| | Consumption pattern | Quality food | Full consumption | Over supply of food | Additional wastage |
| | Intention | Positive attitude | Environmental concern | Lack of interest | Food loss |
| Society Issues | Subjective Norms | Influences from people | Motivation | Over purchase | No control |
| | Knowledge | Proper waste management techniques | Proper disposal | Lack of information | Land Degradation |
| | Societal Contribution | Boosts the community's resiliency | Clean society | Poor practices | Increased economic losses |
| | Environment | Better management of energy and resource | Lower carbon footprint | Improper waste disposal | Harms biodiversity |
| Company Issues | Training & Development | Food handling practices | Food safety | Lowers Reputation | Lack of efficiency |
| | Competition | Food quality | Better business | Poor operation | Hinders business growth |
| | Research and Innovation | Updated food waste technology | smooth operation | Slower process | Time consuming |
| | Business growth | Reduces liability | Cost advantage | Poor management | High operational cost |
| Government Issues | Awareness | Environment friendly Behaviour | Sustainability | Effects development growth | Decline in economy |
| | Policies | Corrective actions | Food security | No follow up | Contribution to greenhouse gas emissions |
| | Involvement | Raise awareness | Recovery | Ignorance | Higher food wastage |
| | Investment | Protection and | Solve food waste | Lack of co-operation | Environmental |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 816**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | Preservation technology | | | degradation |
|---|---|---|---|---|---|
| **Environmental Issues** | **Ethics** | Environment Preservation | Pro-Environmental Behaviour | Unawareness | Environmental problem |
| | **Environmental literacy** | Sustainable consumption | Saves Nature | Lack of food waste practices | Global warming |
| | **Environment Citizenship** | Concern towards animals | Sense of responsibility | Negligence | Lack of Sustainability |
| | **Social Responsibility** | Support environment causes | Promotes awareness | Lack of Involvement | Environmental deterioration |

## 7. ELEMENTARY ANALYSIS BASED ON CRITICAL CONSTITUENT ELEMENTS :

The critical constituent elements for each variable employ the elementary analysis method for further examination. The "CCE" must be determined and listed alongside four more tables (tables 6–9) that contain aspects as part of the ABCD analysis. Based on their score or weight, these elements can also be ranked. Each ABCD construct must generate results in a quantitative study to determine its relative value to the other constructs. Table 6 depicts an elementary analysis based on the Advantages of consumer intention toward mitigating food waste behavior in restaurants.

**Table 6:** Elementary analysis based on the Advantages of consumer intention

| S. No. | Issues | Key Attributes | Factors Affecting | Critical Constituent Factors |
|---|---|---|---|---|
| 1 | Consumers Issues | Health concern | Dietary concerns | Healthy Lifestyle |
| | | Attitude | Positive | Adoption of habit |
| | | Consumption pattern | Quality food | no food wastage |
| | | Intention | Positive attitude | Save environment |
| 2 | Society Issues | Subjective Norms | Influences from people | Sharing food |
| | | Knowledge | Proper waste management techniques | Proper disposal |
| | | Societal Contribution | Boosts the community's resiliency | Standard of living |
| | | Environment | Better management of energy and resource | Conservation of natural resources |
| 3 | Company Issues | Training & Development | Food handling practices | Reduction of over-preparation |
| | | Competition | Food quality | Good name |
| | | Research and Innovation | Updated food waste technology | Easier operation flow |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 817**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | **Business growth** | Reduces liability | Decreases economic issue |
|---|---|---|---|---|
| 4 | Government Issues | **Awareness** | Environment friendly Behaviour | Influences public |
| | | **Policies** | Corrective actions | Implementation of practices |
| | | **Involvement** | Raise awareness | Brings change |
| | | **Investment** | Protection and Preservation Technology | Economic growth |
| 5 | Environmental Issues | **Ethics** | Environment Preservation | Sustain biodiversity |
| | | **Environmental literacy** | Sustainable consumption | Pro-environmental Behaviour |
| | | **Environment Citizenship** | Concern towards animals | Sense of Responsibility |
| | | **Social Responsibility** | Support environment causes | Sustainable practices |

Through factor analysis and elementary-based analysis, a number of challenges and problems are identified. The following table depicts the elementary analysis based on benefits regarding consumers intention to reduce food waste in restaurants. Table 7 displays the Benefit Factors of Consumers' Intention to Reduce Food Waste in Restaurants as well as the critical constituent element identified by the Focus Group.

