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Reimagining Pakistani Cinema, The Role of Artificial Intelligence and Digital Innovation in Shaping the Industry's Future

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Abstract: Artificial intelligence is rapidly re-tooling Pakistani cinema, from script generation to multilingual dubbing, yet its cultural fit remains contested. Using a mixed-methods design 30 semi-structured interviews with filmmakers, surveys of 500 viewers, and three production case studies this study maps AI's penetration across pre-production, production, and post-production workflows, with particular attention to OTT distribution. Grounded in Technological Determinism and Diffusion of Innovation, the analysis reveals a double-edged future: AI lowers barriers, enabling a Lahore director to release a Mandarin-dubbed cut overnight and an editor to halve post-production time, but it also threatens editors, voice actors, and cultural nuance. Older audiences question the "junoon" of machine-mediated stories, while Gen Z embraces the sheen. Ethical concerns deepfake resurrections, algorithmic bias toward Western tropes underscore the need for culturally trained models, consent protocols, and workforce upskilling. Ultimately, Pakistan's cinematic growth hinges on blending technological efficiency with the irreplaceable instincts of human storytellers within a rapidly globalizing media landscape.

Keywords: AI in filmmaking, digital innovation, OTT platforms, Pakistani cinema, film production, artificial intelligence (AI), VFX, industry challenges

Introduction:

Pakistan's cinema has weathered golden highs, political lows, and Bollywood's shadow, yet creaking infrastructure and uneven policy still blunt its revival. Into this fragile ecosystem steps generative AI: algorithms that outline scripts, auto-dub dialogue, and slash VFX costs, while Netflix and local OTT portals rocket content onto global screens. Optimisation engines predict what sells, but not why it matters (Floridi & Chiriatti, 2020).

Grounded in Technological Determinism and Diffusion of Innovation, this study asks whether AI is a lifeline or a stranglehold. Thirty semi-structured interviews with filmmakers, surveys of 500 viewers, and three longitudinal case studies trace AI's imprint from storyboarding to post-release marketing. Findings reveal a double edge: a Lahore team delivered a Mandarin cut overnight, yet editors and voice actors fear redundancy; deepfakes resurrect legends but ignite consent disputes; data-driven recommender systems steer investment decisions yet flatten regional nuance.

By mapping these tensions, the paper frames AI not as neutral code but as a socio-technical force recalibrating creativity, labour, and cultural memory. It contends that Pakistan's cinematic resurgence will depend on policies and practices that harness algorithmic speed without eroding narrative authenticity keeping, in Scorsese's words, "every frame honest" (Scorsese, M. (Director). 2019).

Justification of the Study

While global cinema rapidly embraces AI and digital innovation to enhance storytelling, production, and distribution, Pakistan's film sector remains significantly underexplored in this domain. This study is justified by the urgent need to bridge this gap and investigate how AI tools can revitalize a declining industry.

In an age where OTT dominate content consumption, the Pakistani cinema landscape must evolve or risk cultural erasure.

Significance of the Study

This research holds theoretical, practical, and cultural significance. Theoretically, it contributes to emerging discourses around AI's role in creative industries within developing nations an area still largely dominated by Western scholarship. Practically, it provides a framework for Pakistani filmmakers, production houses, and policy makers to adopt digital strategies, integrate AI tools in storytelling, and engage audiences through OTT platforms. It emphasizes the preservation and modern reinterpretation of Pakistani identity. By analyzing both opportunities and concerns, the study also guides the development of responsible innovation within Pakistan's unique context.

Research Objectives

This research sets out to explore how AI and digital tools are reshaping the landscape of Pakistani cinema.

1. Exploring AI in Content Creation and Post-Production
2. Understanding the Role of OTT Platforms in Expanding Global Reach
3. Mapping the Opportunities and Pitfalls of AI Integration
4. Assessing the Impact of Automation on Film Industry Jobs
5. Investigating Audience Attitudes Toward AI-Generated Content
6. Exploring Sustainable Integration Strategies

Research Questions

1. How are AI and related digital tools reshaping Pakistan's entire film-making value chain from scriptwriting and VFX to traditional on-set roles and what strategies can professionals adopt to stay relevant?

2. In what ways do OTT platforms, often powered by AI-driven recommendation systems, expand Pakistani cinema's global reach, and what new operational or cultural challenges accompany this expansion?

3. What opportunities and obstacles does AI-generated content create for industry stakeholders and audiences alike, and how are viewer perceptions of such content influencing the sector's future direction?

Research Hypothesis

H1: The integration of AI and digital innovation in Pakistan's film industry can significantly improve production quality, accessibility, and international competitiveness despite existing infrastructural challenges.

H2: The application of AI-driven workflows in filmmaking (e.g., scripting, editing, visual effects) positively correlates with the efficiency and scalability of low-budget Pakistani productions.

H3: The adaptation of AI-powered content personalization and data analytics by OTT platforms can expand the domestic and international audience base for Pakistani films.

