



MEDIA SURVIVAL ANALYSIS FOR **BHARAT HERALD** IN A POST-COVID DIGITAL ERA

Domain: Media & Publishing

Function: Strategy & Data Analytics

CODEBASICS RESUME CHALLENGE #17

PRESENTED BY : VIRAT SINGH CHAUHAN

Problem Statement Overview



Background

- Legacy newspaper with 7+ decades of regional and multilingual reporting.
- Daily print once exceeded 1.2 million copies.

Current Situation

- Print circulation dropped to under 560,000 by 2024.
- Pandemic accelerated digital adoption, while competitors rapidly went mobile-first.
- 2021 e-paper pilot failed due to poor usability and financial losses.
- Advertiser confidence declined, city bureaus closed, and 60+ staff laid off.
- Internal audit flagged severe fiscal concerns.

Mandate

- Quantify what went wrong – print, ad revenue, digital failures.
- Identify recovery potential – mobile content, regional growth.
- Recommend a digital transformation roadmap – phased, actionable strategy.

Analysis Roadmap



Primary Analysis

Fact-based analysis from available data. Covers print circulation, ad revenue, waste, ROI, and digital readiness. Directly addresses “what happened” and “where we stand.”

Strategy & Recommendations

Strategic action plans based on data insights. Focus on “what next.”
Provides implementable recommendations for business growth.

Ad-hoc Requests

Additional stakeholder-driven deep dives. Provide sharper, context-specific insights.



Primary Analysis

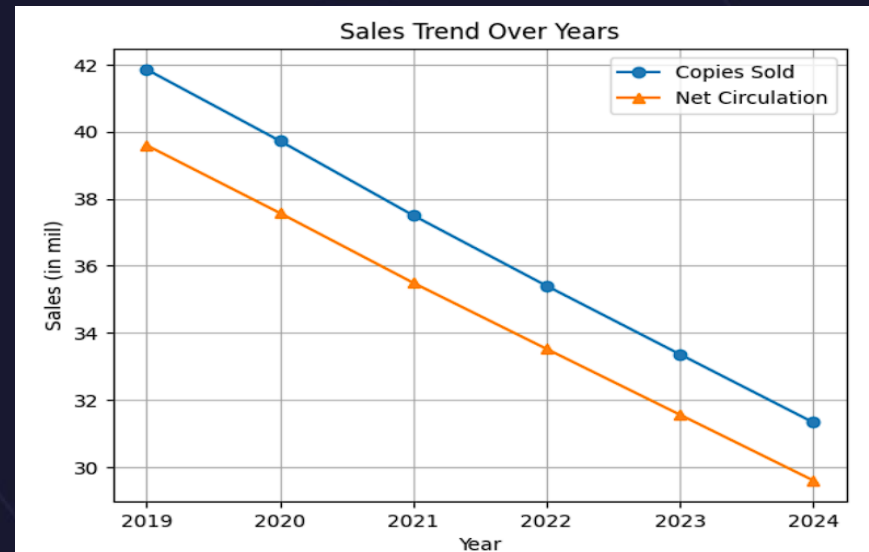


Print Circulation Trends



What is the trend in copies sold and net circulation across all cities from 2019 to 2024? How has this changed year-over-year?

year	copies_sold	copies_returned	net_circulation
2019	41.85	2.26	39.59
2020	39.72	2.15	37.57
2021	37.50	2.01	35.49
2022	35.40	1.87	33.52
2023	33.36	1.80	31.56
2024	31.33	1.73	29.60



25% overall decline across all metrics (2019-2024)

