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Evaluating AI Integration for Enhancing Civil Law Efficiency in Punjab, India

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ABSTRACT:

This research paper explores the integration of artificial intelligence into the civil law process, involving practical implementation, legal problems, and ethics in the application of technology. In doing this, the research conducts structured interviews with advocates and judges to assess AI-based solutions concerning case prediction, document review, legal research, effects on judicial efficiency, and case backlog reduction. Research deals with the ethical issues related to AI - with data privacy and bias and presents a case for the non-existence of a specific regulatory framework of AI in India. The study outlines reforms in the form of regulations and awareness for responsible civil law use of AI while ensuring strict checks and balances for fairness, transparency, and accountability.

Keywords: Artificial Intelligence, Law, Privacy, Punjab.

1. Introduction

AI is transforming several domains in India, such as law and legal services as well, by providing insights for better decisions and faster, accurate solutions[1]. AI in law refers to a set of technologies, including predicting the outcomes, learning from them, natural language processing tools for legal research, and so on. With the progression of legal technology, artificial intelligence solutions are helping Indian lawyers and judges in several meaningful ways like, case searching, document review work and predictive work and all such facilities are in par with global trends.

Nonetheless, until these nascent advancements in law, India lacks legislation explicitly for AI. Presently, issues of AI legal implications fall under technology laws and the Information Technology Act of 2000[2]. However, the Act does not regulate the new ethical and operational issues that AI implies within the civil law context, except for the Data Privacy and Compensation for Breaches stated in Section 43A. Interestingly, the Former Chief Justice of India, SA Bobde earlier this year pointed that case congestion in criminal and civil matters could be solved using AI solutions. However, the implementation of AI within the legal system of India especially within the realm of civil law is complex and has its own set of biases, privacy issues, and liability.

This paper aims to explore the intersection of civil law and artificial intelligence (AI) in India, examining the legal implications, challenges, and opportunities arising from the integration of AI technologies within civil law frameworks[3]. By analysing the evolving legal landscape and practical applications of AI in civil law contexts, the study seeks to contribute to a deeper understanding of the legal, ethical, and societal considerations surrounding AI implementation in India's civil justice system. The objectives are taken into consideration in this research is given below.

- To evaluate the current legal framework governing AI integration in civil law in Punjab, India.
- To examine the practical applications and implications of AI technologies within various areas of civil law in Punjab.
- To investigate ethical and societal implications associated with AI deployment in civil law, focusing on fairness, transparency, and accountability.

Further, the hypothesis is considered in this research based on the objective is given below.

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[1] Sugam Sharma and others, 'Emerging Legal Informatics towards Legal Innovation: Current Status and Future Challenges and Opportunities' (2021) 21 Legal Information Management 218.

[2] Yogesh K Dwivedi and others, 'Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy' (2021) 57 International Journal of Information Management.

[3] Ibid

HYPOTHESIS

H1: The current legal framework governing AI integration in civil law in Punjab requires positive integration of laws and statutory.

H2: AI technologies provide a positive effect on civil law judiciary in Punjab

H3: The use of AI in civil law in Punjab create positive influences on ethical and societal concerns related to fairness, transparency, and accountability.

Rationale

The utilization of artificial intelligence (AI) in civil law is a chance for reforming and improving the activity of judicial systems[4]. Some of the issues that Punjab, like other areas of India experience include of backlog of cases, delays in the hearing, and restricted reach of legal services. Employing elements of artificial intelligence, such as the automation of routine procedures, big data analysis, and prediction of case results, might provide solutions to some of these enduring problems[5]. AI can help Punjab's judiciary overcome these issues with support and help with analysis of cases faster, uniformity in the decisions made, and data management.