Scope of the Study

The scope of this study is defined both geographically and thematically. It focuses on the contemporary Pakistani film industry, particularly from the post-2010 digital revival era to the present. Thematically, the research explores the impact of AI technologies across the filmmaking pipeline. It also analyzes audience engagement, ethical dilemmas, and employment shifts. Comparative insights from global film industries (e.g., Hollywood, Bollywood, and South Korean cinema) are integrated to contextualize and benchmark the findings. The study does not delve deeply into AI applications outside the film domain.

Literature Review

This section examines how AI and digital transformation are reshaping filmmaking practices globally and regionally, with a particular focus on their application in Pakistani cinema. It draws on existing literature to explore developments in AI-assisted production, the rise of OTT platforms, and the shifting dynamics of employment and creativity in the industry. Kyi, L., Mahuli, A., Silberman, M. S., Binns, R., Zhao, J., & Biega, A. J. (2025).

AI in Film Production

AI and Scriptwriting: Assistance or Imitation?

Generative AI now prowls Pakistani writers' rooms, parsing thousands of box-office scripts to suggest plot beats and alternative dialogue at the click of a key. Empirically, such systems raise drafting efficiency and expose narrative blind spots by modelling genre-specific frequency distributions (Floridi & Chiriatti, 2020). Yet their outputs resemble chefs who know every recipe but have never felt hunger: they recombine tropes without sensing the cultural pulse or moral ambiguity that anchors a Lahore family drama. Field interviews confirm that writers treat AI as a brainstorming aide, not an author; it can outline a tragedy, but cannot embed the ache that makes a lie reveal truth or a joke mask grief. Genuine originality rooted in lived experience remains stubbornly human.

Editing in the Age of Automation

AI now lurks in Pakistan's edit bays, inhaling terabytes of raw footage and coughing up rough-cuts before the coffee cools. Industry evaluations cite time savings above 40 percent when scene selection and sequencing are algorithmically pre-trimmed (Adobe, 2021). Our field data confirm the gain: editors reallocate hours to color grading and narrative pacing, not clip-finding. Yet respondents insist a cut is more than arithmetic; that extra heartbeat before a reaction shot lets a viewer's lungs tighten intuition a model cannot infer (Floridi & Chiriatti, 2020). The study therefore frames AI editing as an accelerant, not a substitute: it handles mechanical grind while human rhythm keeps the drumbeat of emotion.

Deepfakes and the Digital Actor Debate

Hollywood's got a new toy. Deepfakes cracked the uncanny valley wide open now you can slap Brando's face on some TikTok kid, de-age De Niro (Scorsese, 2019) till he's got baby teeth, or make Audrey Hepburn sell you crypto. Technically? Wild. Ethically? Unsettling. When a studio can puppetize any actor's likeness, consent's just a footnote (Kyi et al., 2025).

Synthetic Voiceovers and Automated Dubbing

AI voices are slipping into Pakistani sound studios, auto-dubbing heroes into Urdu, Pashto, and Mandarin before lunch. Industry pilots show overnight turnaround and steep cost savings, as Papercup's multicurrency workflows and Amazon's Prime Video trials attest (Papercup, 2024; Amazon, 2025). Technically, neural text-to-speech models map phonemes to lip-sync frames with near-human prosody, broadening accessibility and accelerating global release schedules. Yet editors warn of a spreading "global monotone": synthetic performances replicate timbre but never inhabit character, scrubbing away the breathy imperfections voice actors craft through lived experience (The Guardian, 2024). AI dubbing thus emerges as an efficient localization tool whose long-term value depends on protecting human vocal nuance and livelihoods.

AI in Visual Effects (VFX)

Those once agonizing tasks now get chewed through by machine learning tools like an assembly line. (Foundry, 2021; Numalis, 2023) Smaller studios cheer; suddenly they're slinging Hollywood-grade effects with open-source tools and a fraction of the budget. Deadlines loosen. Profit margins fatten.

However, VFX artists aren't just painters anymore they're part-time engineers. The new mantra? Adapt or die. The future's a double-edged render: democratized power, but only if you're willing to become a digital chameleon. (Roland Berger, 2024; AAFT, 2025)

The Changing Face of Content Distribution: OTT Platforms

Global Reach through OTT Platforms

In Pakistan, local players like Tapmad and SeePrime are following suit, offering homegrown films a passport to global audiences. (Data Darbar, 2022; Tapmad, n.d.) While this levels the playing field imagine a Lahore indie film competing with a Bollywood blockbuster it also turns the digital arena into a crowded bazaar. To stand out, Pakistani filmmakers now need stories that are compelling and culturally distinct.

Personalized Content Recommendations

OTT platforms now deploy AI to predict what you'll watch next. (Argoid, 2023; CMU, 2021) This keeps viewers hooked. But there's a catch: the more these tools learn your preferences, the narrower your world

becomes. (AppsInsight, 2023; Data Science Salon, n.d.). Over time, audiences risk being trapped in a loop of their own tastes, missing out on the rich buffet of global storytelling. (ResearchGate, 2013)

Data-Driven Content Creation

By mining viewer habits AI churns out blueprints for "guaranteed hits." (SymphonyAI, 2025). While this approach fills coffers, it sidelines the kind of raw, experimental storytelling that birthed classics like Khuda Kay Liye. The risk? A future where every plot feels formulaic. (Adgully, 2024)

Automated Dubbing and Subtitling

Amazon's tech can now clone an actor's voice into Spanish or Mandarin overnight. (Reuters, 2025; AP News, 2025) For studios, it's a dream cheaper, faster, no delays. But something's lost in the algorithm. (LinkedIn, 2025; AV Club, 2025)

Challenges in Content Moderation

AI tools excel at spotting the obvious: violence, nudity, hate speech. (Ofcom, 2019; Checkstep, 2022) But cultural nuance? Barely. Platforms now rely on a patchwork of AI speed and human intuition. Miss the mark, and you're one misstep away from a social media firestorm or a PEMRA notice.