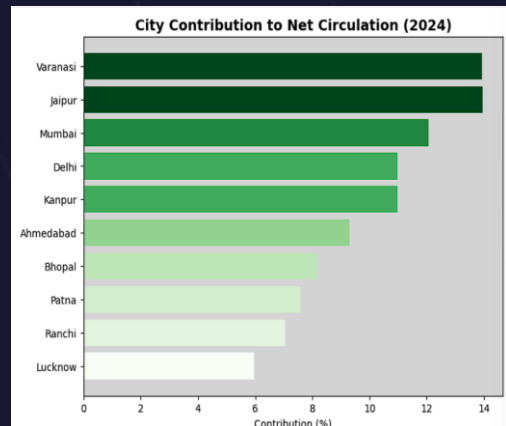
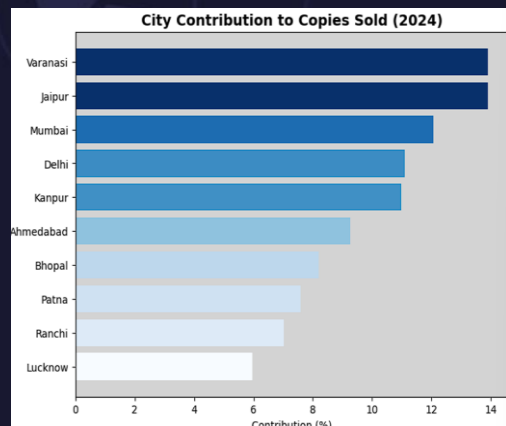
Annual decline: 5-6% each year across all the cities

Readership and print distribution reduced consistently year over year, **indicates a clear drop in demand across all cities.**

Top Performing Cities



Which cities contributed the highest to net circulation and copies sold in 2024?
Are these cities still profitable to operate in?



city	net_circulation	ad_rev_inr	profit_index	is_profitable
Jaipur	4.13	42.19	10.22	No
Varanasi	4.12	32.58	7.91	No
Mumbai	3.57	35.64	9.98	No
Delhi	3.25	26.88	8.27	No
Kanpur	3.25	32.00	9.85	No
Ahmedabad	2.75	35.58	12.94	Yes
Bhopal	2.42	38.11	15.75	Yes
Patna	2.25	48.61	21.60	Yes
Ranchi	2.09	40.96	19.60	Yes
Lucknow	1.76	41.72	23.70	Yes

Top 5 Cities by circulation: Jaipur, Varanasi, Mumbai, Delhi, Kanpur

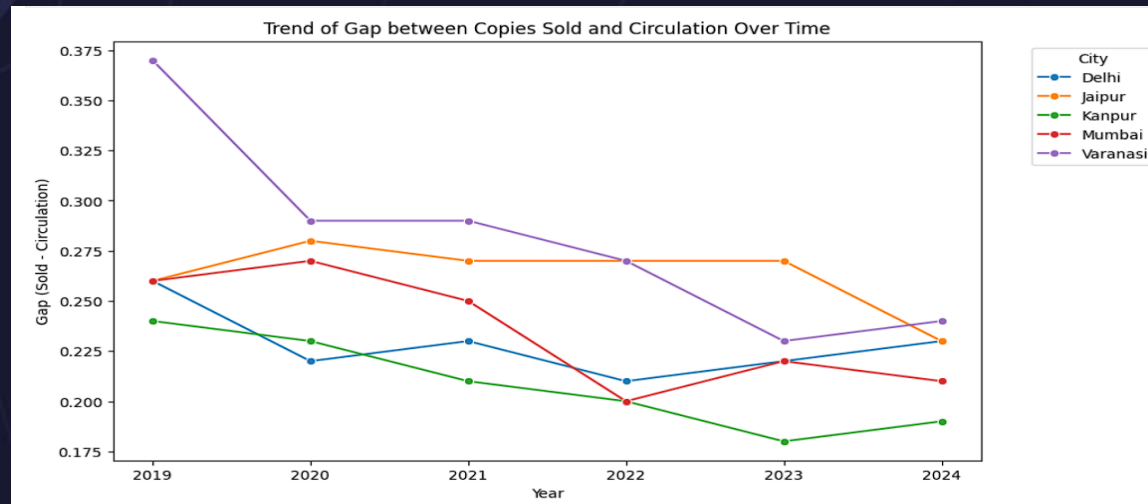
Profitability Insight: Despite high circulation top cities are less profitable

Strategic action needed: Optimize costs in major markets or reallocate to profitable smaller cities

