Smart E-Commerce: A Novel Lease Option Model for HealthCare Equipment

M. Anjaneyulu¹, Phuke Shreyas Rao¹, Madasi Rakesh¹, Sirigiri Shiridi¹, Manisha Khanduja², Srinivas Jhade³

¹Department of CSE (AI & ML), GRIET, Hyderabad, Telangana State, India
²Uttaranchal Institute of Technology, Uttaranchal University, Dehradun, 248007, India
³KG Reddy College of Engineering & Technology, Hyderabad, India

Abstract. The swift development of e-commerce has significantly altered consumer behavior and the availability of products and services. Online platforms have become essential for both healthcare providers and patients within the field of medical equipment. However, the high cost of purchasing healthcare equipment hinders affordability and accessibility. This research paper introduces a sustainable lease option model for healthcare equipment on e-commerce websites to address this issue. This research paper examines the theoretical framework and benefits of introducing a lease option model to online healthcare equipment platforms. This paper analyzes a sustainable e-commerce platform, which benefits of implementing a lease option model. These benefits include increased affordability, enhanced accessibility to specialized equipment, and reduced financial burdens for patients and healthcare facilities. The proposed structure outlines the essential elements of incorporating lease options into e-commerce websites, such as pricing structures, contract terms, maintenance and support services, and user experience considerations. Risk assessment, legal considerations, and customer service are just a few of the potential challenges and strategies for risk mitigation that are discussed. It highlights the potential impact of lease options on the accessibility and affordability of healthcare equipment and emphasizes the need for additional research and implementation efforts to optimize this model in real-world settings. The introduction of a lease option model on healthcare equipment e-commerce websites presents a promising opportunity to revolutionize the industry. This work leads to the actual value of sustainable web application in health care sector.

1 Introduction

In the 1970s, the first electronic business transaction took place over the internet, which led to the birth of e-commerce websites. However, e-commerce did not begin garnering popularity until the advent of the World Wide Web in the 1990s. In 1991, the National Science Foundation lifted its restrictions on commercial use of the Internet, allowing businesses to sell goods and services via the web. The earliest e-commerce websites were simple catalogue sites that allowed consumers to peruse and buy products online [5] and [6].
Amazon, eBay, and Pizza Hut were among the first online retailers. As technology advanced, e-commerce websites grew more sophisticated and user-friendly. E-commerce sites have standardized secure payment processing, online purchasing carts, and product recommendations based on customer data. The goals of an online store selling medical equipment can change depending on the particular objectives of the company, but some typical ones might be:

- To provide a convenient platform for customers to purchase or lease medical products and supplies online.
- To provide a seamless, secure, and convenient shopping experience for customers while meeting their healthcare needs.
- To provide comprehensive and reliable information about medical products to help customers make informed decisions.
- To facilitate sustainable and more efficient delivery of medical products and supplies to customers.
- Enabling quick access for clients to a variety of medical equipment goods, such as medical devices, diagnostic tools, surgical instruments, and more.
- Offering reasonable prices and top-notch goods will help you draw in and keep clients.
- To assist consumers in making knowledgeable purchase decisions, we offer comprehensive product information and specs.
- Providing safe payment choices and protecting the confidentiality and security of client information.
- Delivering first-rate customer service, which includes quick shipping, simple returns, and helpful support.
- Employing digital marketing tactics, such as search engine optimization, to raise the site's profile and attract more visitors. Email blasts and social media marketing.
- Developing partnerships and collaborations with medical professionals and institutions to expand the reach and impact of the business.

In general, the goals of an e-commerce medical equipment website should be to provide excellent goods and amenities to customers while also establishing a solid brand reputation and fostering business expansion.

2 Literature survey

2.1 Medline

Medline is a manufacturer and distributor and a dedicated medical equipment website, they do offer medical equipment and supplies for sale. They are a leading supplier of medical products.

2.2 Avante

Avante serves medical equipment and distribute in over 150 countries. They have established a strong presence in Latin America, the Middle East, Africa, Europe and Southeast Asia, and are continually expanding. They have over 30 years of experience with international shipments, export documentation and equipment service [7]. Avante offers a wide range of medical equipment from different brands and manufacturers, including diagnostic equipment, surgical instruments, anaesthesia machines, patient monitoring systems, and more. They also provide repair and maintenance services for medical equipment, as well as technical support and training for their customers.
2.3 Medpick

Medpick is an e-commerce platform that specializes in medical equipment and supplies. Medpick is a reputable and innovative platform for purchasing medical equipment and supplies, offering a wide range of products and features to meet the needs of healthcare professionals and organizations.

<table>
<thead>
<tr>
<th>Website</th>
<th>Advantages</th>
<th>Drawbacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Medline</td>
<td>• It contains medical equipment and medical products.</td>
<td>• No Resell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No rentals and lease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Only for Europe countries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Website navigation difficult</td>
</tr>
<tr>
<td>[2] Avante</td>
<td>• It provides repair and maintenance services.</td>
<td>• No Lease</td>
</tr>
<tr>
<td></td>
<td>• It sells new, refurbished &amp; used medical equipment.</td>
<td>• No medical products</td>
</tr>
<tr>
<td></td>
<td>• It provides equipment on rentals.</td>
<td></td>
</tr>
<tr>
<td>[3] Medpick</td>
<td>• It contains only medical equipment.</td>
<td>• No Resell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No rentals and lease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No medical products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No repair and maintenance</td>
</tr>
<tr>
<td>[4] Venture</td>
<td>• It sells new, refurbished &amp; used medical equipment.</td>
<td>• No Resell</td>
</tr>
<tr>
<td>Medical</td>
<td>• It provides repair and maintenance services.</td>
<td>• No rentals and lease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No medical products</td>
</tr>
</tbody>
</table>

2.4 Venture medical

Venture Medical is a medical equipment and supplies company that offers a wide range of products and services to healthcare providers. Venture Medical offers both new and refurbished medical equipment, including surgical instruments, anaesthesia machines, patient monitors, and more. They also provide repair and maintenance services for medical equipment as well as technical support and training for their customers. One unique aspect of Venture Medical is their focus on providing cost-effective solutions for healthcare providers, especially for those in smaller clinics or practices.