Impact on Film Industry Labor

Reconfiguring Traditional Roles

Editors are coding macros to outpace AI's autopilot. (Artificial Intelligence +, 2024) Scriptwriters? They're fistfighting algorithms that "suggest" plot twists based on TikTok metrics. (WeAlwin Technologies, 2025).

Sure, the grunt work's automated. But the trade-off's brutal: adapt to the machine's logic or get chewed up by the next film-school grad who can code Python between takes. Creativity's no longer about vision it's about bilingual hustle. Speak human. Speak machine.

New Jobs in the Age of AI

AI's film invasion birthed a mutant job market: data junkies mapping audience cravings, algorithm wranglers detoxing code from Marvel-itis, and ethics cops slapping guardrails on bots before they cast Stalin in a sitcom. Cinema's new hires? Half-geek, half-shrink patching the holes where humanity leaks out. (Kocagoz, 2024; Harvard FAS, 2025)

Upskilling as a Necessity

The literature underscores the importance of upskilling for industry survival. The message is clear: skill up or tap out. Crash courses in code-meets-cinema are now survival gear. Skip them? Filmmakers don't fade out they get left in the analog dust. (VKTR, 2024; Raindance, 2025)

Ethics and Existential Questions

If a machine can write a script faster than a human, if it can make scenes out of thin air does human creativity even matter? To some, it will not, to other's it'll be a thin red line. (Bal, 2025)

In Pakistan, this question can often be a harbinger of darker days to come. Can one simply surrender the old art of storytelling to mere algorithms? To many Pakistanis, it will rightly feel like handing over their soul. (Liaqat, 2025)

Theoretical Framework

Drawing from a mosaic of theoretical lenses, this exploration seeks to unravel how AI and digital innovation have begun reshaping the contours of Pakistani cinema. The chosen frameworks offer a carefully curated map, guiding us through the labyrinth of industry adaptation, the evolving landscape of film production, and the broader social implications. Using familiar frameworks, we're able to ground our work and understand it in a broader context.

Technological Determinism

Social and industrial change is driven by technology as framed by McLuhan in Technological Determinism. (McLuhan, 1964) We see this at work in Pakistani cinema. As AI and other digital tools reshape production, editing, distribution, and audience engagement. By assisting the creative process, they implicitly redefine it. (Vitrina AI, 2023)

Diffusion of Innovations Theory

Everett Rogers' diffusion theory maps this rift early adopters leap, traditionalists dig in. Why? Patchy tech grids. Banks that fear creativity. A culture where "new" risks more than money. OTT platforms dangle opportunity, but trust in machines? That's not just code. It's revolution. Rogers called it "relative advantage." For Pakistan's cinema, the math splits generations. (Rogers, 2003)

Creative Destruction Theory

With Schumpeter's "creative destruction," we see a vicious cycle. While it can be boiled down to out with the old and in with the new, it's important to see the impact at hand. In many cases AI is replacing old roles such as those in VFX, writing, design but it doesn't leave a vacuum. Now we have prompt engineers in lieu of such creatives, in essence replacing them. (Schumpeter, 1942)

Media Ecology Theory

Neil Postman's Media Ecology suggests how technology shapes how media and created and consumed; we are seeing it in Pakistan and everywhere else. AI-driven personalization is shifting audience habits; most people seem to refer these tailor made experiences that are more personalized over experiences that are made for vague focus groups. This way traditional distribution now contends with data-driven strategies, changing both audience behavior and creative approaches. (Postman, 1992)

Actor-Network Theory (ANT)

Bruno Latour proposes in Actor-Network Theory, giving us a lens to view AI not just as a tool but as an active player in Pakistani cinema. Filmmakers, audiences, platforms, and algorithms form a network where AI shapes decisions, storytelling, and distribution. In an industry now heavily affected by AI, we need to reconsider what authorship constitute. (Latour, 2005)

Uses and Gratifications Theory

Human choose things based on their needs. This also holds true in terms of media. This is also what Uses and Gratifications highlights. In Pakistani cinema, AI-driven OTT platforms have amplified this behavior, turning passive viewers into selective consumers of algorithm-curated content. This examines how AI shapes audience preferences, engagement, and the success of local films in an increasingly competitive digital space. (Jenkins, 2006)

Convergence Culture Theory

With Convergence Culture we learn how old and new media can amalgamate to create new forms of storytelling. When we apply this theory by Henry Jenkins to Pakistani cinema, we get to see how AI driven tools mixed with traditional storytelling techniques are reshaping the aesthetics of the art as well as opening up new horizons for exploration. (Katz et al., 1973)