Print Waste Analysis



Which cities have the largest gap between copies printed and net circulation, and how has that gap changed over time?



city	total_copies_sold	total_net_circulation	gap
Varanasi	30.48	28.79	1.69
Jaipur	30.62	29.04	1.58
Mumbai	26.37	24.96	1.41
Delhi	24.19	22.82	1.37
Kanpur	24.01	22.76	1.25
Ahmedabad	20.30	19.16	1.14
Bhopal	17.94	16.98	0.96
Patna	16.67	15.76	0.91
Ranchi	15.54	14.74	0.80
Lucknow	13.05	12.33	0.72

Highest Waste : Varanasi(1.69M), Jaipur(1.58M) and Mumbai(1.41M) have the largest gap

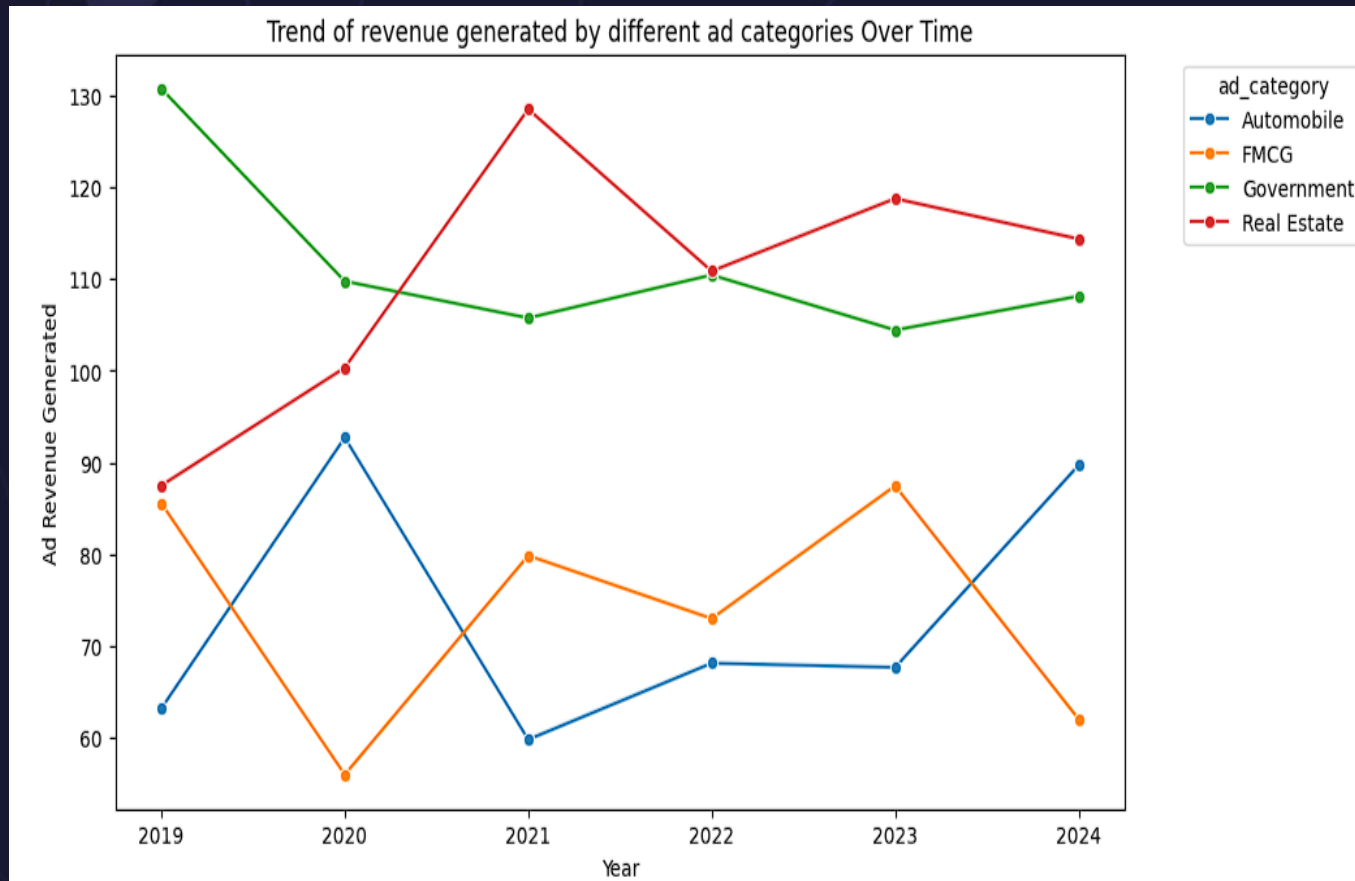
Positive Trend: Nearly all cities have successfully reduced print waste over time.

