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## **THE DARK SIDE OF ALGORITHMIC VISIBILITY: THE STRATEGIC RISKS OF OVER-OPTIMIZATION OF SOCIAL MEDIA RECOMMENDATIONS TO SMALL BUSINESSES.**

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### **ABSTRACT**

Social media is dependent on recommendation engines that highly influence the way algorithm links corporations with clients. Therefore, numerous small business endeavors attempt to streamline their content and their activities to align them with such algorithms. In this research, the authors emphasize the hazards that may be attributed to the extreme of such optimization.

The study identifies a gap in the existing literature by explicitly focusing on small businesses, conceptualizing over-optimization in strategic risk, and describing the lived experience of changes in visibility. These findings suggest that relying too heavily on algorithmic visibility may threaten a brand's future goals, make it more vulnerable to platform changes, and cause emotional stress that leads to a reactive approach. The implications for small business strategies and future research directions are studied.

**Keywords:** algorithmic visibility, social media, small business, over-optimization, recommendation systems, strategic risk.

### **1. INTRODUCTION**

For most small enterprises, social media is no longer an option but rather part and parcel of how they advertise themselves, interact with their clients, and even sell directly. These platforms rely on a recommendation algorithm that determines which posts and accounts are visible in users' feeds and discovery pages. Consequently, the issue of "performing well with the algorithm" has become a primary concern of general business practice.

Social media is no longer the choice of small businesses as most of them find it as part and parcel of the way they have marketed themselves, communicated to customers, and even sold products directly. These are platforms that rely on recommendation algorithms, which dictate which posts and which accounts receive visibility on the feeds and discovery sections of users. Non-large markets, small businesses, in most cases, lack any big marketing budgets and hence, depend on organic reach. Due to that, they are highly regenerative to the visibility of algorithm changes.

Most of the research on algorithms has been on technical (precision, customization, etc.) or ethical and societal (bias, discrimination, and filter bubbles) fronts (Bucher, 2018; Kitchin, 2017; Noble, 2018). The platform labor and creators are increasingly researched (Duffy, 2017; Nieborg and Poell, 2018), yet small companies that depend on social media recommendation systems are

still under research. This is different from them: they both face the precarity of being platform-dependent and have additional obligations to run a business and have a stable brand.

This study looks at the shadow aspect of algorithmic visibility to small businesses. It targets platforms that are legally available in India and other such situations where restrictions on applications have shifted the interest of many to a few of the significant platforms. It questions how small businesses are defining optimization to the algorithm, what they feel like they are at risk when they over-optimize, and how this impacts authenticity, reliance, and strategic thinking.

## **2. LITERATURE REVIEW**

In the period since the middle of the 2010s, the academic literature on social media algorithms has expanded at a rapid rate as the field has moved past the early technical research to incorporate more comprehensive studies on the power, ethics, and economic effects. The second review is a summarization of the main themes associated with the algorithmic visibility and over-optimization, with specific attention to their implications on small businesses.

### **2.1. Algorithms and Platform Power**

Social media business consists of such a complicated, mysterious system as recommendation algorithms: these systems are filtered at work, depending on user behavior and engagement, and platform objectives (Bucher, 2018; Gillespie, 2018). These algorithms have the name of the so-called custodians of visibility, which determine what content will be visible in feeds, explorations, and recommendations (Gillespie, 2018). According to Bucher (2018), they possess an algorithmic power (computerized decisions made) but are influenced by the interest of corporations, such as user retention and ad revenue. Such opaqueness promotes folk theories on the part of the users, who solve rules in reverse, and this often leads to optimization behaviors (Kitchin, 2017).

Addressing such platforms as Instagram and YouTube, watch time, shares, and saves have become the fundamental elements of the algorithm, as compared to traditional likes, which is a significant shift in the paradigm since 2020 (Later, 2025). An example is the 2025 Instagram changes, in which a greater emphasis on original content and AI-driven personalization is placed, and reposts are punished, and micro-influencers are rewarded (Napolify, 2025). These transformations enhance platform dominance, which leads to dependencies beyond the individual creators into organizational actors such as small enterprises.