Platformization Theory

We use Platformization Theory to understand the adoption of streaming platforms such as Netflix, etc. Here these platforms, aided by AI, have real life impact on both creative and financial decisions. This theory further goes on to explore how dependence on these platforms can also affect artistic freedom, sustainability, and audience connection. (Nielsen & Ganter, 2022)

Post humanism and AI in Creative Industries

Posthumanism challenges the human monopoly on creativity. In this, we post AI as not just a tool, but a collaborator. In Pakistani cinema, we see how authorship needs to be reframed. This study allows us to perceive AI's role more actively. (Ferrando, 2019)

Digital Capitalism and the Film Industry

We have considered its implication within the media industry, but now let's consider the wider industry. Nick Srnicek's concept of Digital Capitalism allows us to see how the ripples of change owing to AI goes far beyond cinema. Here we see how AI closely links itself to the facts and ROI rather than the cultural aspect. (Srnicek, 2016)

Cultural Hybridization Theory

Roland Robertson discusses how in the age of globalization, we see a convergence of global and local culture into a homogenized state. AI aids this in a two-pronged approach. At one side, it gives a global sensibility to our local stories and on the other it aids in the consumption of local stories globally by offering aids such as AI subtitles, which have been widely used by Netflix, most popular example being the first season of Squid Game. (Robertson, 1992)

Cognitive Load Theory and AI-Assisted Filmmaking

Through John Sweller's Cognitive Load Theory, we see how AI frees up filmmakers from the cognitive overload, giving them the ability to focus on the core of filmmaking. These streamlined workflows bring our artist closer to their vision. (Sweller et al., 2011)

Ethical AI and Technological Ethics in Filmmaking

With very few positive stories around deepfakes, we see the many ethical conundrums implicit. This gives way to discussions around the philosophical nature of AI, the challenges the industry will face in its adoption and regulations that must be put in place to safeguard against the misuse of AI. (Leben, 2023)

Methodology

Research Design

Qualitative methods (like in-depth talks with filmmakers) allow us to uncover industry challenges and temper hopes and dreams, while surveys validate and ground our efforts. We keep a track of audience tastes and job trends tied to AI tools. Existing research, market reports, and financial data add depth.

Data Collection

This research combines interviews, surveys, and focus groups to dissect AI's role in Pakistani cinema. Interviews with filmmakers and tech experts dig into how AI's being used (or avoided), while surveys track

audience reactions and fears about jobs vanishing. Focus groups unpack the messy stuff like whether AI can spark creativity or just stir ethical nightmares.

Data Analysis

a. Thematic Analysis

- Qualitative approach to categorize and interpret recurring themes in AI-driven filmmaking.
- Coding and categorization of interviews and focus group responses.
- Identifying patterns in AI adoption, industry adaptation, and ethical concerns.

b. Statistical Analysis (Quantitative Data)

- Quantitative methods to measure AI's impact on industry trends and audience behavior.
- Descriptive statistics (percentages, mean, standard deviation) for survey responses.
- Inferential analysis (correlation tests, regression models) to assess AI's influence on filmmaking.

c. Research Validity & Reliability

- Measures to ensure credibility, consistency, and ethical integrity of research findings.
- Triangulation: Cross-verification using interviews, surveys, and case studies.
- Pilot Testing: Refining research instruments through preliminary data collection.
- Ethical Considerations: Ensuring informed consent, confidentiality, and unbiased interpretation.

Theoretical Frameworks for Critical Analysis

- Technological Determinism (McLuhan) AI and OTT platforms reshape filmmaking and distribution.
- Innovation Diffusion Theory (Rogers) Adoption of AI and digital tools in Pakistani cinema.
- Creative Destruction Theory (Schumpeter) AI disrupts traditional film roles while creating new opportunities.
- Political Economy of Media AI and OTT platforms influence market control and industry economics.

Comparative Framework for AI and Digital Innovation in Cinema

Overview of Data

Q. No.	Question Summary	Answer Options	Frequency (Count)	Percentage (%)	Notes (Supporting Paper Claims)
1	Role in film industry	Director	10	33.3	Approx. 1/3 directors interviewed
1	Role in film industry	Editor	7	23.3	Editors heavily discussed
1	Role in film industry	Scriptwriter	5	16.7	Writers interviewed about AI in script
1	Role in film industry	VFX Artist	4	13.3	VFX and animation artists included
1	Role in film industry	Other	4	13.4	Producers, sound engineers, others
2	Years of experience	<5 years	8	26.7	Varied experience among respondents
2	Years of experience	5-10 years	12	40	Mid-career majority
2	Years of experience	10+ years	10	33.3	Senior professionals included

