



Importance of technological platform on the perception of customers in hospitals: a systemic review

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ARTICLE INFO ABSTRACT

This study envisages the effect of technological platform on the perception of internal and external customers, especially in healthcare organizations. The relevance of this study emphasis perspective changes of customers while using technological platforms in services. It is due to the differences in the following aspects - organizational values, administrative controls over operational activities, proactive practices in treatments, competitiveness in diagnosis, distinctiveness in services, sustainability features in practices etc. The operational activities of a healthcare system vary with nature and values of various categories of hospitals like private, corporate, government, mission etc. For attracting customers and making easiness in services, hospitals are adopting technological modules like pre-consultation work-ups, health packages, automated answers to enquiries, automatic inter-departmental references, scheduled services etc successfully implemented by other categories. The systemic reviews of literatures illustrate that adopting new technological platforms are able to make changes in performances but there are chances to differ the performances from customer's perception. This analysis includes systematic reviews and meta-analysis. For consistency and validity, a standardized protocol was carried out in data collection, extraction, and quality testing. According to the data, the willingness of customers to return to a hospital for further needs or proactively refer other customers to the same organization determines its effectiveness of services. The conclusive part of the study envisages *a) Customers have a natural ability to perceive the services in comparison to the organization's declared values b) Customers' mindset prepares them to receive the services according to their degree of need (stated or implied) c) Healthcare organizations are structured in a way that the output of a subsystem is the input of another, and so on; therefore any technological changes or the improvement in any process can have a sequence of challenging effects in the perception of the customers. d) The technological platforms used by the organization can influence the outcome of services received and the sustainability of the organization e) Several unforeseen factors such as social alienation, employee turnover, price fluctuations, etc. are also forcing healthcare organizations to adopt different platforms and cultures to provide the services in a cost-effective manner and it causes the greatest compatibility challenge in the perception of customers.*

Key words: Organizational values, technological platform, sustainability, and perception.

Background

The purpose of an effective organization is to serve the society and to place its values accordingly in the fabric of the social relationships. The functions of such organizations have to be closely compactable with organizational goals as it declared. In healthcare sector, hospitals' services are termed as holistic errand to simplify the afflictions and morbidity of the community. In fact, its sustainability factor depends upon the consistency of mutually accepted values, which is called shared values between the organization and the customers and the performance measures established by the organization to fulfil related operational activities. Even though, customer preferences to receive services may vary on their perceptions, especially in the case of

underprivileged peoples. For example, underprivileged people will prefer mission hospitals rather than other privileged hospitals since their contribution to the society is compassionate care with humanitarian approach. The purpose of this study is to identify the importance of technological platform and to analyze whether such platform can influence the perception of the customers. Customer Perception is based on their experiences or the feedback received from other beneficiaries. Newer technological features definitely improve the performances but it should be in accordance with organization's uniqueness, environmental stewardship, patient-centred care, and social justice. There are two types of needs to customers on their priority, severity, economic status, and dependencies – the primary need (treatment need) is termed as the stated need and secondary (comfortable need) is termed as implied needs. Both the needs are moving around clinical, paramedical and administrative functionalities for receiving preventive or curative or rehabilitative services from skilled or semi-skilled workers in a hospital. Several departmental goals are aligned here with the organization's common goals. Regardless of different departmental goals, the ultimate aim of a service organization is customer satisfaction. To achieve maximum efficiency, reliability and stability, it is necessary to study the performances and the flow of services with respect to customer perception.

Material and Method

Search Strategy

Thorough searches were conducted in several electronic databases, including PubMed, Scopus, IEEE Xplore, and Google Scholar, to identify relevant research published between January 2018 and December 2023. A mix of keywords and MeSH phrases about technical platform and customer perception were used in the search approach. Examples of search phrases were: "organizational values," "technological platform," "sustainability," and "perception." Search phrases were combined using Boolean operators (AND, OR), and filters were used only to show English-language content. The reference lists of the indicated papers were manually found in addition to the search to find more pertinent research.

Criteria for Inclusion and Exclusion

- They were published between January 2018 and December 2023 in peer-reviewed journals.
- Concentrated on using technological platform in healthcare environments.
- Presented data on customer perception based on organizational values, technological platform, and sustainability of the organization.