2019 vs 2024: Total waste reduced from 4.5M to 3.5M copies (22% improvement)

Ad Revenue Trends by Category



How has ad revenue evolved across different ad categories between 2019 and 2024?
Which categories have remained strong, and which have declined?



Strong performer: Real Estate (33% growth to 112M)

Recovery story: Automobile (40% growth despite volatility)

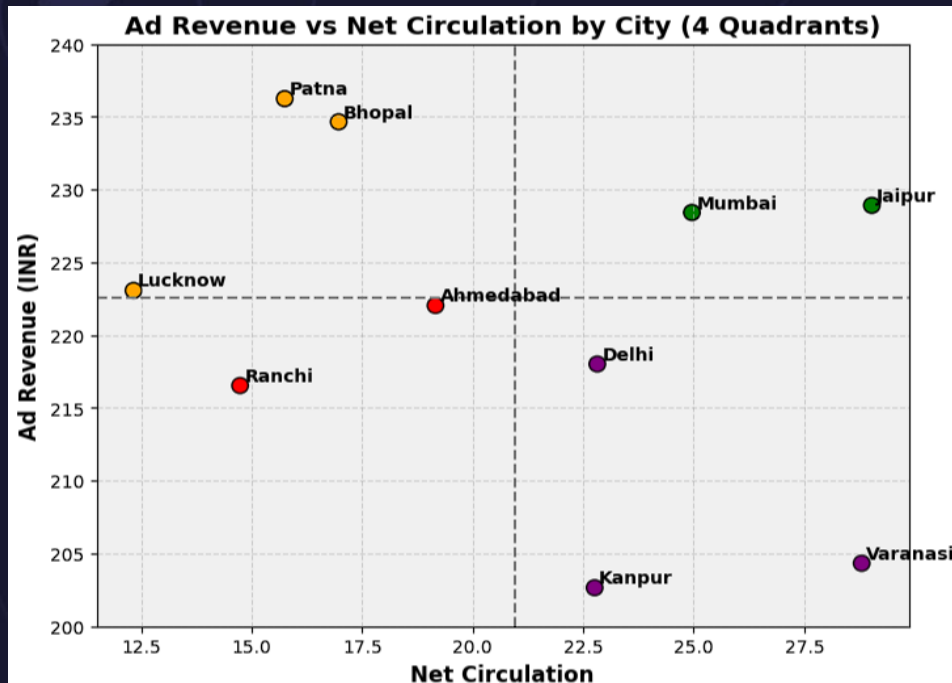
Declining categories: FMCG (-29%) and Government (-17%)

Strategy: Maximize Real Estate/Automobile growth, reverse FMCG/ Government Decline

City-Level Ad Revenue Performance



Which cities generated the most ad revenue, and how does that correlate with their print circulation?



city	ad_rev_inr	net_circulation
Patna	236.25	15.75
Bhopal	234.66	16.97
Jaipur	228.92	29.03
Mumbai	228.43	24.96
Lucknow	223.07	12.33
Ahmedabad	222.04	19.16
Delhi	218.02	22.82
Ranchi	216.54	14.74
Varanasi	204.33	28.80
Kanpur	202.65	22.76

Top ad revenue cities:
Patna(236.3M), Bhopal(234.7M)
and Jaipur(228.9M)