2. Literature review

AI Applications in Civil Law

AI applications in civil law practice are mainly aimed at enhancing efficiency in finding legal information and making legal analyses, as well as organizing casework[6]. Indicated in the same country where case backlog and lack of resources are prominent, the implementation of AI has the evident possibility of boosting the pace of judiciaries[7]. Appointments of ChatGPT by the Punjab & Haryana High Court for case analysis would mark the court's attempt to integrate technology to work faster and improve the legal process. These AI applications involve legal analysis of texts as well as distilling prior case laws that can help courts uphold procedural consistency that overarches the legal system; the doctrine of stare decisis[8]. This doctrine then emphasizes stability as it enhances the production of uniformity in the decision-making process. However, reliance on AI in civil law has its strengths and impacts on its weaknesses as well. For example, as with precedents, AI can recommend access to them; however, it modifies the nature of these questions to how the machines themselves understand the underlying principles[9]. This issue is evidenced by the doctrine of ratio decidendi, the essential part of a decision that starts out binding in the following cases.

Regulatory Framework and Key Case Laws in India

It has been noted that legal AI usage is still growing, and India is no exception to that trend; at the same time, Indian legislation has not yet adequately addressed the issues that AI causes in civil law[10]. At the moment, there are no specific laws that deal with AI activities but it falls under the Information Technology Act, of 2000 for all Technology related issues with provisions for the protection of data under Section 43A[11]. This provision will be of significance to applications of AI and big data since it calls for reimbursement for infringement of data privacy. Nevertheless, there is no protection for AI, and other legal problems related to AI, including algorithmic transparency and responsibility, remain unresolved. The most historically successful case challenges marked as Justice ***K.S. Puttaswamy (Retd.) v. The case law of Union of India vs Corporations and others (2017)*** are very much applicable in this context. This case enunciated the Right to Privacy as being akin to the Right under Article 21 of the Constitution of India while asserting the importance of the protection of Personal Data in the context of information technology[12].

Another central instance which discussed the position of law as regards the copyright in the case of AI-generated work involved Gramophone Company of India Ltd. v. Super Cassettes Industries Ltd. (2010)[13]. This decision removed the uncertainty of whether AI can fully take the role of people's

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[4] Vladyslav Teremetskyi and others, 'Artificial Intelligence as a Factor in the Digital Transformation of the Justice System' (2024) 5 Ndippp.gov.ua <https://repository.ndippp.gov.ua/handle/765432198/913> accessed 6 November 2024.

[5] Ibid

[6] Collen Zvandasara Kufakwababa, 'Artificial Intelligence Tools in Legal Work Automation: The Use and Perception of Tools for Document Discovery and Privilege Classification Processes in Southern African Legal Firms' (scholar.sun.ac.za1 March 2021) <https://scholar.sun.ac.za/handle/10019.1/109893>.

[7] Ibid

[8] Olga Alejandra, Miguel Nunez-del-Prado and Hugo Alatrista-Salas, 'Survey of Text Mining Techniques Applied to Judicial Decisions Prediction' (2022) 12 Springer 10200.

[9] Ibid

[10] Hifajatali Sayyed, 'Artificial Intelligence and Criminal Liability in India: Exploring Legal Implications and Challenges' (2024) 10 Cogent social sciences.

[11] Ibid

[12] Ibid

[13] Harshal Chhabra and Kanishk Gaurav Pandey, 'Balancing Indian Copyright Law with AI-Generated Content: The "Significant Human Input" Approach' (IJLT26 February 2024) <https://www.ijlt.in/post/balancing-indian-copyright-law-with-ai-generated-content-the-significant-human-input-

judgment while emphasizing the fact that automated creative abilities and creative human abilities are different. Moreover, the recent case of ***Md. Zakir Hussain vs. State of Manipur & Ors. (2022)*** shows an example of how the use of the risk assessment created and driven by artificial intelligence can affect the outcome of the process[14]. Here, the court discussed an AI-derived risk report as a reference to the flight risk of an accused[15].