Criteria for exclusion

- Articles are written in languages other than English.
- Reviews, editorials, discussion articles, and conference abstracts that lack original data.
- Research not specifically about customers perception on using technological platform in healthcare.

Data Extraction

Information from the included studies was gathered using a standardized form specifically developed for this review. The information was collected from each study: authors, publication year, study design (e.g., systematic review, meta-analysis, cross-sectional study, qualitative meta-synthesis), key findings, and conclusions linked to greatest compatibility challenge in the perception of customers while using technological platform in healthcare.

Quality Assessment

The quality of the given studies was evaluated using the Strengthening the STROBE checklist for observational studies and the PRISMA checklist for systematic reviews and meta-analyses. The quality evaluation concentrated on the study's methodology, which included the robustness of the results reached, the suitability of the analytical techniques, the clarity of the objectives, and the thoroughness of the literature search.

Data Synthesis

Considering that study designs and results varied widely, a narrative synthesis approach was employed to encapsulate the conclusions from the examined studies. The primary goal of the synthesis was to classify the evidence according to two major themes: the benefits of using technological platforms in healthcare and compatibility challenge in the perception of customers while using it. Based on recurrent themes in the papers, sub-themes were found, such organizational values and sustainability of the organization.

Ethical Considerations

Since this study is a systematic review, ethical approval was optional because it did not entail gathering primary data from people. However, the review adhered to ethical criteria to maintain the study process's integrity and transparency.

Results

The systematic review found 215 articles using the initial database and manual search. Following the screening of titles and abstracts, 135 papers were excluded based on the criteria, resulting in 75 articles for full-text examination. The final analysis includes 10 studies that met the inclusion criteria. Figure 1 describes the detailed search technique for the review.