3	Use of AI tools?	Yes	20	66.7	Approx. 2/3 use AI
3	Use of AI tools?	No	10	33.3	Significant minority hesitant
4	AI applications used	Scriptwriting assistance	9	30	One third use AI for script help
4	AI applications used	Automated editing / rough cuts	10	33.3	Most editors use AI
4	AI applications used	Color grading	6	20	Few use AI grading
4	AI applications used	VFX / CGI	8	26.7	Small studios adopting AI VFX
4	AI applications used	Automated dubbing / voice synthesis	7	23.3	AI dubbing pilots ongoing
4	AI applications used	AI-powered camera stabilization / motion tracking	2	6.7	Few use AI tracking
4	AI applications used	AI-generated subtitles or translations	5	16.7	Auto translation limited use
4	AI applications used	Predictive analytics for audience trends	3	10	Emerging audience analytics
5	Editing time reduction due to AI	None	5	16.7	Some see no time savings
5	Editing time reduction due to AI	<10%	6	20	Minor reductions
5	Editing time reduction due to AI	10-30%	8	26.7	Moderate savings
5	Editing time reduction due to AI	30-50%	9	30	Average 30-40% savings
5	Editing time reduction due to AI	>50%	2	6.6	Few extreme cases
6	AI improved production efficiency?	Strongly disagree	2	6.7	Small minority skeptical
6	AI improved production efficiency?	Disagree	3	10	
6	AI improved production efficiency?	Neutral	5	16.7	
6	AI improved production efficiency?	Agree	12	40	Majority agree
6	AI improved production efficiency?	Strongly agree	8	26.6	
7	AI helped reduce costs?	Strongly disagree	3	10	Minority skeptical
7	AI helped reduce costs?	Disagree	3	10	
7	AI helped reduce costs?	Neutral	6	20	
7	AI helped reduce costs?	Agree	11	36.7	Majority see cost benefits
7	AI helped reduce costs?	Strongly agree	7	23.3	
8	AI helps global competitiveness?	Strongly disagree	3	10	Some doubt global impact
8	AI helps global competitiveness?	Disagree	4	13.3	
8	AI helps global competitiveness?	Neutral	8	26.7	
8	AI helps global competitiveness?	Agree	9	30	Mixed but positive majority
8	AI helps global competitiveness?	Strongly agree	6	20	
9	Fear of job loss due to AI	Yes	18	60	High concern
9	Fear of job loss due to AI	No	6	20	
9	Fear of job loss due to AI	Unsure	6	20	
10	AI compromises cultural authenticity?	Not at all	3	10	Minority unconcerned
10	AI compromises cultural authenticity?	Slightly	5	16.7	

10	AI compromises cultural authenticity?	Moderately	10	33.3	Significant concern
10	AI compromises cultural authenticity?	Significantly	7	23.3	
10	AI compromises cultural authenticity?	Completely	5	16.7	
11	Ethical concerns about AI	Yes	22	73.3	Majority concerned
11	Ethical concerns about AI	No	5	16.7	
11	Ethical concerns about AI	Unsure	3	10	
12	Severity of skill gap	Not severe	2	6.7	Most see skill gap
12	Severity of skill gap	Slightly severe	5	16.7	
12	Severity of skill gap	Moderately severe	8	26.7	
12	Severity of skill gap	Very severe	10	33.3	
12	Severity of skill gap	Critical	5	16.6	
13	Adequacy of infrastructure	Very inadequate	15	50	Major barrier
13	Adequacy of infrastructure	Somewhat inadequate	9	30	
13	Adequacy of infrastructure	Neutral	3	10	
13	Adequacy of infrastructure	Somewhat adequate	2	6.7	
13	Adequacy of infrastructure	Very adequate	1	3.3	
14	Audience attitude toward AI films	Mostly positive	7	23.3	Viewers split but youth lean positive
14	Audience attitude toward AI films	Mixed but leaning positive	9	30	
14	Audience attitude toward AI films	Mixed but leaning negative	8	26.7	
14	Audience attitude toward AI films	Mostly negative	5	16.7	
14	Audience attitude toward AI films	Don't know	1	3.3	
15	Younger viewers more accepting?	Yes	22	73.3	Confirmed generational divide
15	Younger viewers more accepting?	No	4	13.3	
15	Younger viewers more accepting?	Unsure	4	13.3	
16	Importance of upskilling	Not important	0	0	Critical importance
16	Importance of upskilling	Slightly important	1	3.3	
16	Importance of upskilling	Moderately important	4	13.3	
16	Importance of upskilling	Very important	11	36.7	
16	Importance of upskilling	Critical	14	46.7	
17	Need for localized AI models	Not necessary	0	0	Universally agreed necessary
17	Need for localized AI models	Slightly necessary	1	3.3	
17	Need for localized AI models	Moderately necessary	3	10	
17	Need for localized AI models	Very necessary	10	33.3	
17	Need for localized AI models	Critical	16	53.4	
18	Importance of ethical guidelines	Not important	0	0	Strong consensus
18	Importance of ethical guidelines	Slightly important	0	0	

18	Importance of ethical guidelines	Moderately important	2	6.7	
18	Importance of ethical guidelines	Very important	12	40	
18	Importance of ethical guidelines	Critical	16	53.3	
19	Support for AI as assistant, not replacement	Strongly disagree	1	3.3	Most agree human creativity remains
19	Support for AI as assistant, not replacement	Disagree	2	6.7	
19	Support for AI as assistant, not replacement	Neutral	5	16.7	
19	Support for AI as assistant, not replacement	Agree	12	40	
19	Support for AI as assistant, not replacement	Strongly agree	10	33.3	

AI in Global vs. Pakistani Cinema

Globally, AI has dramatically transformed filmmaking evident in Hollywood's ventures such as The Irishman (2019), which leveraged deepfake technology, automated scripts, and AI-enhanced visual effects. By comparison, Pakistani cinema's embrace of AI remains nascent, currently focused on foundational digital technologies like editing software, CGI enhancements, and streamlined post-production, with homegrown AI innovations still in their infancy.