### **2.2. Optimization practices on social media.**

Optimization, or easy creation of content in such a way that it aligns with perceived algorithmic preferences, is now the norm. Ziewitz (2016) contextualizes it in the light of ethical work in which a moral trade-off between authenticity and visibility is made by the users. This includes trending content (e.g., Reels) and hashtags and post plans to maximize content consumption on platforms like Instagram (Sprout Social, 2025). The new study explains how small businesses employ them to develop. In one of the studies, Al-Hawari (2023) has found that algorithmic placement on Instagram can significantly expand the visibility of start-ups, and optimized content can help reach a high of 40 per cent.

However, over-optimization emerges as a risk-laden extension. Nieborg and Poell (2018) mention the idea of “platformization”, when cultural production is adapted to the logics of the

platforms, which results in commodified output of short forms. This manifests itself in the small-business context through strategies of reaction: frequent posting, following trends, and measuring themselves to pieces, to the detriment of strategy (Laradi et al., 2024). Laradi et al. (2024) note that even though opportunities in social media marketing (SMM) contribute to the improvement of performance, over-reliance on the presence of algorithmic signals in resource-starved organizations results in short-termism and burnout.

### 2.3. Impacts on Businesses and Creators

One of the most documented victims of the result of algorithmic dependence creators fall prey to precarity, emotional labor, and authenticity degradation (Duffy, 2017). The motivations of the platform do not always correspond to the goals of the user, creating so-called filter bubbles, enhancing the echo chambers and bias (Pariser, 2011; Noble, 2018). When it comes to businesses, van Dijck et al. (2018) assert that the platforms erode such values of the population as transparency, being enticed into extractive ecosystems.

These risks are particularly caused by small businesses due to the absence of diversification. It has been shown that organic reach is decreasing to 2-3 percent on Instagram in 2025 and to 10-15 percent on Instagram in 2020, and that is below 10-15 percent in terms of reach (Jasmine Directory, 2025). Al-Hawari (2023) shows that it has the advantage of visibility, but the presence of the so-called algorithm fatigue, as the constant adaptation to it dilutes the brand identity. The emerging researches in SMM in the emerging economies, such as India, suggest that some apps are being restricted, which makes the survivors more vulnerable, such as Instagram (Laradi et al., 2024).

## 3. LITERATURE GAPS

Despite such revelations, there are gaps. The technical and ethical analysis dominates (Kitchin, 2017; Noble, 2018), and not much attention is paid to the strategic risks of the small businesses. Empirical studies of the over-optimization phenomenon as a business phenomenon also lack empirical research; in particular, there is a lack of qualitative inquiry into the lived experiences in non-Western conditions (van Dijck et al., 2018). To address these gaps, this paper will concentrate on the perception of small firms towards algorithmic risks.

### 3.1. Research Problem

Social media is making small businesses more content, behaviorally oriented, depending on perceived algorithmic likes on social media. Despite the potential short-term visibility gains, optimization may also lead to strategic risks, among others, such as dependence on black box systems, brand distortions, as well as vulnerability to sudden changes in algorithms. These risks should be known to formulate more robust digital strategies.

### 3.2. Research Gaps

The literature review demonstrates that it has several gaps:

1. *Limited coverage of small businesses as an independent population.*

Algorithms and platforms are researched in association with big companies and advertisers, or personal content makers and influencers (Duffy, 2017; Gillespie, 2018).

Little focus is given to small businesses and local brands, and they cannot afford to have substantial resources, but through organic reach.

2. *The over-optimization concept is not entirely theorised as strategic risk.*

The existing literature on the topic discusses optimization towards algorithms or gaming (Kitchin, 2017; Ziewitz, 2016), and a lack of empirical studies available on the perception and implementation of over-optimization by small businesses themselves and the effects brought by over-optimization on strategy.