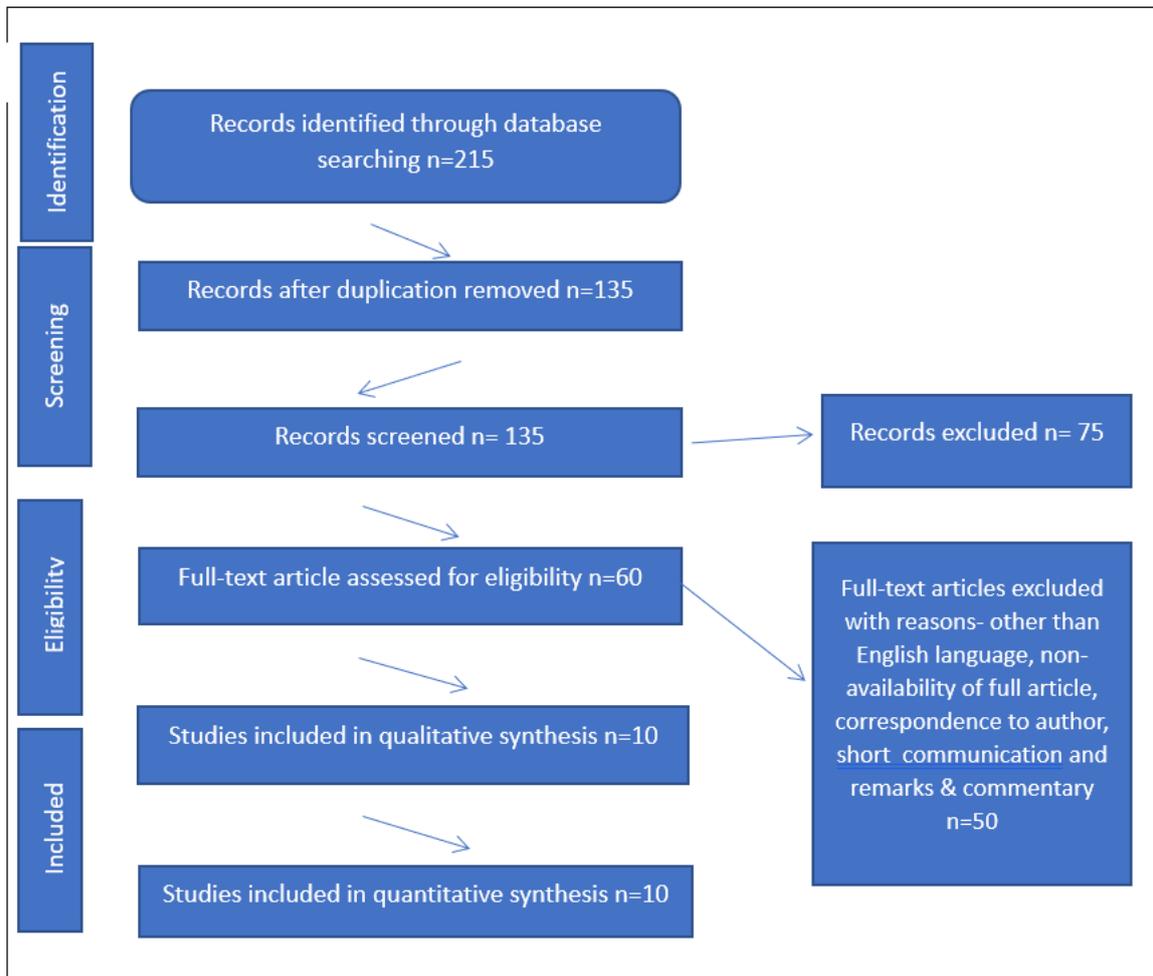


Figure 1 PRISMA Flow Diagram for the review

These studies comprised systematic reviews, meta-analyses, reviews, a cross-sectional study, and a qualitative meta-synthesis.

Organizational Values

An organization's goal declares clarity on end results; whereas its values give clarity on means and ways to achieve those goals. Organizational values are the fundamental beliefs, principles and practices of an organization that guide in decision-making and actions [1]. Organizational values to be acceptable to both internal (staff and stakeholders) and external (service or product receivers) customers for ensuring consistency in practices, establishing shared values (mutually acceptable values) and holding an intangible relationship. The degree of shared values emphasises customer's willingness to recommend the organization to others or to revisit it. Shared values are tangible and it triggers customer expectations. Previously, it was assumed that the values are intangible and resource allocation is not in par with organizational values; but recent scientific papers have proved that organizational values are measurable and observable [4]; and organizational structure, strategy and design have significant impact on effective allocation of resources [5]. The measurable outcome of values is distinctive among organizations since organizational values are very abstract, exclusive, and a form of shared meaning; moreover, internal strength of resource allocation and functionalities in association with values substantiate its consistency too. But several other researches in this field address the challenges to allocate resources, especially in healthcare sector due to growing demands for comprehensive care, easy and quick access and personalized quality services [6]. Similarly changes in social needs, competitions in beneficial features, harmful structures in services etc lead organizations to new opportunities like "searching the technical excellence" for reformation or reshaping and raising agility in unpredictable situations [2][3]. Most of the healthcare organizations are forced to adopt some technological platforms to bridge such gaps. The

introduction of customized technological platforms creates lot of opportunities to enhance the efficiency in allocating resources within the domain of healthcare system [7].

The common resources of an organization are man, money, and materials; the organizational values neither make any sense nor develop any shared values deprived of coordinating resources properly. Hence, the medium or technology adopted to coordinate the means and ways to achieve goals has the capacity to meet the requirements of both internal and external customers. Otherwise, it will affect the perception, experience and expectation of the customers. Healthcare sector is multi-dimensional. Any changes in the dimension of structure, strategy, culture and identity due to lack of shared values will open the chances of losing customers and affect its value identity, uniqueness and nature of the service in the long-term success [8]. Selecting technological platform in accordance with the perception of the customers bridge the possible score variations from the organizational values. While selecting a technological platform, it is needed a right balance between stability and flexibility according to the conditions of market and user demands [9]. To address all such challenges, the representatives of the organization have to consider the selection of technological platform in align with organization's values and customer perception so that to meet the identity of the organization as such [10]. *Customers have a natural ability to perceive the services in comparison to the organization's declared values and customers' mindset prepares them to receive the services according to their degree of need (stated or implied).*

Technological platform

Technological advancements have brought numerous benefits to the healthcare industry, including improved patient care in observation, diagnosis, treatment and rehabilitation, reduced costs and increased competitive outcomes.