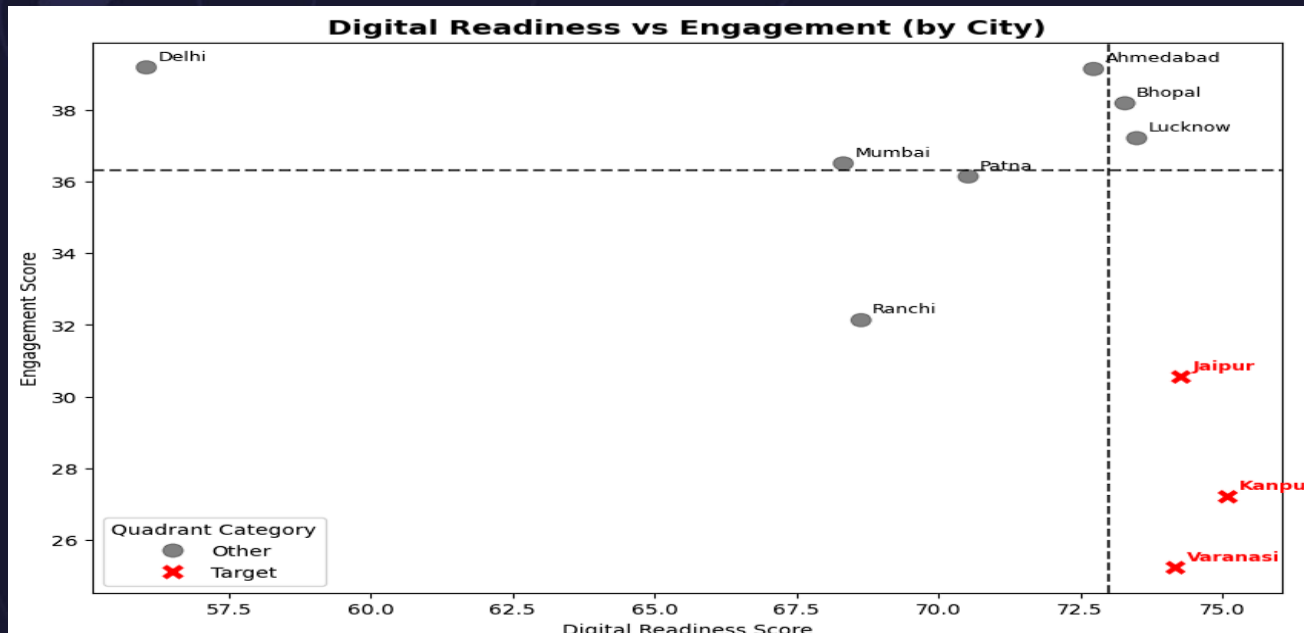
Mixed correlation: High
circulation doesn't guarantee high
revenue

Key Insight: Market characteristics matter more than circulation volumes

Digital Readiness vs Performance



Which cities show high digital readiness (based on smartphone, internet and literacy rates) but had low digital pilot engagement?



city	readiness_score	eff_engagement_rate
Delhi	56.047500	39.1920
Mumbai	68.325833	36.5100
Ranchi	68.638750	32.1340
Patna	70.526250	36.1460
Ahmedabad	72.734583	39.1475
Bhopal	73.287500	38.1900
Lucknow	73.494583	37.2160
Varanasi	74.178333	25.2225
Jaipur	74.276250	30.5480
Kanpur	75.099583	27.2020