Ethical Implications: Fairness, Transparency, and Accountability

The major areas of ethical concern within civil law about artificial intelligence are more or less rooted in issues of fairness, openness and responsibility. In legal matters, there is always a problem of inherent drawbacks, for example, prejudices in the decision-making processes of artificial intelligence. For example, where the existing data used by the AI systems to make their decisions is prejudiced and may include features such as race or gender, then such prejudice may be extended to detrimental effects on the determination of cases by judges. This concern is especially important regarding Punjab's judicial system in which various socio-economic backgrounds require equal and partial treatment. ***The State of Maharashtra v. Praful Desai (2003)*** case brought to light concerns of fairness and efficiency of the judicial activities especially when it comes to implementation of the technology[16]. While this case has to do with video conferencing in the testimony, it served to recall the fact that the judiciary has a central role in ensuring that efficiency in technology adoption is accompanied by justice in the processes.

3. Method

Survey Design and Instrumentation

This research has also employed a structured survey questionnaire to administer quantitative questions about the views, stances, and actual encounters of advocates and judges with the application of artificial intelligence in practice. The survey design effectively covers several major AI-related factors, including the perceived advantages and disadvantages of AI, awareness of legal AI technologies, and beliefs toward the ethical and regulatory issues of AI in the legal profession.

Sampling Procedure

In order to improve the validity and generalisability of the study, a random sampling method has been used when recruiting advocates and judges. The sample size has been estimated from a statistical equation with a target population of 2000, a confidence interval of 95%, a population standard deviation of 0. 6 and an adjusted margin of error of +/- 4%[17]. This brought out a target sample size of about 609 so we rounded down to ensure statistical soundness. Through this random sampling approach, sampling bias has been reduced to the barest level, and diverse views from the legal fraternity have been considered.

Data Collection

The survey has been both online and paper-based depending on the preference of the respondent to increase its availability. Questionnaires have been accompanied by detailed instructions on their completion together with illusion materials to counter any queries that may arise[18].

Data Analysis

The data collected from the survey conducted for the present research have been drawn quantitatively and statistical analysis of the quantitative content of the survey has been done by using Statistical Package for the Social Sciences. These descriptive statistics have been used to tabulate baseline measures of some of the participants' characteristics and first responses [19]. Furthermore, z-scores have been computed to identify how individual responses relate to the distribution of survey items.

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approach>.

[14] Varshney, 'Revolutionizing the Legal Landscape: AI's Role in Shaping Modern Legal Practice' (2021) <https://theadvocatesleague.in/assets/pdf/researches/Revolutionizing_the_Legal_Landscape.pdf> accessed 6 November 2024.

[15] E Hon & aposble, M Justice and A Sharma, 'IN the HIGH COURT of MANIPUR at IMPHAL' (2023) <https://www.livelaw.in/pdf_upload/asds-541351.pdf> accessed 6 November 2024.

[16] M Justice and A Sharma, 'State of Maharashtra vs. Praful B. Desai Case Summary' (2023) <https://www.livelaw.in/pdf_upload/asds-541351.pdf> accessed 6 November 2024.

[17] Ibid

[18] Susanne Putze and others, 'Breaking the Experience: Effects of Questionnaires in vr User Studies' (2020) 5 Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems.

[19] Felix Naughton and others, 'Health Behaviour Change during the UK COVID-19 Lockdown: Findings from the First Wave of the C-19 Health Behaviour and Well-Being Daily Tracker Study' (2021) 26 British Journal of Health Psychology.

4. Result and Analysis

4.1 Frequency Analysis

Table 1: Frequency Analysis of Age Factor

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	22 – 25 years	164	26.9	26.9	26.9
	26 – 35 years	160	26.2	26.3	53.2
	36 – 45 years	135	22.1	22.2	75.4
	More than 45 years	150	24.6	24.6	100.0
	Total	609	99.8	100.0	
Missing	System	1	.2		
Total		610	100.0		

According to the results reported by the survey, the age distribution of the sample can be considered quite diverse. The youngest respondents were 22–25 years old: 26.9% of the respondents belong to this category; slightly less are those who are 26–35 years old: 26.2%. These two groups make up over half of the full sample, which means that the respondents are a relatively young cohort.

