

Project and Professionalism (6CS007)

Survey Equipment Rental

Student ID : 2358836
Student Name : Mausham Dhakal
Group : L6CG19
Supervisor : Mr. Nikunja Lamsal
Reader : Mr. shiv Kumar Yadav
Submitted On : 05-19-2025
Word Count : 2199

Table of Contents

| | |
|---|----|
| Introduction | 3 |
| Social Aspects | 4 |
| Positive Social Aspects | 4 |
| Accessibility and Affordability | 4 |
| Tax Advantage | 4 |
| Technological Advancement and Skill Development | 5 |
| Negative Social Aspects | 5 |
| Digital Divide | 5 |
| Equipment Misuse and Lack of Awareness | 6 |
| Legal Aspects | 6 |
| Consumer Protection Act | 6 |
| Taxation and Business Registration | 7 |
| Contractual Agreements and Liability | 7 |
| Ethical Aspects | 8 |
| Data Privacy and Security | 8 |
| Fair Pricing and Transparency | 8 |
| Equipment Maintenance and Safety | 9 |
| Security Aspects | 9 |
| Cybersecurity Measures | 9 |
| Fraud Prevention | 10 |
| Equipment Tracking and Insurance | 10 |
| Conclusion | 11 |
| References | 12 |

Introduction

Surveying is an important field of planning infrastructure and other sectors in the construction and land development industry. Premium Survey Equipment is hard to find. Surveying instruments cost a lot and it is difficult to get enough of them because the supply and distribution system are poor. Research also shows site surveyors and small businesses in Nepal do have to buy expensive surveying instruments, less because of the costs. The ultimate aim of my research project is to understand more about legal and ethical issues that could affect the use of an online Survey Equipment Rental. Surveyors can quickly get access to total stations, all GPS, DGPS, mapping drones, or Level Machines by renting equipment at a cheaper price than they would be buying it.

To host this platform, it comes with many issues to work through and problem solve that go way beyond the technical side of the platform. Ensuring the future of the platform requires an adequate and sustainable approach towards legal, ethical issues, security and social issues. The report will fully explore these areas below and look at both the positive and negative issues as well as strategies for the management of the Survey Equipment Rental platform in Nepal.

Social Aspects

Positive Social Aspects

Accessibility and Affordability

Many individuals and small organizations working in surveying and construction in Nepal lack access to new technology or advanced equipment because of the cost of owning equipment. Renting equipment is great option, because renting surveying equipment such as a total station, GNSS receiver and drones allows you to more flexibly and economically utilize sophisticated equipment. Rather than committing a lot of money up front, a user can rent that equipment only when necessary. This flexibility allows users to take on more projects, and adjust their budget.

The literature about equipment rental suggests that rental allows business to be more flexible and economically operational reflecting the fact their use of equipment will vary, especially when use is infrequent or not project specific. This is also the case for many surveyors in Nepal, who have limited budgets, which makes access to new equipment to use, rather than owning it, a potential benefit. (Sudewa, 25 Jul 2023) (Luísa Tavares Muzzi de Sousa, December 2023)

Tax Advantage

There are also potential tax benefits to renting survey equipment. Rental payments are usually considered operating expenses for registered businesses in Nepal, so it is normally considered a fully deductible expense for the current financial year. This is a better option than carrying own equipment when it is considered that the cost must be depreciated over a period.

Several studies show that immediate deductibility offers improved cash flow and provides businesses with management flexibility of expenses. In the case of survey firms and contractors, there is also the option of redirecting money in other ways some ideas include expanding services and hiring skilled staff, all with the most up to date tools. Sudewa (2023) discussed decreased financial risk using this model particularly with high-value instruments like GNSS units or drones used short term.(Timothy J. Bell, 2013) (Sudewa, 25 Jul 2023)