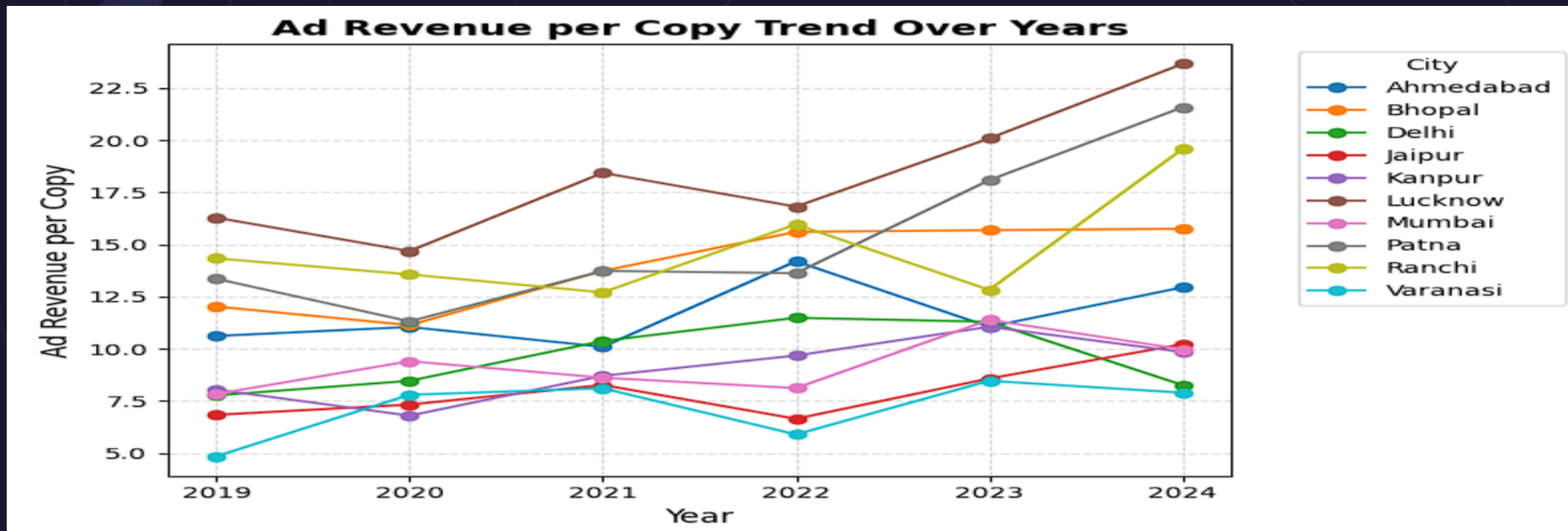
High readiness, low engagement: Jaipur(30.5 engagement), Kanpur(27.2 engagement) & Varanasi(25.2 engagement)

Key Insight: Strong readiness not translating into engagement in key markets

Ad Revenue vs Circulation ROI



Which cities had the highest ad revenue per net circulated copy? Is this ratio improving or worsening over time?



city	rev_per_copy
Lucknow	18.331667
Patna	15.286667
Ranchi	14.833333
Bhopal	13.995000
Ahmedabad	11.663333
Delhi	9.613333
Mumbai	9.226667
Kanpur	9.025000
Jaipur	7.981667
Varanasi	7.171667

Leaders: Lucknow(18.3), Patna(15.2) & Ranchi(14.8)

Strong Improvement: Lucknow(+44%), Patna(+59%), Ranchi(+37%) since 2019

Positive Trend: ROI per copy has improved across all cities between 2019 and 2024.

Digital Relaunch City Prioritization



Based on digital readiness, pilot engagement, and print decline, which 3 cities should be prioritized for Phase 1 of the digital relaunch?

city	readiness_score	eff_engagement_rate	print_decline	score
Ahmedabad	0.875867	0.996814	1.000000	0.949072
Lucknow	0.915757	0.858549	0.838843	0.877491
Bhopal	0.904888	0.928272	0.070248	0.747314
Mumbai	0.644461	0.808010	0.727273	0.726443
Patna	0.759956	0.781954	0.371901	0.691144
Ranchi	0.660886	0.494756	0.809917	0.624240
Kanpur	1.000000	0.141702	0.483471	0.553375
Jaipur	0.956785	0.381223	0.000000	0.535203
Delhi	0.000000	1.000000	0.425620	0.485124
Varanasi	0.951646	0.000000	0.384298	0.457518

Top 3 Priorities:

Ahmedabad (score 0.94)

Lucknow (score 0.87)

Bhopal (score 0.74)

Reason:

Not only do they score highest on digital readiness and engagement, but all three also generate strong ad revenues.