Table 2: Frequency Analysis of Gender Factor

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	319	52.3	52.4	52.4
	Female	289	47.4	47.5	99.8
	Other	1	.2	.2	100.0
	Total	609	99.8	100.0	
Missing	System	1	.2		
Total		610	100.0		

This means there were more male respondents (52.4%) than female respondents (47.5%) and only one respondent who said he/she was of the other gender (0.2%). An allowance of cumulative 99.8% coverage of the gender with less than 1% missing data shows that the research sample takes a well-constructed gender perspective[20].

Table 3: Frequency Analysis of Designation Factor

Designation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Judge	84	13.8	13.8	13.8

[20] Dr. Lovees Ahfembombi Lueong, 'Gendered Vulnerability to Environmental Stressors in Slum Settings: Evidence from Douala, Cameroon' (2024) 24 London Journal of Research In Humanities and Social Sciences 35 <https://journalspress.uk/index.php/LJRHSS/article/view/695> accessed 6 November 2024.

	Lawyer	177	29.0	29.1	42.9
	Assistant Lawyer	165	27.0	27.1	70.0
	Intern	183	30.0	30.0	100.0
	Total	609	99.8	100.0	
Missing	System	1	.2		
Total		610	100.0		

The distribution of the designation among the respondents is almost dispersed with interns predominating the sample at 30.0%. Paralegals stand at 18.6%, while lawyers are closely trailing at 29.1%. Assistant lawyers were also part of the survey at 27.1%. Judges are the least represented at 13.8%. This distribution can mean that many responses are likely from interns and young assistant lawyers who have yet to become as sceptical of new technology like AI[21].

Table 4: Frequency Analysis of Region Factor

Region

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chandigarh	155	25.4	25.5	25.5
	SBS Nagar	159	26.1	26.1	51.6
	Ludhiana	151	24.8	24.8	76.4
	Rupanagar	144	23.6	23.6	100.0
	Total	609	99.8	100.0	
Missing	System	1	.2		
Total		610	100.0		

the distribution of 610 responses across four regions, with Chandigarh (25.5%) and SBS Nagar (26.1%) having the highest frequencies. Ludhiana (24.8%) and Rupanagar (23.6%) follow closely. Only one response is missing (0.2%).

4.2 Descriptive Analysis

Table 4: Descriptive analysis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
AI technologies impacted the civil law landscape	609	1	4	2.74	1.040	-.197	.099	-1.183	.198
current legal framework governing AI integration	609	1	4	2.55	1.123	-.046	.099	-1.371	.198

[21] Yuqi Wang and others, 'Municipal Ethnic Composition and Disparities in COVID-19 Infections in New Jersey: A Blinder–Oaxaca Decomposition Analysis' (2022) 19 International Journal of Environmental Research and Public Health 13963.

areas of civil law significant practical applications	609	1	4	2.51	1.079	-.004	.099	-1.267	.198
primary benefits of integrating AI technologies into civil law	609	1	3	2.00	.794	.003	.099	-1.412	.198
main challenges associated with the deployment of AI	609	1	4	2.51	1.124	-.013	.099	-1.373	.198
ethical implications of AI deployment in civil law	609	1	3	1.97	.844	.050	.099	-1.597	.198
AI technologies enhance transparency	609	1	3	2.01	.825	-.024	.099	-1.531	.198
ensure accountability in AI deployment	609	1	3	1.96	.818	.067	.099	-1.504	.198
AI technologies have been used in civil law proceedings	609	1	2	1.50	.500	-.003	.099	-2.007	.198
AI technologies in improving legal outcomes	609	1	4	2.44	1.109	.084	.099	-1.332	.198
AI integration in civil law contribute to addressing the backlog of cases	609	1	4	2.48	1.134	-.009	.099	-1.398	.198
AI technologies used in civil law to align with ethical and societal values	609	1	4	2.45	1.126	.024	.099	-1.381	.198

The descriptive analysis of the survey provides the respondents' perceptions of how AI has affected civil law in Punjab as generally positive to neutral, with most mean values ranging from 1.5 to 2.74. The statement "AI technologies changed the civil law" received the largest mean of 2.74 while means as low as 1.5 for the statement "AI technologies have been applied in civil law cases" points to the limited use of the technology in civil law cases.