Technological Advancement and Skill Development

Staying up to date with changing survey technology is a challenge when equipment is often phased out of use quickly or the costs of upgrading is costly. The benefit to renting is that you can use devices on a trial basis without worrying about the ownership or subsequent depreciation costs. During short-term rentals, a rental can also stimulate productivity and learning, and therefore, all other things being equal, using a reasonably good set of instruments can improve the accuracy or efficiency of their work while being able to foster technical competencies valuable in the labor market. With Nepal's expanding economic and infrastructure development sector, this also has the potential to create a more advanced workforce and influence local knowledge mobility practices. (Manar Abu Talib, 2025)

Negative Social Aspects

Digital Divide

Digital divide is a primary problem of growth for Survey Rental in Nepal. Just 51.6% of people have access to the internet, according to recent data. This indicates that a sizable portion of the nation is offline, particularly in rural and isolated areas with weak to nonexistent connectivity. Digital interaction for a browsing, booking and managing rentals online platform creates a significant barrier to the accessing the service. Even with connectivity, most potential users, for example small contractors, community-based surveyors, or field workers, have low digital literacy for the rental platform. Recent studies indicate this is a factor that limits users from benefiting from the services for a productivity benefit and reduced operational cost. (Baral, 2022)

Equipment Misuse and Lack of Awareness

Surveying equipment including total stations, GNSS and drones is specialized equipment requiring training and qualifications. In contrast to basic equipment, when using first, it is imperative to intimately understand the function details, settings and adjustments. The literature suggested that users can misconfigure or mishandle equipment without previous training that results in incorrect data, delays a project, or inadvertently repair costs.

For rental companies, there is not just an issue of cost of maintenance, but also concerns of reliability of service. A minor to serious error in use can affect an entire surveying or construction project, especially with land measurements when there is a degree of precision required. Research suggests that rental companies experience issues regarding clear use instructions, training, or initiates a program that rental companies maintain that they will only rent surveying equipment to a qualified user. (Mhando, 2021)

Legal Aspects

Consumer Protection Act

Literature on consumer rights in Nepal emphasizes the growing importance of accountability in online service platforms. The Consumer Protection Act, 2075 (2018), has been particularly noted for strengthening the position of end users in e-commerce by demanding transparent practices and quality assurance. The legal framework is very important when straying into rental services with technical equipment (GNSS, total station etc.).

Research shows customers expect to see the full rental conditions, instructions for usage, and warranties, so they are not ambushed. There may be serious negative legal circumstances, and loss of reputation for equipment rental services if inaccurate representations are made or equipment is not maintained to the standard required. For rental services with expensive equipment having genuine and accurate listings, passing safety checks, and fair fees are important to help avoid disputes. (Poudel, Feb 19, 2025)

Taxation and Business Registration

Operating a digital survey rental venture in Nepal means following required regulations that govern business establishment and tax liabilities. The literature suggests that starting a digital survey rental business involves ensuring compliance with the Company Act 2063 (2006) and having a Permanent Account Number (PAN) from the Inland Revenue Department to ensure your business operates legally.

If the platform being offered is a high-value survey tool, such as drones, GNSS receivers, and laser levels, then tax structuring becomes increasingly important as income increases. And it is needed to register under the VAT Act 2052 (1996) and comply with the Income Tax Act 2058 (2002), which requires maintaining records and filing returns. This not only ensures that legal obligations will be met, but also helps in increasing user confidence. (Rawal, December 27, 2024) (Associates, n.d.)

Contractual Agreements and Liability

Literature emphasizes the need for well-developed contracts in rental-driven business models. When dealing with equipment that is technical and fragile, formal contracts should not simply be optional as they are foundational. For a platform for educational surveying instrument renting, the rental contract must define time-frame, payment, boundaries of usage, maintenance, return condition.