Strategy & Recommendations

Phased Digital Transition Strategy



What should Bharat Herald's phased digital transition strategy look like, given the readiness and engagement data?

Phase 1: Pilot & Validate Initially(0–6 months)

- **Cities:** Ahmedabad, Lucknow, Bhopal
- High readiness, strong engagement, and rapid print decline
- **Focus:**
 - Test digital platform performance
 - Collect user feedback
 - Fix early UI/UX issues

Phase 2: Optimize & Expand (7–12 months)

- **Cities:** Mumbai, Patna, Ranchi
- Strong potential and growing digital interest
- **Focus:**
 - Improve content based on Phase 1 learnings
 - Drive higher digital adoption
 - Refine platform features

Phase 3: Scale & Build Awareness (13–18 months)

- **Cities:** Kanpur, Jaipur, Delhi, Varanasi
- Moderate readiness, need awareness and onboarding
- **Focus:**
 - Run awareness and onboarding campaigns
 - Strengthen local digital readiness
 - Prepare for full-scale rollout

Regaining Advertiser Trust



How can Bharat Herald regain advertiser trust in key cities or categories where confidence dropped the most?

Rebuild Credibility: Launch advertiser dashboards showing reach, engagement, ROI; share successful campaign metrics

Strengthen Digital Platform: Relaunch e-paper with improved UX/UI and measurable ad impact

Competitive Positioning: Offer customized ad packages (print + digital) for key sectors

Proactive Engagement: Conduct city-specific workshops, quarterly reviews, and showcase ROI case studies

Content Format & Delivery Optimization



What changes to content format or delivery (e.g., WhatsApp bulletins, mobile optimized e-papers) might boost digital engagement?

WhatsApp Bulletins & Push Notifications: Short, digestible updates to drive daily engagement

Mobile-Optimized E-Papers: Responsive, fast-loading, with interactive features

Visual Storytelling & Infographics: Easy-to-consume, shareable news

Short Videos & Personalized Content: City- or interest-based updates for higher relevance

Subscription & Monetization Strategies



What role can subscription bundling, loyalty programs, or pay-per-article models play in revenue recovery?

Subscription Bundling: Combine print + digital or multiple services to boost long-term commitment and ARPU

Loyalty Programs: Reward frequent readers to increase engagement and reduce churn

Pay-Per-Article / Micro-Payments: Monetize casual readers without full subscriptions

Data-Driven Targeting: Focus offers on high-engagement but low-subscription cities or segments

Leveraging Local Influencers & Journalists



How can Bharat Herald leverage local influencers or journalists to re-establish digital credibility in regional markets?

Hyperlocal Influencers: Partner with city-based micro-influencers to promote local content and subscriptions

Regional Journalists: Produce city-specific stories, exclusive interviews, and citizen-focused reporting

City-Specific Campaigns & Events: Run webinars, townhalls, or event-based campaigns tied to local festivals or civic happenings

Localized Content Delivery: WhatsApp bulletins, push notifications, and e-paper sections tailored to each city



Ad – hoc Requests



Monthly Circulation Drop Check



Generate a report showing the top 3 months (2019–2024) where any city recorded the sharpest month-over-month decline in net circulation.

city_name	YYYY-MM	net_circulation_decline
Varanasi	2021-01	59807.0
Varanasi	2019-11	55649.0
Jaipur	2020-01	51858.0

- **Varanasi (Jan 2021):** highest drop of 59K
- **Varanasi (Nov 2019):** second major dip of 55K
- **Jaipur (Jan 2020):** decline of around 52K

Takeaway: Highlights cities needing urgent reader retention efforts

Yearly Revenue Concentration by Category



Identify ad categories that contributed $> 50\%$ of total yearly ad revenue.

year	category_name	category_revenue	total_revenue_year	pct_of_year_total
------	---------------	------------------	--------------------	-------------------

No single ad category contributed more than 50% of total yearly revenue.