The following are other usefulness of technological implementation in healthcare sector.

A) Telehealth and Virtual Care: It allows the patient to consult with medical professionals remotely by integrating the monitoring of wearable health supportive devices and the care coordination of electronic health records [15]. B) Artificial Intelligence (AI), Predictive Analytics and Personalized Medicine: It allows the medical professionals to extract more upshots from medical diagnostics, clinical decision-making, predicting patient outcomes and personalized treatment plans / patient care (precision medicine using genetic and biological factors of the patient) and allows administrative professionals to enhance hospital operations cost effectively with ethical considerations [16]. C) Data Integration and Interoperability: Data segregation from raw data repository is an intelligent work of technological platform we adopt and it provides comprehensive real-time data silos to integrate the functions of medical devices and healthcare applications seamlessly [17]. D) Equitable and Sustainable Healthcare: For sustainability in healthcare, disparities in care be minimum and it can be achieved by leveraging and integrating the advancements in technological platforms, addressing systemic challenges in unique manner and promoting equitable healthcare system [18]. The integration of technologies like the Internet of Things, advanced analytics, cloud computing, Machine Learning, Artificial Intelligence etc enable healthcare providers to adopt an evidence-based approach in clinical decision-making for betterment of patients in early detection, diagnostics and treatment [11] and such advancement has a profound impact on stable and sustainable healthcare delivery system [12]. It can empower medical knowledge by integrating various disciplines, enhance patient knowledge by advising medical procedures and overcome challenges in the healthcare spectrum through system of knowledge. However, the technologies must be able to address the specific needs of staff and patients [13], otherwise, it will affect the perception of both internal and external customers.

Technology is referred as an applied scientific knowledge intended for practical purposes, and it needs an infrastructure platform and mechanical support to provide multidisciplinary assistance in perspectives, especially in emerging challenges, opportunities and practices [14]. Since technological platform is framed with system-oriented approach (from input a sub-system processes output and that output becomes the input of other sub-system) the responsive features associated to it has to be identified properly to know how far it makes consecutive changes inwardly and outwardly in the system. To avoid mismatches in the receptiveness of services, the required changes must be in consensus with the perspective of the customers. Customization is possible to make alignment in technological platform; however, it has certain limitations since it is a limited version of automation. The main drawback of automation is that it cannot identify situational factors for rearranging itself, so that it can affect customers satisfaction. *From all these possibilities it is clear that, Healthcare organizations are structured in a way that the output of a subsystem is the input of another, and so on; therefore, any technological changes or the improvement in any process can have a sequence of challenging effects in the perception of the customers.*

Sustainability

An organization's sustainability is a complex endeavour because it is a social goal of coexistence for the long run. For longevity, the shared values between the organization and customers have to be continued and protected. The shared values specifically illustrate the culture of the organization. An organization will be competitive and sustainable if the cultural dimensions are aligned with the community's perception [19]. Since sustainability is a multi-level concept, it focuses on the *surface level* to cover the organization's structure,

processes and behaviours, the *value level* to monitor declared values, goals and philosophies; and the *underlying level* to establish perceptions and actions [20]. So that both internal and external customers will be independent to make their own decisions within the limit of the functional framework of the organization and thereby to decide whether to continue with long-term association or not. For the sustainability of the organization, all these levels have to be oriented properly; for this, certain changes are required within the organization - a decisive corporate change as per the requirements of the community; several organizations are struggling with instabilities in economy, complex procedures, varying demands of customers and volatile environments, but the fact is that, organizational culture and its dimensions sometimes make barriers for implementing competitive practices [21] due to lack of flexibility and adaptability. Hence, flexibility and adaptability within the framework of organizational values are the decides organization's ability to succeed with sustainability choices [22].