**Table 7:** Benefit Factors of Consumers' Intention to Reduce Food Waste

| S. No. | Issues | Key Attributes | Factors Affecting | Critical Constituent Factors |
|---|---|---|---|---|
| 1 | Consumers Issues | **Health concern** | Healthier choice | Increased perceived healthiness |
| | | **Attitude** | Mitigation of food waste | Lowers carbon footprint |
| | | **Consumption pattern** | Full consumption | No food waste |
| | | **Intention** | Environmental concern | Less pollution |
| 2 | Society Issues | **Subjective Norms** | Motivation | Adopt Behaviour |
| | | **Knowledge** | Proper disposal | Saves cost |
| | | **Societal Contribution** | Clean society | Reduced waste disposal |
| | | **Environment** | Lower carbon footprint | Reduces greenhouse gases. |
| 3 | Company Issues | **Training & Development** | Food safety | Maintains business |
| | | **Competition** | Better business | Better growth |
| | | **Research and Innovation** | smooth operation | Increase consumer base |
| | | **Business growth** | Cost advantage | Increase in profit |

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**PAGE 818**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

SRINIVAS PUBLICATION

| 4 | Government Issues | Awareness | Sustainability | Conservation of natural resources |
|---|---|---|---|---|
| | | Policies | Food security | Stability in food system |
| | | Involvement | Recovery | Citizens interests |
| | | Investment | Solve food waste | Economic productivity |
| 5 | Environmental Issues | Ethics | Pro-Environmental Behaviour | Preservation of environment |
| | | Environmental literacy | Saves Nature | Sense of concern |
| | | Environment Citizenship | Sense of responsibility | Awareness of obligations |
| | | Social Responsibility | Promotes awareness | Educates people |

The elementary analysis is determined by analyzing many concerns and problems. Table 8 shows the elementary analysis based on the constraints of mitigation of food waste and how they affect consumers' intentions.

**Table 8:** An elementary analysis based on consumer constraints for reducing food waste in restaurants.

| S. No. | Issues | Key Attributes | Factors Affecting | Critical Constituent Factors |
|---|---|---|---|---|
| 1 | Consumers Issues | Health concern | Excess ordering | Increase in food waste |
| | | Attitude | Negative | Behavioural intention |
| | | Consumption pattern | Over supply of food | Increased consumption of natural resources |
| | | Intention | Lack of interest | Negligence |
| 2 | Society Issues | Subjective Norms | Over purchase | Increase in waste |
| | | Knowledge | Lack of information | Lack of awareness |
| | | Societal Contribution | Poor practices | Lack of development |
| | | Environment | Improper waste disposal | Low productivity |
| 3 | Company Issues | Training & Development | Lowers Reputation | Decline in business growth |
| | | Competition | Poor operation | unfavourable situation |
| | | Research and Innovation | Slower process | Lack of technical skills |
| | | Business growth | Poor management | Business risk |
| 4 | Government Issues | Awareness | Effects development growth | Lack of knowledge |
| | | Policies | No follow up | Decline in economy |

Meghana Salins, et al. (2022); www.srinivaspublication.com

PAGE 819

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | Involvement | Ignorance | Lack of interest |
|---|---|---|---|---|
| | | **Investment** | Lack of co-operation | Lack of funding |
| **5** | **Environmental Issues** | **Ethics** | Unawareness | Harms environment |
| | | **Environmental literacy** | Lack of food waste practices | Poor waste disposal system |
| | | **Environment Citizenship** | Negligence | Environmental degradation |
| | | **Social Responsibility** | Lack of Involvement | Poor Participation |

The elemental analysis approach identifies the essential components of any construct. Table 9 displays the disadvantages Factors of Consumers' Intention to Reduce Food Waste in Restaurants as well as the critical constituent element identified by the Focus Group.