Takeaway : Revenue base is well-diversified, reducing overdependence on any one category.

2024 Print Efficiency Leaderboard



For 2024, rank cities by print efficiency = $\text{net_circulation} / \text{copies_printed}$.
Return top 5.

city	copies_printed_2024	net_circulation_2024	efficiency_ratio	efficiency_rank_2024
Ranchi	2.20	2.09	0.9500	1
Ahmedabad	2.90	2.75	0.9483	2
Jaipur	4.36	4.13	0.9472	3
Patna	2.38	2.25	0.9454	4
Varanasi	4.36	4.12	0.9450	5

Ranchi, Ahmedabad, Jaipur, Patna, and Varanasi emerged as the top 5 cities in print efficiency for 2024.

Takeaway: These cities demonstrate high operational efficiency in print circulation, making them ideal models for cost-effective distribution strategies.

Internet Readiness Growth (2021)



For each city, compute the change in internet penetration from Q1-2021 to Q4-2021 and identify the city with the highest improvement.

city	internet_rate_q1_2021	internet_rate_q4_2021	delta_internet_rate
Kanpur	74.27	76.77	2.50
Mumbai	73.31	75.74	2.43
Ahmedabad	73.03	74.80	1.77
Delhi	48.68	50.41	1.73
Patna	67.73	68.56	0.83
Lucknow	55.00	55.71	0.71
Jaipur	67.78	67.78	0.00
Varanasi	73.51	73.45	-0.06
Bhopal	68.21	66.48	-1.73
Ranchi	63.49	60.36	-3.13

Kanpur showed the highest improvement in internet penetration in 2021, rising by 2.5 percentage points from Q1 to Q4.

Cities like Mumbai and Ahmedabad also recorded steady growth, while Ranchi and Bhopal saw a decline.

Takeaway: Kanpur's growth reflects increasing digital adoption, making it a strong candidate for digital-first initiatives in future phases.

Consistent Multi-Year Decline (2019→2024)



Find cities where both `net_circulation` and `ad_revenue` decreased every year from 2019 through 2024 (strictly decreasing sequences).

<code>city</code>	<code>year</code>	<code>ad_rev_inr</code>	<code>net_circulation</code>	<code>rev_per_copy</code>	<code>is_declining_print</code>	<code>is_declining_ad_revenue</code>	<code>is_declining_both</code>
-------------------	-------------------	-------------------------	------------------------------	---------------------------	---------------------------------	--------------------------------------	--------------------------------

No city showed a consistent year-on-year decline in both net circulation and ad revenue from 2019 to 2024.

Takeaway: The decline patterns were not uniform, suggesting that factors affecting circulation and revenue vary by year and city.

2021 Readiness vs Pilot Engagement Outlier



In 2021, identify the city with the highest digital readiness score but among the bottom 3 in digital pilot engagement. $\text{readiness_score} = \text{AVG}(\text{smartphone_rate}, \text{internet_rate}, \text{literacy_rate})$ “Bottom 3 engagement” uses the chosen engagement metric provided (e.g., engagement_rate, active_users, or sessions).

city_name	readiness_score_2021	engagement_metric_2021	readiness_rank_desc	engagement_rank_asc	is_outlier
Kanpur	75.2300	27.2020	1	2	Yes
Jaipur	74.2075	30.5480	2	3	Yes
Varanasi	73.8850	25.2225	3	1	Yes
Bhopal	73.2100	38.1900	4	8	No
Lucknow	73.2025	37.2160	5	7	No
Ahmedabad	72.3925	39.1475	6	9	No
Patna	70.7725	36.1460	7	5	No
Ranchi	68.6400	32.1340	8	4	No
Mumbai	68.3350	36.5100	9	6	No
Delhi	56.0750	39.1920	10	10	No

Kanpur, Jaipur, and Varanasi had the highest digital readiness in 2021 but were among the bottom 3 in engagement, making them key outliers.

Takeaway: Despite being digitally ready, these cities struggled to engage users during the pilot.