The characteristic of sustainability is 'doing right things' rather than 'doing the things right' by continuously monitoring and aligning performances in consensus with the organization's vision, mission, goals, strategies and practices [23][24]. Hence, the importance of selecting technological platforms in consensus with organizational values and customer perceptions is unavoidable, especially in hospitals for ensuring control over patient-centred care, community stewardship and social well-being. Digital transformation and technologies could yield tangible benefits to customers in terms of improved accessibility, enhanced convenience and reduced prices; and it paved the way for more individual care and sustainability using processed information from the raw data [25][26]. Apart from traditional clinical settings, the implementation of technological platforms facilitates integrated healthcare networks for the well-being of the customers and the sustainability of the organization [27]. *Hence, the technological platforms of an organization can influence the outcome of services received by the customers and the sustainability of the organization.*

Perception

Perception about a product or a service is an initial predictor of customer satisfaction and later its acknowledgement becomes loyalty to the manufacturer or the service provider. Loyalty of customers towards the organization establishes the state of sustainability on products or services. For attaining this stage, Customer Relationship Management (CRM) strategies to be adopted, so that it can find, collect and store relevant information of customers for providing unique experience and thereby to maintaining the satisfaction level. From the literatures it is confirmed that customers' perceived value strongly influences customer satisfaction [28]. As per the congruity theory, the mediating role of CRM stipulates significant influences on service quality and customer perception. Hence organisations seek competitive advantages of CRM and quality projections to enhance the perception of customers— especially in service sector. The stakes of CRM enable the service organisations like hospitals to consider the health as customer's wealth and makes them confident to invest or reinvest on it to derive the benefits and advantages while they rushing to services [29][30]. In this competitive environment, healthcare providers understand customer expectations, hence they internally arrange total quality management system with the help of technological platforms to provide an exceptional customer experience, which can also lead to loyalty towards the service provider [31]. Weiten (1994), stated that the sensory organs transmit nerve signals to the brain. The brain receives nerve signals from the surroundings and process it using sensory effects like perception. Sensory effects use the previous experiences and the learning to sharpen the customer expectation. The medium used for framing the sensory effect has an impact on customer perception.

There is a concept model - Technology Acceptance Model (TAM) developed by Davis and it explains that customer's perception is associated with several channels like technology, behaviour and interest. Perceived usefulness (the degree to which a technology enhance job performance) and perceived ease of use (the degree to which a technology free from effort) are the base of this model [32]. TAM explains that the technological platform as a medium between the service provider and the customer, it has an impact on the perception of the customers. Healthcare sector is digitally empowered with patient centric amenities and personal interactions across the globe. Deployment of advanced digital devices has become a criterion for augmented customer satisfaction and the emergence of new era of digital healthcare [33][34]. It is applicable to both internal and external customers and it causes greatest compatibility challenge in the perception of customers.

Limitations

One disadvantage of this systematic review is its dependence on published literature, which may result in publication bias. Furthermore, the inclusion criteria prioritized English-language studies, potentially eliminating valuable research published in other languages. The variability of study designs and outcomes across the included studies may limit the findings' comparability and generalizability.

Conclusion

There are various hospitals in healthcare sector like private, corporate, government, mission etc based on the administrative control enforced with. The administrative control adheres with organizational values, organizational values justify with internal procedures and processes, and internal actions to rationalize with

customer perception and social outcomes. The degree of proactive practices in treatment / diagnosis and supportive facilities in services are the pivotal factors to attract customers; but the framework of these factors depends upon the values of the organization. Nowadays, technological platforms facilitate easiness in healthcare delivery system by enforcing its directorial controls - artificial intelligence and machine learning. The intention to survive and to attract customers encourage organizations to adopt new technological modules followed by other organizations. While selecting such platforms, administrative control enforced by the organization and the directorial control enforced by the technological platform have to be in align with each other. The conclusive part of the study envisages a) Customers have a natural ability to perceive the services in comparison to the organization's declared values b) Customers' mindset prepares them to receive the services according to their degree of need (stated or implied) c) The technological platforms used by the organization can influence the outcome of services received by the customers and the sustainability of the organization d) Healthcare organizations are structured in a way that the output of a subsystem is the input of another, and so on; therefore any technological changes or the improvement in any process can have a sequential challenging effects in the perception of the customers. e) Several unforeseen factors such as social alienation, employee turnover, price fluctuations, etc. are also forcing healthcare organizations to adopt different platforms and cultures to provide the services in a cost-effective manner and it causes the greatest compatibility challenge in the perception of customers.

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