**Table 9:** Disadvantages of consumers' intention toward the reduction of food waste in restaurants

| S. No. | Issues | Key Attributes | Factors Affecting | Critical Constituent Factors |
|---|---|---|---|---|
| **1** | **Consumers Issues** | **Health concern** | Affects public health | Food insecurity |
| | | **Attitude** | Increase in landfills | Environment pollution |
| | | **Consumption pattern** | Additional wastage | Increase in methane gases |
| | | **Intention** | Food loss | Wastage of resources |
| **2** | **Society Issues** | **Subjective Norms** | No control | High risk |
| | | **Knowledge** | Land Degradation | Global warming |
| | | **Societal Contribution** | Increased economic losses | Lowers the standard of living |
| | | **Environment** | Harms biodiversity | Climate change |
| **3** | **Company Issues** | **Training & Development** | Lack of efficiency | Poor productivity |
| | | **Competition** | Hinders business growth | Business loss |
| | | **Research and Innovation** | Time consuming | Loses competitive edge |
| | | **Business growth** | High operational cost | Poor management |
| **4** | **Government Issues** | **Awareness** | Decline in economy | Loss of opportunities |
| | | **Policies** | Contribution to greenhouse gas emissions | Pollution |
| | | **Involvement** | Higher food wastage | Landfills |
| | | **Investment** | Environmental Degradation | Health risk |

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**PAGE 820**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| 5 | Environmental Issues | Ethics | Environmental problem | Effects eco systems |
|---|---|---|---|---|
| | | **Environmental literacy** | Global warming | Low awareness |
| | | **Environment Citizenship** | Lack of Sustainability | Challenging environment |
| | | **Social Responsibility** | Environmental deterioration | Affects societal concern |

## 8. QUANTITATIVE CRITICAL CONSTITUENT ELEMENT OF CONSUMERS INTENTION TOWARD MITIGATING FOOD WASTE IN RESTAURANTS AS PER ABCD ANALYSIS FRAMEWORK :

The ABCD analysis framework identifies the relevant score weightage that attributes to all the Critical Constituent Elements (CCE) under each variable in the quantitative analysis, and the aggregate total quantifies by assessing the score, the concepts, ideas, system, and strategy, which may then be accepted or rejected. The quantitative ABCD analysis includes a detailed study of various critical constituent elements for each of the key attributes, as well as the application of weights by focus group. The rankings for different weights are expressed as follows:

3 – Satisfactory

2 – Neutral

1 – Unsatisfactory

The tables below represent the advantages, benefits, constraints, and disadvantages of consumer food waste mitigation in restaurants and essential constituent elements uncovered by focus groups. The Critical Constituent Elements (CCE) described below help to identify the variables influencing determinant issues. Table 10 provides an overview of an elementary analysis based on the advantages of restaurant food waste and how they influence consumers' intention to reduce waste.

**Table 10:** Elementary analysis based on the advantages of consumers intention toward mitigation of food waste in restaurants

