

ADAPTING COMMERCIAL LAW TO E-COMMERCE: NAVIGATING LEGAL FRAMEWORKS IN THE DIGITAL MARKETPLACE

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Article Info	ABSTRACT
<p>Article history: Received May 05, 2024 Revised May 10, 2024 Accepted May 25, 2024</p> <p>Keywords: Digital transformation of E-commerce business</p>	<p>The digital transformation of commerce has precipitated a complex interplay between evolving business practices and the static nature of commercial law. The present research paper focuses on a rather interesting and noteworthy theme that is the adaptation of commercial law to the difficulties arising from the rapid growth of e-commerce. The research, which is centered on identifying the legal concerns that e-commerce businesses usually face, studies the scope of consumer disputes, intellectual property issues and regulatory compliance difficulties to determine the frequency of legal challenges. Data from 100 e-commerce businesses were submitted to SPSS for statistical analysis, and the aim was to find out significant predictors among the legal issues in the ecommerce sector. Descriptive stats lay out the distribution of legal problems, hence making it clear that the majority of business entities are not involved in many legal complexities. Correlation analysis showed no significant link between the number of legal cases and their presence of consumer disputes, indicating that the latter is not a reliable predictor. Regression analysis also confirms the non-significant statistical impact of the model predictors, as indicated by a very small R square value, showing that consumer disputes, intellectual property issues, and regulatory compliance do not substantially explain the variability in legal issues faced by e-commerce businesses. The outcomes point out the need for more complex and sophisticated consideration of the legal problems of e-commerce and the fact that there may be other factors not included that can be more vital. This very fact demonstrates the complexity of legal environment where e-commerce operates and the possibility of further variables, for example, more qualitative or context-sensitive, to add to the explanatory power. The study ends with a proposal of the further study of this multifaced legal issues in e-commerce and the development of a legal system which can more efficiently respond to the dynamics of digital trade.</p> <p style="text-align: right;">This is an open-access article under the CC-BY 4.0 license.</p> <div style="text-align: right;">  </div>

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INTRODUCTION

With digital age, the e-commerce world is on the track to a path of unstoppable growth which is reshaping the way businesses are conducted and the way consumers interact with the market. This sudden growth, however, has been the reason for the numerous legal issues, as the old commercial laws are mostly found to be outmoded and failed to meet the new features of online transactions. The need for the development of a commercial law that takes into consideration the particular needs of e-commerce has not only theoretical but also a practical aspect [1]. The growing number of businesses that are shifting to the online world necessitates the development of a legal framework that can efficiently control the virtual marketplace and thereby ensure fair competition, safeguard the consumers and create a friendly environment for economic development. With reference to commercial law, the legislation requiring adaptation for the digital age cannot be underestimated. The principles of traditional law, which were developed for physical transaction environment, are not enough to apply to digital world's unique problems, such as intellectual property rights in the digital space, cybersecurity and cross-border e-commerce regulations. The e-commerce sphere is highly dynamic that is attributed to the constant technological changes and the changes in the consumer behavior. This requires a legal system that on the one hand is of excellent quality and on the other hand is flexible. While this framework aims at solving current problems, it should also be future proofed, it must be adaptable enough to accommodate uncertainties, technological advance and market shifts.

This research is designed to assess e-commerce laws, which are unable to regulate e-commerce in several aspects. The research will be specific to how the laws influenced e-commerce growth and its operations. The study will then propose necessary legal changes that can be implemented to ensure the developments in the digital marketplace are taken into consideration. To guide this exploration, the study is centered around two key research questions: What has been the historical impact of existing commercial legislations on e-commerce? And the second point is what the legal reforms should be put in place in order to have a more efficient e-commerce environment? The purpose is to provide a detailed view of the present legal situation, the problems faced by e-commerce platforms in this regard, and to propose reliable solutions for legal amendments that will help the digital market to develop and grow [2]. This research is designed to answer the pressing questions and therefore contribute to the ongoing debate on the measures that will make the legal framework to be right for the digital age. Through which manner did the existing commercial laws influence the growth of e-commerce? In what way should the laws be amended to build a more conducive e-commerce

environment? To address the necessity and effects of adapting commercial laws for the developing e-commerce sector.

METHODS

3.1 Research Design

This research uses quantitative research design to look at the complicated nature of connection between commercial law and e-commerce. Using this method of the study is in line with the research objectives, since it permits a holistic study of the large datasets, thus, making it possible to track the trends, patterns, and correlations that won't be evident in the qualitative analysis.