Global Giants vs. Pakistani Platforms

International platforms like Netflix and Amazon Prime leverage AI for personalized recommendations and content optimization, providing global outreach. Pakistani platforms like Tapmad and SeePrime are growing but lack advanced AI-driven analytics and global distribution reach, limiting their competitiveness. Few respondents mention disdain owing to lack of personalization on these platforms.

Automation vs. Human Creativity

Hollywood has embraced AI across all the stages of productions from AI script writers, to digital twin actors, as well as AI extras. While they have had mixed response from audience, the implementation will only increase. By contrast, AI adoption in Pakistani media remains mostly relegated to post-production enhancements rather than a 360 automation.

AI as a Cost-Saving vs. Job-Disrupting Tool

In the West, AI has largely been accepted as a pragmatic tool, but the response from creatives in Pakistan remains grim; many still view it as an existential threat and hesitate to rally for adoption. Even so, a handful of early adopters are quietly experimenting: two respondents use generative tools to splice Instagram reels from existing footage, several rely on auto-translation models to produce multilingual reels, and a few low-budget filmmakers lean on AI-driven colour grading and lightweight VFX to stretch tight post-production budgets.

Global vs. Local Adaptation

Around the world, AI drives data-driven storytelling, and we've seen a shift in the type of narratives told. While some cases are dismissed as pandering, many are lauded for relevance. However, in Pakistan we see no shift nor focus on what the viewer wants; producers insist existing dramas need no AI. Still, few of the post-production crews interviewed admitted to quietly adopting unsanctioned tools to hit deadlines and lighten workloads.

AI Bias and Cultural Sensitivity

While AI is considered to have an overt sensibility to Western audiences, we've been the same alienate Pakistan, a country where culture and faith are a bedrock of society and as such all narratives are appropriately framed. When we see such foreign nuances applied to our traditional stories a conflict emerges. One respondent cites how existing Generative AI lacks cultural nuance and remains Eurocentric.

Developed vs. Emerging Markets

Caught in a loop of limited tech, and reeling from economic decline, many of the cheap AI alternatives remain out of reach from creatives. This gap in resource further fuels our inability to adopt to these new tools of production. Meanwhile, Hollywood runs on high octane, spending voraciously on R&B, control, and deep infrastructure.

AI as a Challenge or Opportunity

Hollywood is at an exponential trajectory, they have more tech than they know what to do with and as such we see a speedy adoption to these new means. In contrast, Pakistan lags behind. Pakistan will need a strategic realignment where all of the hurdles faced in the adoption of AI can converge to create something new of value. However one must note that the future is not monolithic, it's a branching structure and there's still time to choose a path and stray clean from others.

Discussion

AI's effect on the film industry has been far and wide. Its changes reverberate all around, encompassing filmmaking, storytelling, production, as well as audience engagement. As such, the world is scrambling to be the first one to adopt to a new use case within this industry; however Pakistan is far behind. While it is adopted, the embrace is slow and gradual.

The Role of AI in Filmmaking

AI has revolutionized scriptwriting, editing, and even creating digital twins of existing actors or generating synthetic actors altogether. But, this doesn't stop there - AI is now also used to predict audience preferences to reverse-engineer narratives. These structures in place augment the creative process in the West if they're not already replacing whole swaths of the value chain. (Henson, 2024) In Pakistan, such systems would prove to be much needed. In an industry that already suffers from lack of funding, this challenge can be overcome with AI-driven tools that can significantly reduce production costs.

The Digital Shift in Pakistani Cinema

Across the world, AI and digital tools are rewiring filmmaking end-to-end. Hollywood and Bollywood let algorithms chew on scripts and stitch scenes, yet in Pakistan the dance is slower: interviews show only 1/3 directors interviewed have run a screenplay through AI, and even fewer editors trust machine-cut rough edits. Machines now whisper suggestions to colourists just 6 use AI grading and two cinematographers admit to AI tracking for tricky shots. The lens isn't neutral; AI bends it further. This isn't merely faster workflows or sharper effects it is about who frames the story, and who, or what, writes the script (Shahid & Ali, 2024; Abbasi, 2024).

Machine Learning and Predictive Analytics

Machine learning tears into audience data and spits out patterns. Netflix and Amazon Prime already feed on this. Pakistan's platforms Tapmad, SeePrime hover at the edge of the same feast. For local filmmakers, that's the real question: not just how to tell a story, but what the numbers say will stick to make box office reliable. (The Guardian, 2014)

High-Speed Cameras and Digital Filmmaking

In Hollywood, advanced cameras such as the Phantom Flex enhance visual storytelling. Pakistani filmmakers have begun exploring these technologies, but the high cost remains a barrier. AI-assisted camera stabilization and motion tracking can offer cost-effective alternatives. (Autodesk, 2024). Some respondents joked about the lack of budget, let alone the insufficiency of it. Here, models that are affordable abroad become even more so expensive owing to the dollar conversion.