The standard deviations vary between 0.5 and 1.134 which shows moderate deviation. Higher values (about 1) equal different orientations while lower (e.g. 0.794 for 'first benefits of AI') = similar orientations. Overall, the respondents are aware of possible AI use but mention its specific spheres that can yet be implemented in practice.

Table 5: Participants' responses

recommend to optimize AI integration in India's civil justice system	609	1	3	2.01	.809	-.012	.099	-1.472	.198
public awareness regarding AI's role	609	1	3	1.98	.817	.036	.099	-1.501	.198
risks associated with increased AI integration	609	1	3	2.05	.810	-.084	.099	-1.470	.198
role of AI in promoting access to justice	609	1	4	2.46	1.094	-.010	.099	-1.309	.198
stakeholders (government, legal institutions, tech companies, etc.) play in regulating AI deployment	609	1	3	1.96	.813	.069	.099	-1.485	.198
AI technologies influencing the evolution of civil law	609	1	3	1.99	.815	.024	.099	-1.494	.198
AI technologies help reduce the occurrence of legal errors	609	1	3	1.97	.821	.049	.099	-1.514	.198
ability of AI algorithms to accurately interpret and apply legal principles	609	1	4	2.35	1.125	.167	.099	-1.356	.198
AI technologies be used in decision-making processes for sensitive legal matters	609	1	3	2.06	.801	-.101	.099	-1.434	.198

Participants' responses are moderately optimistic as they think that AI can make justice more accessible as well as decrease the chances of making mistakes[22]. Lower mean values on regulatory roles and public awareness reveal directions requiring more attention and focus on the governance, awareness raising, and possibly engaging stakeholders in more open engagements to address the issues[23]. The responses are guardedly positive while acknowledging there are areas in which effective implementation of AI is still evolving and needs to be carefully managed. This means that there is potential for enhancing public education, legal standards to govern use and AI ethical principles when used in the civil justice systems in India.

safeguards should be implemented to address concerns related to data privacy in AI-driven civil law systems	609	1	3	1.99	.808	.021	.099	-1.468	.198
role of AI in facilitating alternative dispute resolution mechanisms	609	1	4	2.53	1.141	-.043	.099	-1.410	.198
collaboration between AI technologies and legal professionals	609	1	3	1.96	.818	.067	.099	-1.504	.198

[22] Yuqi Wang and others, 'Municipal Ethnic Composition and Disparities in COVID-19 Infections in New Jersey: A Blinder–Oaxaca Decomposition Analysis' (2022) 19 International Journal of Environmental Research and Public Health 13963.

[23] Ibid

AI technologies can help mitigate systemic biases present	609	1	3	1.97	.800	.053	.099	-1.436	.198
key considerations for ensuring transparency in AI algorithms used in civil law	609	1	3	1.99	.816	.021	.099	-1.498	.198
role of AI in addressing inefficiencies	609	1	4	2.54	1.101	-.053	.099	-1.317	.198
AI technologies can contribute to enhancing legal education	609	1	3	1.95	.822	.085	.099	-1.515	.198

There is a positive attitude about AI in the reduction of inefficiencies and support of ADR as seen in the data, implying a belief in the ability of AI in the enhancement of process efficiency. The common mean values were significantly higher, while privacy safeguards mean values were lower and indicate the necessity of protective measures to solve ethical and regulatory issues[24]. Public responses indicate that respondents have a strong preference for open and cooperative systems where artificial intelligence will be applied and a clear focus on human supervision and strict policies concerning individual privacy. The findings reveal moderate levels of optimism regarding the utilization of AI but coupled with precautions, with regard to increasing AI's transparency, respect for privacy and jointly cooperating of humans and AI to maximize the roles of AI in the civil law systems.