Regarding legal risk engagement suggest outlining liability clauses, especially when there are possibilities for improper use, unintentional damage, or loss. In Nepal, rental agreements conform under the National Civil Code (2017), and provide exemption for enforceability of liability. To limit, disputes scholars suggest, standardized rental contracts, with inspection protocol as needed instead of issuing elaborate rental agreements, and supplement alternative dispute resolution to collectively safeguard the renter, and the platform, from financial or legal risk. (Rawal, December 27, 2024)

Ethical Aspects

Data Privacy and Security

Data privacy in surveying equipment rental is not just about user data. Well-designed and active management platforms may also contain sensitive project data, examples include where the project sites are located, equipment usage patterns, and customer profiles, thereby encroaching on client confidentiality and successful completion of land development or infrastructure projects. Nepal's Electronic Transactions, 2063 (2008 act) details compliance requirements data encryption is needed and two-factor authentication to manage user data. Beyond these best-practices rental companies will have reasonable privacy policies ideal outlining how information is collected, stored, and then used during rental. The potential volume of data collected across rental building, higher rent frequency and repeat user rentals, makes data privacy a collective concern through increased demand. The literature suggests any breach of due diligence relating to data management will incur fines, punishment on the books, and user confidence and brand reputation loss in the long-term. (Louise Thomas, 2022)

Fair Pricing and Transparency

In surveying equipment rental, being open and transparent about pricing is especially important because customers might be renting expensive or unfamiliar equipment (like GNSS receivers or drones). They might not know what the 'normal' pricing would be, so platform needs to clearly outline all the various costs involved (rental fee, deposit, penalty of late return, and potential damages).

If the costs are not clear or dissimilar to other platforms, that can easily create confusion and reservations can be abandoned altogether, especially for students, small contractors, or first-time renters. Research shows that offering definitive pricing and an upfront pricing policy can build trust and can help users more aptly budget their projects for cash flow. By being open and transparent with complete disclosure, highlighted or in conjunction with the booking or in a cost breakdown users will find potential costs extremely appealing (e.g. seasonal pricing, bundles of equipment). (Iris R. Joosse, 2023) (Safaei, 2024-11-18)

Equipment Maintenance and Safety

Survey instruments, including total stations, GNSS receivers, and digital levels must perform at certain levels of accuracy and errors in positioning may result in erroneous measurements, incomplete or erroneous layouts, delayed projects or failures, and legal disputes. These tools are used for numerous technical tasks such as locating land boundaries or describing and analyzing elevations and distances, and must be given our continuing commitment to accuracy through appropriate maintenance and service.

In contrast to general-purpose tools, survey instruments are subject to shock, vibration, and moisture when in the field. As noted in previous research, maintenance of survey equipment also involves accessories such as protection storage cases, recalibrating. (Yue Han, 2022)

Security Aspects

Cybersecurity Measures

Running online surveys equipment platform includes the responsibility of securing customer data and the ongoing business activities. As a rental transaction involves personal data, billing and payment processing, and tracking of orders, a surveys platform must be built with strong cybersecurity principles. Which include tools such as SSL encryption, firewalls to protect from hacking or phishing.

Even when a rental platform has gone through or is experiencing a cyber-attack, a response plan can help mitigate user services and impacts on the business. A cultural expectation of a safe digital environment helps build trust across the rented precision equipment supply chain, especially when there are other professionals who may be trusting in the various pieces of equipment to be delivered accurately and quickly. Any loss of service, even for short period and or data breach can cause delays in the surveying project. (Thatavarthi, March 23, 2024)

Fraud Prevention

Survey equipment are expensive and associated with risk of fraudulent rental, fake identities, and payments. Customer identity verification, payment gateways, and multi-factor authentication can limit unauthorized payment systems. Platforms providing rental services for high-value items must also provide guarantees for traceability and security of the equipment in addition to the customer's identity.

There are some deliberate actions that can discourage fraud e.g., complete rental agreements, explicit returns and user responsibility that can reduce incidences of poor rental decisions. Customer reviews and behavior monitoring service, can help to identify suspicious behavior sooner than later to allow platforms an opportunity to intervene before the transaction accelerates. (Vinicius Facco Rodrigues, 2022) (Oluwabusayo Adijat Bello, 27-06-24)

Equipment Tracking and Insurance

Survey instruments require substantial investments, and when lost or damaged, they can add up to considerable costs. Tracking the location of rented equipment via GPS monitoring provides real-time location and helps reduce risks of theft and misuse. It also allows easy retrieval when an item is lost or returned late. Insurance Companies offer users coverage for accident, theft, and operational damage for equipment such as GNSS receivers, drones, and total stations.