| S. No | Determinant Issues | Key Attributes | Factors Affecting | Critical Constituent Elements | Key Attributes Total Score | Issues Total Score | Total Score (Mean Value) |
|---|---|---|---|---|---|---|---|
| 1 | Consumers Issues | Health concern | Dietary concerns | Healthy Lifestyle | 28 | 107 | 155.0 |
| | | Attitude | Positive | Adoption of Habit | 27 | | |
| | | Consumption pattern | Quality food | no food Wastage | 26 | | |
| | | Intention | Positive attitude | Save Environment | 26 | | |
| 2 | Society Issues | Subjective Norms | Influences from people | Sharing food | 25 | 103 | |
| | | Knowledge | Proper waste management techniques | Proper disposal | 26 | | |
| | | Societal Contribution | Boosts the community's resiliency | Standard of living | 26 | | |
| | | Environment | Better management of | Conservation of natural resources | 26 | | |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 821**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | energy and resource | | | |
| 3 | **Company Issues** | **Training & development** | Food handling practices | Reduction of over preparation | 28 | 105 |
| | | **Competition** | Food quality | Good name | 25 | |
| | | **Research & Innovation** | Updated food waste technology | Easier operation flow | 26 | |
| | | **Business Growth** | Reduces liability | Decreases economic issue | 26 | |
| 4 | **Government Issues** | **Awareness** | Environment friendly Behaviour | Influences public | 25 | 95 |
| | | **Policies** | Corrective actions | Implementation of practices | 22 | |
| | | **Involvement** | Raise Awareness | Brings change | 24 | |
| | | **Investment** | Protection and Preservation technology | Economic growth | 24 | |
| 5 | **Environment al Issues** | **Ethics** | Environment Preservation | Sustain biodiversity | 24 | 103 |
| | | **Environmental literacy** | Sustainable consumption | Pro-environmental Behaviour | 26 | |
| | | **Environment Citizenship** | Concern towards animals | Sense of Responsibility | 24 | |
| | | **Social Responsibility** | Support environment causes | Sustainable practices | 29 | |

**Table 11:** Elementary analysis based on the benefits of consumers intention toward mitigation of food waste in restaurants

| S. No | Determinant Issues | Key Attributes | Factors Affecting | Critical Constituent Elements | Key Attributes Total Score | Issues Total Score | Total Score (Mean Value) |
|---|---|---|---|---|---|---|---|
| 1 | **Consumers Issues** | **Health concern** | Healthier choice | Increased perceived healthiness | 25 | 100 | 153.3 |
| | | **Attitude** | Mitigation of food waste | Lowers carbon footprint | 25 | | |
| | | **Consumption pattern** | Full consumption | No food waste | 25 | | |
| | | **Intention** | Environmental concern | Less pollution | 25 | | |
| 2 | **Society Issues** | **Subjective Norms** | Motivation | Adopt Behaviour | 27 | 106 | |
| | | **Knowledge** | Proper disposal | Saves cost | 28 | | |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 822**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | **Societal Contribution** | Clean society | Reduced waste disposal | 26 | |
| | | **Environment** | Lower carbon footprint | Reduces greenhouse gases. | 25 | |
| 3 | **Company Issues** | **Training & Development** | Food safety | Maintains business | 27 | 105 |
| | | **Competition** | Better business | Better growth | 26 | |
| | | **Research & Innovation** | smooth operation | Increase consumer base | 25 | |
| | | **Business Growth** | Cost advantage | Increase in profit | 27 | |
| 4 | **Government Issues** | **Awareness** | Sustainability | Conservation of natural resources | 26 | 100 |
| | | **Policies** | Food security | Stability in food system | 25 | |
| | | **Involvement** | Recovery | Citizens interests | 22 | |
| | | **Investment** | Solve food waste | Economic productivity | 27 | |
| 5 | **Environmental Issues** | **Ethics** | Pro-Environmental Behaviour | Preservation environment | 27 | 104 |
| | | **Environmental literacy** | Saves Nature | Sense of concern | 25 | |
| | | **Environment Citizenship** | Sense of responsibility | Awareness obligations | 28 | |
| | | **Social Responsibility** | Promotes awareness | Educates people | 24 | |

**Table 12:** Elementary analysis based on the constraints of consumers intention toward mitigation of food waste in restaurants

| S. No. | Determinant Issues | Key Attributes | Factors Affecting | Critical Constituent Elements | Key Attributes Total Score | Issues Total Score | Total Score (Mean Value) |
|---|---|---|---|---|---|---|---|
| 1 | **Consumers Issues** | **Health concern** | Excess ordering | Increase in food waste | 20 | 82 | 113.5 |
| | | **Attitude** | Negative | Behavioural intention | 20 | | |
| | | **Consumption pattern** | Over supply of food | Increased consumption of natural resources | 21 | | |
| | | **Intention** | Lack of interest | Negligence | 21 | | |
| 2 | **Society Issues** | **Subjective Norms** | Over purchase | Increase in waste | 20 | 79 | |
| | | **Knowledge** | Lack of information | Lack of awareness | 21 | | |
| | | **Societal Contribution** | Poor practices | Lack of development | 20 | | |