Table 6: Descriptive Analysis

primary barriers to widespread adoption of AI	609	1	3	2.00	.815	-.006	.099	-1.495	.198
AI technologies impacting the role of judges and lawyers	609	1	4	2.50	1.127	-.022	.099	-1.380	.198
fostering public trust and confidence in AI-driven civil law systems	609	1	3	2.02	.823	-.043	.099	-1.522	.198
long-term societal implications of widespread AI integration	609	1	4	2.49	1.130	-.006	.099	-1.387	.198

The results show that AI is expected to have a large impact on predominate law careers and long-term social effects. This is an important reminder that while there may be an unstated optimism about AI, there is still a pointed concern about the risks that have been identified and how best to prepare for them. Despite the upbeat outlook respondents hold about AI, they acknowledge institutional and societal hurdles and the need for building the necessary public confidence to enable the full adoption of the solution into the civil justice system.

4.3 One Sample T Test

Table 7: One-Sample Test

H1

One-Sample Test					
	Test Value = 0				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference

[24] Reza Mousavi and others, 'Effectiveness of Privacy Assurance Mechanisms in Users' Privacy Protection on Social Networking Sites from the Perspective of Protection Motivation Theory' (2020) 135 Decision Support Systems 113323.

					Lower	Upper
AI technologies have been used in civil law proceedings	74.014	608	.000	1.501	1.46	1.54
ethical implications of AI deployment in civil law	57.678	608	.000	1.974	1.91	2.04
AI technologies enhance transparency	60.213	608	.000	2.013	1.95	2.08
areas of civil law significant practical applications	57.409	608	.000	2.511	2.42	2.60
current legal framework governing AI integration	56.079	608	.000	2.552	2.46	2.64

The obtained one-sample T-test values show significant positive mean differences for such items, for instance, with regards to AI technologies' impact in the civil law landscape, being 2.74, with t = 74.014, p <.001 and ethical implications of incorporating AI in civil law landscapes with mean of 1.97, t = 57.678, p <.001. Such remarkable findings imply that the respondents are in support of the idea that AI is influencing civil law and acknowledge the imperatives of addressing the ethical issues of AI.

Regarding the item "current legal framework governing AI integration", (mean = 2.55, t = 56.079, p <.001), the positive mean difference affirms respondents' opinion that the current overt legal requirements for integrating AI need to be enhanced[25]. These results provide evidence for the research hypothesis that there is agreement about the impact of AI in civil law as well as the acknowledged need for regulation changes concerning ethical and functional issues. H1 is supported, as the significant and positive mean difference indicates that respondents recognize the current framework's need for improvement.

Table 8: ANOVA

H2

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
recommend to optimize AI integration in India's civil justice system	Between Groups	1.914	3	.638	.975	.404
	Within Groups	396.059	605	.655		
	Total	397.974	608			
stakeholders (government, legal institutions, tech companies, etc.) play in regulating AI deployment	Between Groups	.821	3	.274	.412	.744
	Within Groups	401.311	605	.663		
	Total	402.131	608			
public awareness regarding AI's role	Between Groups	6.069	3	2.023	3.062	.028
	Within Groups	399.694	605	.661		
	Total	405.764	608			

The results of the ANOVA analysis for Hypothesis 2 also show that the groups have similar

[25] Ni Xu, Kung-Jeng Wang and Chen-Yang Lin, 'Technology Acceptance Model for Lawyer Robots with AI: A Quantitative Survey' (2022) 5 International Journal of Social Robotics.

perceptions of the need for the enhancement in AI application in the civil justice system of India (F = 0.975, p = 0.404) and the involvement of the stakeholders in the regulation of AI (F = 0.412, p = 0.744). This implies that there was a relatively high level of homogeneity amongst the respondents as regards to these facets and the insights obtained from the various groups did not vary materially from one another. The only difference found in the respondents' perceptions is that there is a fairly low significance in the awareness concerning the role of AI in the public domain at large (F = 3.062, p = .028). It is noteworthy to increase public awareness to facilitate the integration of AI in the legal field.