3 Proposed work

3.1 Browsing and equipment selection

Products can be organized into categories and subcategories, making it easy for customers to browse and find what they are looking for. A search function allows customers to quickly find products by name, category, or other attributes. The module allows customers to filter and sort products based on various attributes such as price, rating, popularity, and more. The module can suggest related or recommended products to customers based on their browsing history and purchase behaviour [8].
Customers can leave reviews and ratings for products, providing social proof and valuable feedback for businesses. The module allows businesses to offer variations of products such as size, color, and style, each with its own price and inventory level. The module can allow customers to compare products side-by-side, making it easier for them to make informed purchase decisions [9]. The module can display real-time inventory levels and indicate whether a product is in stock or out of stock.

![MedKart architecture diagram](https://example.com/medkart-diagram.png)

**Fig. 1.** MedKart architecture diagram.

### 3.2 Equipment details and lease options

The description of the product should be thorough and informative, emphasizing the vital characteristics and benefits of the product. The product's specifications, such as dimensions, weight, and needs, should also be included in the description. The lease options component should clarify the various lease substitutes available for the product [10]. The lease terms, such as lease period, monthly payment, and down payment, should be included in the module. The contact information module should include contact information for the website, such as a phone number, email address, and mailing address. The most important value added here since health care should conquer carbon production, the sustainable e-commerce platform parameters are taken care.

### 3.3 Lease application, approval and contract generation

The lease application module should make it simple and quick for users to apply for a lease on healthcare equipment. The application must collect the user's contact information, financial information, and information on the equipment they want to lease. To examine and approve lease applications, utilize the approval module. Administrators should be able to inspect the application details, check the user's information, and approve or refuse the application using this module. Lease contracts should be generated using the contract creation module. The module should enable administrators to establish customized contracts that address the user's and healthcare equipment's unique requirements.
3.4 Contract review and acceptance

Users should be able to simply and quickly examine and accept lease contracts during the contract review and acceptance process. Users should be able to highlight and remark on certain areas of the lease contract using the module [11]. This might be useful for users who wish to learn more about the contract or ensure that it fulfils their unique requirements. The module should allow users to sign the leasing contract digitally.

3.5 Payment setup

There are several payment gateways accessible, so you must select the one that is best for the company. Consider the sorts of payments you wish to take, the costs paid by the gateway, and the level of security provided. After selecting a payment gateway, you need to configure it to receive payments for leasing healthcare equipment. This will entail giving the gateway information about your company, such as your merchant ID and billing address.

3.6 Lease renewal or return

Finally, lease renewal or lease termination module allows the customer to easily and quickly renew or terminate their lease contract once the requirement is satisfied. Module collects user information and the details of the lease that is being renewed or terminated. Lease renewal or return module consists of specific features like ability to upload different documents, track the status of the existing contract, and generate final reports about the lease contract.

4 Results and discussions

Healthcare equipment may be expensive, thus leasing or renting it can make it accessible for healthcare providers who cannot afford to buy it altogether. This can assist people have better access to healthcare. Leasing can give healthcare providers much broader flexibility than typical financing techniques. For example, suppliers will be allowed to lease equipment for a shorter amount of time or cancel the lease at any moment. In the long term, leasing might assist healthcare providers save money. This is due to the fact that lease payments are often lower than loan instalments. Furthermore, leasing can help providers in avoiding the initial expenditures of purchasing equipment.

![Welcome to MedKart](image)

**Fig. 2.** Home page.
Fig. 3. Categories page.

Fig. 4. Cart page.

Fig. 5. Orders page.
Fig. 6. Login page.

Fig. 7. Registration page.

Fig. 8. Admin page (site administrator).
6 Conclusion and future enhancement

The proposed model for e-commerce site aims to provide a convenient platform for users to purchase healthcare equipment online. The model has set specific objectives, recognizing the importance of accessibility, reliability, and a user-friendly experience in the healthcare domain. The significance lies in meeting the growing demand for online medical shopping while ensuring the availability of authentic products. To achieve these objectives, the paper adopts a comprehensive approach. It includes different modules that enable users to browse, select, and purchase medical items with ease, ensuring a seamless shopping experience.

For future enhancement, the model could consider implementing additional features such as personalized recommendations based on user preferences and lease history. Integration with healthcare professionals or telemedicine services could further enhance the model's value and further builds sustainable online healthcare applications. Continuously improving the user experience, expanding the product catalogue, and incorporating feedback from users and healthcare providers will be essential for model's growth and success.

References

10. A. Goel, M. Singh, Medical Cards, in Proceedings of the International Conference on Innovations in Data Analytics, 1442 (2022)
11. L. Cai, J. Han, Z. Aghalari, H. U. Dahms, J. Health Popul. Nutr 42, 76 (2023)