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 823**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| S. No. | Determinant Issues | Key Attributes | Factors Affecting | Critical Constituent Elements | Key Attributes Total Score | Issues Total Score | Total Score (Mean Value) |
|---|---|---|---|---|---|---|---|
| | | Environment | Improper waste disposal | Low productivity | 18 | | |
| 3 | Company Issues | Training & Development | Lowers Reputation | Decline in business growth | 19 | 83 | |
| | | Competition | Poor operation | Unfavourable situation | 20 | | |
| | | Research and Innovation | Slower process | Lack of technical skills | 23 | | |
| | | Business growth | Poor management | Business risk | 21 | | |
| 4 | Government Issues | Awareness | Effects development growth | Lack of knowledge | 22 | 79 | |
| | | Policies | No follow up | Decline in economy | 17 | | |
| | | Involvement | Ignorance | Lack of interest | 22 | | |
| | | Investment | Lack of co-operation | Lack of funding | 18 | | |
| 5 | Environmental Issues | Ethics | Unawareness | Harms environment | 19 | 82 | |
| | | Environmental literacy | Lack of food waste practices | Poor waste disposal system | 21 | | |
| | | Environment Citizenship | Negligence | Environmental degradation | 21 | | |
| | | Social Responsibility | Lack of Involvement | Poor Participation | 21 | | |

**Table 13:** Elementary analysis based on the disadvantages of consumers intention toward mitigation of food waste in restaurants

| S. No. | Determinant Issues | Key Attributes | Factors Affecting | Critical Constituent Elements | Key Attributes Total Score | Issues Total Score | Total Score (Mean Value) |
|---|---|---|---|---|---|---|---|
| 1 | Consumers Issues | Health concern | Affects public Health | Food insecurity | 20 | 75 | 87.5 |
| | | Attitude | Increase in landfills | Environment pollution | 20 | | |
| | | Consumption pattern | Additional wastage | Increase in methane gases | 18 | | |
| | | Intention | Food loss | Wastage of resources | 17 | | |
| 2 | Society Issues | Subjective Norms | No control | High risk | 14 | 69 | |
| | | Knowledge | Land Degradation | Global warming | 18 | | |
| | | Societal Contribution | Increased economic losses | Lowers the standard of living | 19 | | |
| | | Environment | Harms biodiversity | Climate change | 18 | | |
| | Company Issues | Training & Development | Lack of efficiency | Poor productivity | 16 | 66 | |

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**PAGE 824**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

| | | **Competition** | Hinders business growth | Business loss | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | **Research and Innovation** | Time consuming | Loses competitive edge | 16 | |
| | | **Business growth** | High operational cost | Poor management | 15 | |
| **4** | **Government Issues** | **Awareness** | Decline in economy | Loss of opportunities | 15 | 59 |
| | | **Policies** | Contribution to greenhouse gas emissions | Pollution | 15 | |
| | | **Involvement** | Higher food wastage | Landfills | 15 | |
| | | **Investment** | Environmental Degradation | Health risk | 14 | |
| **5** | **Environmental Issues** | **Ethics** | Environmental problem | Effects eco systems | 14 | 59 |
| | | **Environmental literacy** | Global warming | Low awareness | 14 | |
| | | **Environment Citizenship** | Lack of Sustaina | Challenging environment | 16 | |
| | | **Social Responsibility** | Environmental deterioration | Affects societal concern | 15 | |

## 9. GRAPHICAL REPRESENTATION OF AFFECTING FACTORS FOR CONSUMERS' INTENTION TOWARD MITIGATING FOOD WASTE BEHAVIOUR IN RESTAURANTS :

The focus group analysis evaluated the critical constituent elements, determinant issues, and key attributes in the above table by allocating numerical weights. These rankings are expressed as 3 for Satisfactory, 2 for Neutral, and 1 for Not Satisfactory.