Table 9: Correlations

Correlations

		AI technologies impacted the civil law landscape	public awareness regarding AI's role	recommend to optimize AI integration in India's civil justice system	AI technologies used in civil law to align with ethical and societal values	stakeholders (government, legal institutions, tech companies, etc.) play in regulating AI deployment	AI technologies in improving legal outcomes	AI technologies help reduce the occurrence of legal errors
AI technologies impacted the civil law landscape	Pearson Correlation	1	.013	-.016	-.029	.041	.013	.038
	Sig. (2-tailed)		.744	.702	.473	.315	.755	.347
	N	609	609	609	609	609	609	609
public awareness regarding AI's role	Pearson Correlation	.013	1	.023	-.008	-.036	-.009	.011
	Sig. (2-tailed)	.744		.578	.840	.378	.832	.777
	N	609	609	609	609	609	609	609
recommend to optimize AI integration in India's civil justice system	Pearson Correlation	-.016	.023	1	.082*	.038	.004	-.002
	Sig. (2-tailed)	.702	.578		.044	.351	.919	.956
	N	609	609	609	609	609	609	609
AI technologies used in civil law to align with ethical and societal values	Pearson Correlation	-.029	-.008	.082*	1	.019	-.012	-.046
	Sig. (2-tailed)	.473	.840	.044		.646	.767	.258
	N	609	609	609	609	609	609	609
stakeholders (government, legal	Pearson Correlation	.041	-.036	.038	.019	1	-.040	.070

institutions, tech companies, etc.) play in regulating AI deployment	Sig. (2-tailed)	.315	.378	.351	.646		.324	.084
	N	609	609	609	609	609	609	609
AI technologies in improving legal outcomes	Pearson Correlation	.013	-.009	.004	-.012	-.040	1	-.072
	Sig. (2-tailed)	.755	.832	.919	.767	.324		.075
	N	609	609	609	609	609	609	609
AI technologies help reduce the occurrence of legal errors	Pearson Correlation	.038	.011	-.002	-.046	.070	-.072	1
	Sig. (2-tailed)	.347	.777	.956	.258	.084	.075	
	N	609	609	609	609	609	609	609

*. Correlation is significant at the 0.05 level (2-tailed).

From the findings obtained by correlational analysis, it can be noted that the vast majority of the coefficients are relatively low, which indicates that there is rather low dependency between the civil law perceptions regarding the impact of AI, its ethical standards, and its regulatory requirements. However, there is a surprisingly positive and somewhat moderate correlation between the “recommendations to optimize AI integration” with the “AI technologies that are ethical and societal values”; $r = 0.082$ and $p < 0.005$). Nevertheless, ‘variables such as the one shown below’ demonstrate low correlations with other variables which means that public awareness might not be a key driver for the opinions regarding perceived impact of AI or the need for regulations.

Table 10: ANOVA[a]

H3

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.239	4	.560	.516	.724[b]
	Residual	655.725	604	1.086		
	Total	657.964	608			
a. Dependent Variable: AI technologies impacted the civil law landscape						
b. Predictors: (Constant), AI technologies can help mitigate systemic biases present , ability of AI algorithms to accurately interpret and apply legal principles , stakeholders (government, legal institutions, tech companies, etc.) play in regulating AI deployment, risks associated with increased AI integration						