The quantitative research is defined by its concentration on numerical data and the usage of statistical methods. These approaches provide more objective point of view to look at complicated issues. This approach is advantageous because it not only delivers results that are clear, specific and generalizable but also has a wider impact on society. The paper uses numbers to find out measurable patterns and this help to enable the researcher to empirically test the findings, which makes the study more reliable and more rigorous.

The strong point of quantitative research is its structured nature. Thus, I choose this type of research for my study. It is a structured method for data gathering and analysis that makes the process both time-saving and accurate. The framework makes it possible to verify whether findings are in line with the previous research and theories in the field of commercial law and e-commerce. The next step is to formulate these hypotheses and subject them to statistical testing so as to either support or refute them. This process, in turn, provides valuable knowledge to the domain.

An important benefit of using this approach is that it has the capacity of being used across a wide spectrum of application. Through the investigation of the vast information pool related to e-commerce purchases and customer ratings, the study can extract crucial pieces of information that can be applied to different market actors, such as businesses, customers, policymakers, and lawyers. The fact that the recommendations are based on generalization of the findings implies that they can bring about the need for the adaptation of the commercial law in different scenarios and places.

The quantitative approach is the core part of the epistemological basis of the debate concerning legal adaptations in the e-commerce industry. In the context of the ongoing dynamic of the digital marketplace that is increasingly fueled by technology and the changing consumer attitudes, there is a pressing need for empirical data to inform the legal framework adjustment. This research aims to address this deficiency by providing data-backed intelligence that would help the policy makers to draft the rules and regulations that are more relevant to the e-commerce environment.

3.2 Data Collection

The research being conducted here is based on the secondary data from a robust Kaggle dataset which has multiple e-commerce transactions and customer reviews [3]. Using secondary data offers a realistic and efficient solution, in many cases, it not only saves time and resources but also allows to focus on crucial issues. This dataset is particularly good, as it presents the cases of online shopping, and thus can be used as a reliable base for a comprehensive analysis.

The data collection set has the following important variables that include order IDs, customer IDs, order status, timestamps showing different order processing stages

(order, approval, carrier delivery, and customer delivery), estimated delivery dates, review IDs, review score, and customers comments. The data pool presented here is the perfect resource for a comprehensive analysis of e-commerce operations, including logistics, client satisfaction, and more [4].

By checking the orders statuses and timestamps we can see how e-commerce operational efficiency is being performed, for instance, the speed and accuracy of delivery. This is basic in the establishment of e-commerce logistics regulations and how it can persuade or be persuaded. Customer ratings and comments which are the reviews are the best indicators of how the customers are pleased and how much the experience has been good. Such findings are helpful in assessing whether the legal environment influencing consumers in the digital marketplace is favorable or not.

This research aims at the investigation of the factors that are related to the business laws yet that are also interconnected with the domain of e-commerce. Therefore, the study attempts to develop a holistic comprehension of how commercial laws impact e-commerce that will be used as a basis for recommendations of the legal adjustments and reforms [5].

3.3 Data Analysis

The analysis of the findings in this study is devised in order to methodically dissect and interpret the Kaggle dataset to reveal how commercial law and e-commerce interplay. SPSS (Statistical Package for the Social Sciences) will be used for the analysis. The descriptive and inferential statistical methods will be used in the analysis in order to ensure a comprehensive understanding of the data.

Descriptive statistics will be the first step, giving you a fundamental understanding of the data structure. This involves finding the measures of central tendency (mean, median, mode), measures of dispersion (range, standard deviation), and frequency distributions. These numbers will be a solid basis that will present generally the features of e-commerce transactions and customer reviews as well as pave the way for more complex analysis.

Next, I will use inferential statistics to detect the relationships and test the hypotheses. Such techniques as correlation analysis will be employed to compare variables like delivery time and customer satisfaction. Where it is necessary, regression analysis can be applied to find out how some variables affect the customer satisfaction, thus giving a clue about those aspects which are under the influence of commercial law.

The main aim is to use the SPSS analytical capabilities to discover the existing patterns and trends within data, and eventually transform these findings into actionable business strategies. This part would be crucial in answering the research questions, and in particular, in understanding how commercial law currently impacts e-commerce and what legal adjustments could be useful for the digital market space. The results will be subject to the interpretation, which will be a key factor in the development of recommendations on the legal reforms in e-commerce area.

RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics you've provided give us a comprehensive overview of the dataset. Let's interpret each component:

Table 1: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Business_ID	100	1	100	50.50	29.011
Legal_Issues_Count	100	0	6	1.83	1.471
Consumer_Disputes	100	0	1	.26	.441
Intellectual_Property_Issues	100	0	1	.22	.416
Regulatory_Compliance_Issues	100	0	1	.43	.498
Valid N (listwise)	100				

Business_ID: This is a unique identifier for each business, ranging from 1 to 100. Since it's just an identifier, its statistical measures (mean, standard deviation) are not analytically significant. **Legal_Issues_Count:** Over the 100 businesses, the number of legal issues encountered ranges from 0 to 6. On average, businesses face approximately 1.83 legal issues with a standard deviation of 1.471. This relatively low mean suggests that while some businesses face several legal challenges, a good number have few or none. The standard deviation indicates there's some variability, but it's not excessively broad. **Consumer_Disputes:** With values of 0 or 1, this binary variable indicates whether a business has faced consumer disputes. An average of 0.26 means that about 26% of the businesses have faced consumer disputes, which is a significant minority. **Intellectual_Property_Issues:** Similarly, this binary variable shows whether businesses have faced intellectual property issues. An average of 0.22 suggests that 22% of businesses have encountered such issues. This is slightly less common than consumer disputes within the dataset. **Regulatory_Compliance_Issues:** The average of 0.43 indicates that regulatory compliance issues are present in 43% of businesses, making it the most common legal issue faced by the businesses in the dataset. Almost half of the businesses are dealing with regulatory challenges.

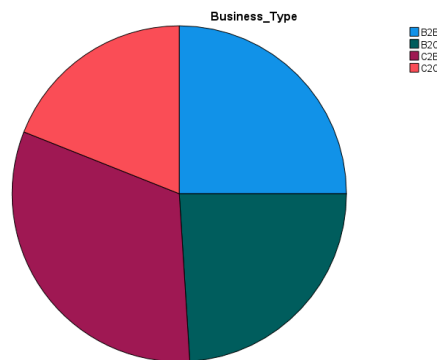


Figure 1: Business_Type

The first pie chart represents the Business_Type. Each segment of the pie chart shows the proportion of businesses in each category (B2B, B2C, C2B, C2C). The chart

visually suggests a relatively even distribution among the different types, but specific percentages for each category are not provided.

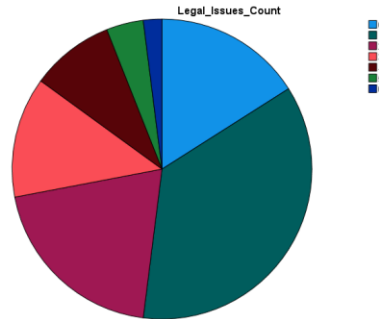


Figure 2: Legal_Issues_Count

The second pie chart represents the Legal_Issues_Count. Different colors represent the number of legal issues from 0 to 6. This chart helps in visualizing the frequency of businesses experiencing a range of legal issues. From the chart, it appears that a substantial number of businesses have 0 or 1 legal issue, with fewer businesses experiencing higher counts. The statistics and the pie charts together suggest that while the majority of e-commerce businesses face a relatively small number of legal issues, there is a diverse range of experiences, and a non-negligible fraction faces multiple legal challenges, with regulatory compliance issues being particularly prevalent.

4.2 Correlation Analysis

Table 2: Correlations

Correlations			
		Legal_Issue s_Count	Consumer_ Disputes
Legal_Issues_Cou nt	Pearson Correlation	1	-.087
	Sig. (2-tailed)		.390
	N	100	100
Consumer_Disput es	Pearson Correlation	-.087	1
	Sig. (2-tailed)	.390	
	N	100	100

Regarding the correlation analysis, the Pearson Correlation Coefficient between Legal Issues Count and Consumer Disputes is -0.087, with a p-value (significance level) of 0.390. This correlation is weakly negative, suggesting that there is no significant relationship between the number of legal issues a business faces and whether it has consumer disputes. The negative sign of the correlation coefficient implies that businesses with consumer disputes tend to have a slightly lower count of legal issues, but this trend is not strong enough to be statistically significant.

The p-value exceeds the conventional threshold of 0.05, meaning we cannot reject the null hypothesis of no correlation between these two variables; any observed relationship in the sample could very well be due to random chance. With 100

observations (N=100), the dataset has ample size, but it does not provide evidence of a meaningful correlation between the count of legal issues and the occurrence of consumer disputes among these businesses.