| | Advantages | Benefits | Disadvantages | Constraints |
| --- | --- | --- | --- | --- |
| Total Mean Score | 155 | 153.3 | 113.5 | 87.5 |

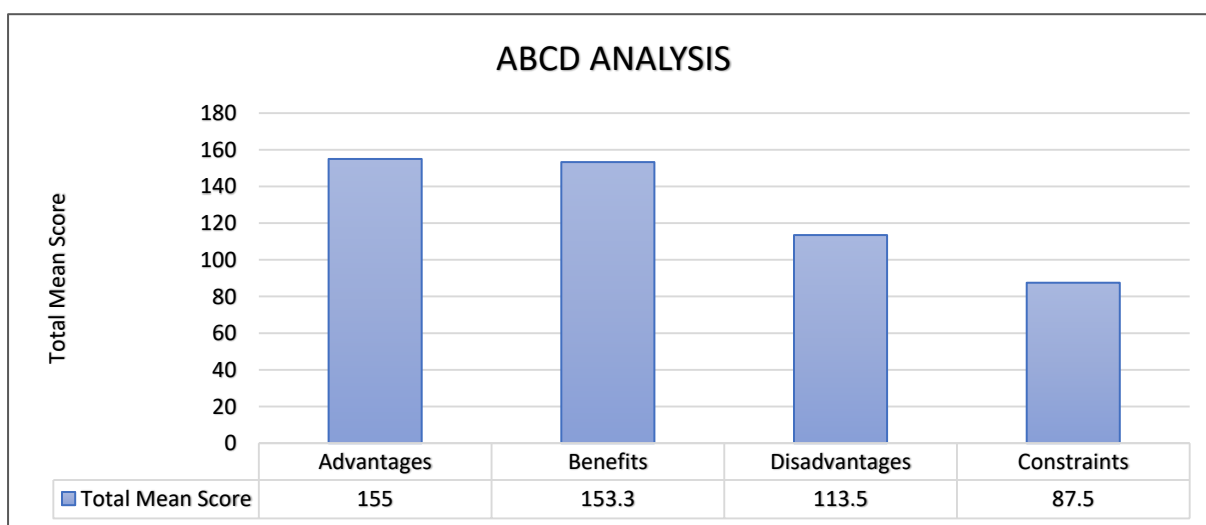**Fig. 2:** Total Mean Score of Consumers Intention toward Mitigation of Food Waste in Restaurants.

## 10. FINDINGS :

Meghana Salins, et al. (2022); www.srinivaspublication.com

**PAGE 825**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

**SRINIVAS PUBLICATION**

According to ABCD analysis, the above figure shows the factors that affect consumers' intention to reduce food waste in restaurants. The above quantitative elementary analysis leads to the following interpretations. As per the analysis, the mean scores of the Advantages aspects are the greatest with a mean value of 155, followed by benefits, limitations, and disadvantages, indicating that research in this field is highly beneficial. The Constraints and Disadvantages factors have an overall mean score value of 113.5 and 87.5, respectively, indicating that those factors are unsatisfactory for consumers' intentions to reduce food waste in restaurants.

## 11. CONCLUSION :

The ABCD analytical framework identifies resources that will be beneficial to society. It is a holistic concept that facilitates the analysis of different business models, strategies, concepts, or systems. The essential components of determinant issues known as the key attributes are utilized to pinpoint the variables influencing each construct. There are positives, negatives, restrictions, and advantages to take into account. The accepted score is used in the quantitative CCE analysis. The total score for the constructs is obtained by considering the results of empirical work and determining whether they should be accepted or rejected. The results revealed that advantageous elements are significant contributors to the study and utilized the ABCD analytic framework to assess the impacting factors on consumers' intentions to reduce food waste in restaurants.

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**PAGE 830**

**International Journal of Management, Technology, and Social Sciences (IJMTS), ISSN: 2581-6012, Vol. 7, No. 2, December 2022**

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**PAGE 831**