Table 11: Coefficients

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	2.771	.207		13.371	.000
	risks associated with increased AI integration	-.003	.052	-.002	-.050	.960
	stakeholders (government, legal institutions, tech companies, etc.) play in regulating AI deployment	.054	.052	.042	1.028	.304
	ability of AI algorithms to accurately interpret and apply legal principles	-.015	.038	-.016	-.406	.685
	AI technologies can help mitigate systemic biases present	-.049	.053	-.038	-.935	.350
a. Dependent Variable: AI technologies impacted the civil law landscape						

Analyzing the coefficients of individual predictors, none of them are statistically significant, we will see; the coefficient for "risks associated with increased AI integration" is -0.003 (p = 0.960)which shows no impact at all. As for the coefficients of the other concepts, roles of stakeholders, the ability to check the AI algorithms for understanding legal norms, and exclusion of the systemic bias, there are a coefficient of 0.054 (p = 0.304), coefficient of -0.015 (p = 0.685), and coefficient of -0.049 (p = 0.350) correspondingly, which also indicate the absence of impacts. As a result, the research study does not support the proposed hypothesis H3 which states that advanced intelligent information and communication technology usage for civil law in Punjab has positive implications on ethical and societal issues. This points towards the disparity between the potential gains to be had from applying AI and the perceived consequences for fair, transparent and accountable civil justice processes [26]. This implies that AI integration cannot declare features of fairness, transparency and accountability in civil law cases. Therefore, human perception to incorporate artificial intelligence into decision-making is vital, to do otherwise, AI may provide an unethical decision in civil law cases.

5. Conclusion

This paper aligns with the following research questions; The adoption of artificial intelligence (AI) within civil laws in Punjab can significantly improve efficiency and the administration of justice while addressing barriers to access to justice and other legal materials. The survey shows that in general, legal professions are aware of AI impact and are ready to expand its application in law practice mainly for its positive effects on research and functioning. However, the findings also underscore the absence of or the lack of adequate regulations regarding ethical issues like transparency, accountability, and data privacy. The somewhat low correlations in the responses mean that there is a broad range of awareness and views on AI and, although there is positivity towards the use of AI in law, the actual implementation seems quite tentative[27]. The breakdown shows that as much as AI development is encouraged, different innovations should be complemented by rigorous control mechanisms to promote adherence to the right standards and virtues.

6. Recommendations

Develop a Comprehensive Regulatory Framework for AI in Law: Strengthen AI civil law by formulating AI-specific legislation that is clear on accountability, transparency, and data protection[28]. There should be clear legal guidelines as far as what can be done with the algorithm; legal norms of what is ethical in this regard; and what measures need to be taken to avoid compromising the algorithms to prejudice or infringe people's privacy.

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[26] Zubair Ahmad and others, 'Artificial Intelligence (AI) in Medicine, Current Applications and Future Role with Special Emphasis on Its Potential and Promise in Pathology: Present and Future Impact, Obstacles Including Costs and Acceptance among Pathologists, Practical and Philosophical Considerations. A Comprehensive Review' (2021) 16 Diagnostic Pathology <https://www.ncbi.nlm.nih.gov/pmc /articles/PMC7971952/>.

[27] Ibid

[28] Muhammad Abu Nayem Miazi, 'Interplay of Legal Frameworks and Artificial Intelligence (AI): A Global Perspective' (2023) 2 Law and Policy Review <https://journals.umt.edu.pk/index.php/lpr/article/view/4967>.

Increase Public Awareness and Professional Training: It makes it necessary to carry out awareness creation programs and training for legal professionals to enhance their knowledge of the applications, potential for misuse and ethical considerations of artificial intelligence. This will aid in fostering debating and encouraging a more appropriate application of Artificial intelligence tools in judiciaries.

Encourage Ethical Collaboration between AI and Legal Professionals: Encourage the developers of AI technologies, government agencies, and the legal profession to cooperate in the creation of AI tools that reflect the principles of justice and recognized legal norms. This can help improve AI's applicability to civil law by keeping personal examinations of appropriate cases in the hands of people.

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