Providing insurance ensures coverage for platforms against loss and gives users assurance and peace of mind especially for projects with a low budget. When using equipment in remote sites, tracking can monitor unique usage and measure delivery time. This reduces disputes about carelessness or neglect when platform and renter disagree on handling or return status. As rental volume increases, tracking should be a secure method for monitoring and insuring equipment for responsible growth. (Maha Al-Kasasbeh, 26 September 2021)

Conclusion

Rental of surveying equipment through this platform presents savings, convenience and the advancement of technological capabilities and creates hurdles with aspects associated with the digital divide, irresponsible equipment use and legal and regulatory compliance and cybersecurity aspects requires close monitoring to ensure success. Equipment rental success relies on clarity of rental agreements, suitability of training, robustness of security, transparency of pricing, with maintenance, data protection measures and fraud deterrent actions can achieve success on the platform. If addressed correctly, these considerations will improve the platform and support small business and the development of the surveying sector in Nepal markets.

References

Associates, I. L., n.d. *lawimperial.com*. [Online]

Available at: <https://www.lawimperial.com/overview-of-e-commerce-law-in-nepal/>

Baral, R. P., 2022. The Digital Divide in Online Learning: A Case Study of University Students in Nepal. Volume 2.

Iris R. Joosse, D. T. J. G. E. K. A. K. M.-T. H. A. v. d. H., 2023. Evidence on the effectiveness of policies promoting price transparency - A systematic review. Volume 134.

Louise Thomas, I. G. T. O. S. (. F., 2022. A framework for data privacy and security accountability in data breach communications. *Computers & Security*, Volume 116.

Luísa Tavares Muzzi de Sousa, L. K. d. O. L. d. S. F. P. B., December 2023. Equity in e-commerce accessibility: Gaps and opportunities for a research agenda. 1(100002).

Maha Al-Kasasbeh, O. A. H. O. H. L. R. A. M. 3. B. A. A., 26 September 2021. A Robust Construction Safety Performance Evaluation Framework for Workers' Compensation Insurance. 11(10).

Manar Abu Talib, Q. N. F. D. H. S., 2025. The role of technology in shaping skills and competencies. 11(2).

Mhando, Y. B., 2021. Factors of inefficient use of personal protective equipment: A survey of. *Construction Engineering, Management & Innovation*, 4(1), pp. 001-011.

Oluwabusayo Adijat Bello, K. O., 27-06-24. Artificial intelligence in fraud prevention: Exploring techniques and.

Poudel, A., Feb 19, 2025. *The Consumer Protection Act, 2075 (2018)*. [Online] Available at: <https://www.slideshare.net/slideshow/the-consumer-protection-act-of-nepal-2075/275807345> [Accessed 27 2 2025].

Rawal, K., December 27, 2024. NPRC Journal of Multidisciplinary. *Electronic Contracts in Nepal: Analyzing IT Bill, 2019 and*, 1(December 27, 2024), p. 13.

Safaei, M., 2024-11-18. Dynamic Pricing with Blockchain Transparency: A Decentralized Framework for Fair and Secure Pricing Strategies. 3(3).

Sudewa, I., 25 Jul 2023. Energy services for solar PV projects: Exploring the accessibility and affordability of clean energy for rural China,. 11 November, Issue 2113055, p. 12.

Thatavarthi, N. L. S., March 23, 2024. Implementing Cybersecurity Measures in Furniture E-Commerce.

Timothy J. Bell, J. T., 2013. Tax benefits of leasing. 20(2).

Vinicius Facco Rodrigues, L. M. P. D. E. d. S. R. d. R. R. C. A. d. C. J. L. V. B. R. S. A. R. S. T. A., 2022. Fraud detection and prevention in e-commerce: A systematic literature review. *Electronic Commerce Research and Applications*, Volume 56.

Yue Han, X. Z. Y. H., 2022. Multi-objective optimization for preventive maintenance of offshore safety critical equipment integrating dynamic risk and maintenance cost. *Ocean Engineering*, Volume 245.