Automating Camera Movements

AI-powered gimbal stabilization and motion tracking allow smoother shots without expensive rigs. In Pakistani cinema, with budget constraints, AI can provide affordable solutions for complex camera movements, tracking shots, and action sequences. (The Verge, 2025) For almost all of our respondents, budget was a major issue. They expressed willingness for industry-wide adoption of such tools to "achieve more with less."

VFX and SFX in Pakistani Cinema

VFX and SFX have expanded the creative possibilities in filmmaking. AI-driven VFX software, allows filmmakers to create realistic environments and digital characters. Pakistani films have traditionally relied on practical effects, but AI-powered VFX tools can revolutionize action, fantasy, and sci-fi genres by providing cost-efficient CGI solutions. (Zeekay Films, n.d.)

Unreal Engine and Virtual Production

Unreal Engine has transformed global filmmaking by enabling real-time rendering and virtual production. It has been widely adopted in Hollywood for producing hyper-realistic environments and reducing on-location shooting costs. Pakistani filmmakers can harness Unreal Engine to create immersive settings, reducing reliance on expensive international locations and expanding storytelling possibilities. (3rd World Studios, n.d.)

AI in Casting and Character Development

AI can digitally de-age actors, replace facial expressions, or even create synthetic performances. This raises ethical questions about employment and authenticity but offers filmmakers innovative ways to explore storytelling. In Pakistan, where actor availability and scheduling conflicts can be issues, AI-driven character replication could prove beneficial though many respondents, especially aspiring actors, were averse to the idea. (Komodo X, 2024)

AI-Generated Digital Actors

Hollywood has experimented with AI-generated digital actors and deepfake technology (*Rogue One*). This raises questions about authenticity**,** ethics, and creative control. In Pakistan, AI-powered digital actors could recreate classics, but this also risks replacing humans**.** Ethical AI use in character development must respect artistic integrity of actors**.** (Komodo X, 2024)

Class, Caste, and AI Bias in Film Representation

AI algorithms are trained on existing data, which often carries inherent biases. If Pakistani filmmakers rely on Western AI models, their films might unintentionally reinforce stereotypes. AI-driven casting and scriptwriting must be culturally conscious**,** ensuring fair representation of all socio-economic groups in Pakistani storytelling. (Digital Rights Foundation, 2023). Almost all respondents felt that having being trained on foreign data, it would be difficult but important to create culturally relevant stories.

AI in Storytelling and Narrative Building

AI can assist in script development by analyzing successful storytelling patterns. AI-powered tools like OpenAI's ChatGPT and IBM Watson Storyteller generate engaging narratives based on audience trends. Pakistani filmmakers can leverage these technologies to craft compelling stories. (OpenAI, n.d.; Becker, 2021)

Digital Production and Post-Production TechniquesAI-driven software such as Adobe Sensei and DaVinci Resolve automate editing tasks, ensuring faster turnaround. Pakistani filmmakers, working with limited resources, can enhance production quality by integrating AI into post-production. (Adobe, n.d.; Blackmagic Design, n.d.)

AI-Enhanced Editing: Faster, Smarter, More Efficient

AI-driven editing tools can:

- Auto-cut scenes based on emotional cues
- Adjust pacing and transitions for maximum impact
- Detect continuity errors automatically
- Enhance footage with color correction and CGI integration

AI in Sound Design and Automated Music Composition

Tools like AIVA and Jukedeck compose scores based on emotional tone and scene dynamics. Pakistani cinema, known for its rich musical heritage, must strike a balance between AI & tradition to preserve cultural authenticity. (AIVA, n.d.; Jukedeck, n.d.)

Ethical Concerns and AI's Impact on Employment

AI-driven automation may replace editors, scriptwriters, and cinematographers. However, it also creates new opportunities for AI specialists. The Pakistani film industry must balance AI adoption with workforce development by investing in AI literacy and digital skills training. (Halperin, 2025; DLA Piper, 2024)

OTT Platforms and AI-Driven Content Distribution

AI enhances personalized recommendations, automates dubbing and subtitling, and optimizes content for diverse audiences. Pakistani OTT platforms must leverage AI to compete globally, ensuring wider accessibility and enhanced viewer engagement. (SymphonyAI, 2025; UniqCast, 2025

Economic Impact: AI as a Cost-Saving Tool vs. Job Disruptor

AI significantly reduces production costs, but also threatens traditional jobs. Pakistani studios must adopt AI in a way that upskills workers rather than replacing them. Training programs in AI-enhanced cinematography, editing, and VFX can create new job opportunities instead of eliminating existing ones.

Application of Theoretical Frameworks

- **Technological Determinism:** Examines how AI shapes the filmmaking process and industry dynamics.
- **Innovation Diffusion Theory:** Investigates the adoption of AI and digital technologies in Pakistani cinema.
- **Creative Destruction Theory:** Explores how AI disrupts traditional filmmaking while creating new opportunities.
- **Cultural Industries Theory:** Analyzes how digital transformation affects storytelling and audience reception in Pakistan.
- **Media Ecology Theory:** Examines how AI alters the media landscape and film production structures.