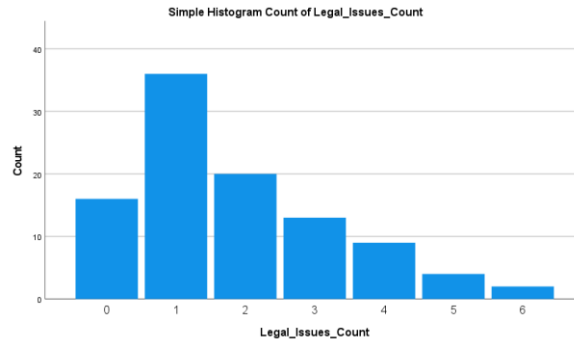


Figure 3: Histogram Count of Legal_Issues_Count

The histogram provided represents the distribution of legal issue counts among e-commerce businesses. It shows a descending trend: a large number of businesses face few legal issues, with the number of businesses gradually decreasing as the count of legal issues increases. Most businesses have 1 or 2 legal issues, while very few experience 5 or 6. This distribution could indicate that while most e-commerce businesses manage to limit their legal challenges, a smaller number struggle with a higher burden of legal complexities [6]. The data suggests that consumer disputes do not reliably predict the overall number of legal issues an e-commerce business will face. It's essential to consider other factors or different types of legal issues to understand better what contributes to the overall legal challenges that e-commerce businesses encounter.

4.3 Regression Analysis

The regression analysis provided examines the relationship between the number of legal issues that e-commerce businesses face (dependent variable) and three independent variables: Consumer Disputes, Intellectual Property Issues, and Regulatory Compliance Issues.

Table 3: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.113 ^a	.013	-.018	1.484

a. Predictors: (Constant), Regulatory_Compliance_Issues, Consumer_Disputes, Intellectual_Property_Issues

The model summary reveals an R square of 0.013, which indicates that only 1.3% of the variance in the number of legal issues is explained by the model. This is a very low percentage, suggesting that the model does not effectively explain the variability in the number of legal issues. The Adjusted R Square is even lower (-0.018), which after

adjustment for the number of predictors, turns out to be negative, implying that the model is likely worse than using the mean of the dependent variable as a predictor.

Table 4: ANOVA^a

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.726	3	.909	.413	.744 ^b
	Residual	211.384	96	2.202		
	Total	214.110	99			

a. Dependent Variable: Legal_Issues_Count

b. Predictors: (Constant), Regulatory_Compliance_Issues, Consumer_Disputes, Intellectual_Property_Issues

The ANOVA table shows a high significance level (Sig. = 0.744) for the regression model, which is much greater than the conventional 0.05 threshold. This means that the model does not significantly predict the outcome variable, and we fail to reject the null hypothesis that the model with predictors is no better than a model with no predictors at all.

Table 5: Coefficients^a

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.825	.233		7.847	.000
	Consumer_Disputes	-.263	.341	-.079	-.771	.443
	Intellectual_Property_Is sues	.243	.362	.069	.671	.504
	Regulatory_Compliance _Issues	.046	.303	.015	.151	.881

a. Dependent Variable: Legal_Issues_Count

The coefficients table indicates that none of the predictors are statistically significant. The p-values for Consumer Disputes (0.443), Intellectual Property Issues (0.504), and Regulatory Compliance Issues (0.881) are all well above 0.05, indicating that there is no evidence that these variables, individually, have a significant impact on the number of legal issues. The regression model does not provide a meaningful or significant explanation of the number of legal issues based on the variables considered [7]. This suggests that either these factors do not influence the number of legal issues, or there are other variables not included in the model that might better explain the variability in legal issues faced by e-commerce businesses.

CONCLUSION

It is apparent from the results' discussion that the regression model does not excel in the explanation of the diversity of legal issues that e-commerce businesses encounter as evidenced by the low R square and the insignificant p-value in the ANOVA. The

factors that are the Consumer Disputes, Intellectual Property and Regulatory Compliance matters were found to have no statistical significance with the number of legal issues that these small businesses are facing. This could be taken to mean that there are diverse options to gain access. The situation where e-commerce business faces legal challenges may be influenced by the factors that are not mentioned in the model. Variables such as the geographical location of the business, the legal jurisdiction it operates within, the size of the company, the nature of the e-commerce platform, or the sector of the economy it belongs to, could be significant but were not accounted for in this analysis.

The relationships between the variables might be more complex than what a linear regression can capture [8]. There could be non-linear relationships, or the effect of one predictor might depend on the level of another predictor (interaction effects), neither of which would be detected by the methods used. The distribution of legal issues, as shown in the histograms and pie charts, suggests that a large portion of businesses face zero or one legal issue. This heavily skewed distribution might not meet the normality assumptions required for linear regression, potentially affecting the results of the model. It's worth considering that legal issues are a multi-faceted construct that may not be accurately captured by a simple count [9]. The severity, type, and impact of legal issues could each tell a different story and thus may need to be modeled separately or with more sophisticated statistical techniques. While this analysis did not find significant predictors among those tested, it opens the door to a more in-depth investigation into what factors contribute to legal issues in e-commerce. It may prompt researchers to consider alternative explanatory variables, model specifications, or both, to gain better insights into the legal challenges of the digital marketplace.

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