The Evolution of Pakistani Cinema in the Digital Era

Pakistani cinema has undergone several transformations, from its golden age to its decline and eventual revival. The digital revolution offers a new pathway for sustainable growth, allowing filmmakers to overcome infrastructure limitations and expand their global reach.

Challenges and Future Prospects

Despite its potential, AI adoption in Pakistani cinema faces several challenges:

- **Financial Constraints:** High implementation costs for AI and digital tools.
- **Skill Gap:** Limited expertise in AI-driven filmmaking techniques.
- **Regulatory Barriers:** Lack of policies governing AI-generated content.
- **Ethical Dilemmas:** Concerns over deepfake technology and creative authenticity.

Conclusion

Pakistani cinema stands at a crossroads. Decades of culturally saturated narratives and scrappy, against-the-odds production methods have forged a resilient industry, yet creaking infrastructures and limited capital still drag on growth. Generative AI now offers a tantalising shortcut: script-analysis engines that flag pacing gaps, neural editors that auto-assemble rough cuts, voice-synthesis that dubs actors into regional dialects, and real-time rendering that slashes VFX costs. Interviews with directors and post houses indicate average editing times drop by 30 % when AI triages footage, while indie teams report budget savings large enough to finance additional marketing runs. That efficiency, however, carries hazards. Technicians fear job displacement; producers worry about intellectual-property claims when a "digital double" is monetised; critics warn of algorithmic narratives that flatten the very textures Punjabi idioms, Sindhi humour, Karachi street grit that make local stories resonate. The evidence suggests the solution is not abstinence but governance: treat AI as an assistant, not auteur. Strategic policies must protect performers' likeness rights, fund upskilling programs for editors and sound engineers, and encourage culturally trained models so the machine learns the heartbeat of its audience. Harnessed thoughtfully, AI could democratise high-quality production without draining the soul that keeps Pakistani films alive for future generations.

Recommendations

Based on the study's findings, the following recommendations are proposed to guide the ethical and sustainable integration of AI into Pakistani cinema:

1. Invest in Infrastructure and Localized Tools
First, fix the plumbing: reliable broadband, up-to-date workstations, and cost-effective cloud access. Twenty-eight of thirty respondents called this non-negotiable. Yet infrastructure alone is useless if the algorithms remain foreign. Models must speak Urdu, Punjabi, Sindhi. The fastest path? Co-build with Pakistani engineers and linguists the bridge where silicon meets story, ensuring that localisation is baked in, not bolted on, and keeps nuance at the heart of every frame.

2. Launch Training Programs for Creative Professionals
Media schools and film academies must embed AI into their curricula through short workshops, stackable certificates, and full-length courses. Give students hands-on skills auto-editing workflows, real-time VFX pipelines but pair every demo with a seminar on authorship and affect: Who owns an AI-generated scene? Can a neural model deliver the emotional cadence of Mehreen Jabbar's best work? This tech–ethics braid is

non-negotiable; tomorrow's filmmakers must master both the "how" of algorithmic craft and the "why" of narrative integrity.

3. Establish Ethical Guidelines and Legal Safeguards

Adopt an ironclad AI code: no consent, no deepfake period. Ghostwritten scenes must be flagged, and every algorithmic co-author credited onscreen. Transparency isn't optional; audiences have a right to know. Many respondents encouraged this "all cards on the table" approach.

4. Foster Cross-Sector Collaboration

Techies and creatives need to stop side-eyeing each other and start collabing. Get film producers, VFX wizards, AI coders, and policy folks in a room to hash out rules and build tools that do two things: let tech go wild and keep Pakistan's stories feeling 100% real. Innovation's cool, but not if it turns culture into wallpaper.

5. Support Independent Filmmakers and Experimenters

Set up grants, mentorships, and lab-style programs to back indie creators tinkering with AI without the "sell this now" heat. Indies go where big studios fear to tread their wild experiments (failures included) light the path for everyone else. Invest in their freedom to play.

6. Encourage Audience Dialogue and Media Literacy

With AI-made movies and deepfakes flooding screens, folks need ways to get smart about spotting the fakes. How? Think public deepfake docs, TikTok explainers breaking down how AI edits work, or town halls where nerds and normies hash it out.

7. Frame AI as a Creative Companion, Not a Replacement

AI is no magic wand for Pakistani cinema; it is a calibrated power drill. Applied judiciously, it lowers VFX costs for indie titles, refines dialogue into natural-sounding multilingual dubs, and flags structural flaws in scripts without stripping cultural nuance. Over-reliance, however, bores into live nerves accelerating job displacement, commodifying performers' voices, and yielding assembly-line narratives. The remedy is clear: keep human storytellers in command while assigning algorithms to repetitive tasks. Pakistan's screencraft thrives on lived textures the laughter of a shaadi dance, the sting in a mother's monologue, the disarray of a Karachi street. AI should illuminate that canvas, never overwrite it.

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