3. *Unpredictability of incentives and long-term goals of the platform.*

Though the clash between platform logic and social values is apparent to the researchers (van Dijck et al., 2018), there is little available qualitative evidence on how algorithm incentives can drive small businesses out of the long-term goals of the brand and relationship building the businesses have with those already existing in the market.

4. *Experience with algorithm changes in a small business.*

Media discourses are always more likely to focus on updates to the algorithm; however, there are limited qualitative data on the experience and reaction of small businesses to the updates in a systematic framework.

#### 4. OBJECTIVES OF THE STUDY

Based on these gaps, the following study objectives are to be studied

1. To see how SMEs define and implement the concept of optimization to get algorithmic placements on prime social media sites.
2. To determine the perceived strategic risks of over-optimization on the social media recommendation algorithms of small businesses.
3. To investigate the influencing factors of over-optimization on brand authenticity, customer relationships, and long-term business objectives.
4. To investigate the way small businesses feel and react to the changes in the algorithmic visibility.
5. To develop a group of notions of over-optimization as a type of platform dependence and strategic weakness in relation to small business marketing.

#### 5. METHODOLOGY

##### 5.1. Research Design

An exploratory and qualitative research design is a methodological choice, but it is consistent with the exploratory study of delicate meanings, perceptions, and lived experiences of the participants rather than simply testing the previously existing hypotheses. To obtain the balance between breadth and depth, an online questionnaire with both closed-ended and a series of open-ended questions was used to collect the data. The open-ended data are hence the qualitative ones. Using this instrument, the investigator gathered the data concerning sixty small businesses and local brands that run on the larger social networks that are not prohibited in India. The thematic analysis of the open-ended responses showed that four key themes existed:

- (a) algorithm as an unpredictable gatekeeper.
- (b) over-optimization and loss of brand authenticity.
- (c) strategic vulnerability and dependence on platforms.
- (d) emotional stress leading to making short-term decisions.

## 5.2. Population and Sampling

The target market will include the small business community and local brands that:

- Operate in major markets within India or other like markets.
- Use one or more of the key social media in India (e.g., Instagram, Facebook, YouTube, LinkedIn) to conduct business, and
- Be at least 1 year active on social media in connection with their business.
- Purposive sampling was also employed to sample respondents who are actively involved in the use of social media and may also encounter algorithmic visibility. The Survey link was provided as follows:
  1. Small business networks and entrepreneur associations.
  2. Professional contacts and referrals.
  3. Small business and digital marketing online communities and groups.

77 responses were received. Once incomplete or ineligible responses were eliminated (such as those who did not represent a small business), there were 60 usable responses, and they were used in the analysis.

## 5.3. Data overview

1. Data used: 60 local brands/small businesses.
2. Most utilized platforms: Instagram (91.7% of respondents), Facebook (76.7%), WhatsApp Business (61.7%), YouTube (50.0%), LinkedIn (45.0%).
3. 63.3% of respondents had more than half their leads or customers on social media.

## 5.4. Data Analysis

The data were copied out of the survey website. Descriptive summarization of closed-ended responses was done (e.g., percentages of levels of agreement) to give the context. The thematic analysis was applied to analyze open-ended responses:

1. Familiarization: Investigated all the open-ended responses several times to familiarize himself with the data.
2. Primary Coding: The texts were divided into segments and coded in relation to the practices of optimization, the perception of the algorithm, the experience of visible change, reliance, emotional responses, and strategy changes.
3. Theme Development: Codes were divided into bigger candidate themes.

4. Review and Refinement: Themes were cross-checked with the data set, themes that overlapped each other were combined, and definitions were refined.

5. Interpretation: Final themes were connected to the research goals and put in relation to the literature present.

The analysis also highlights common trends and, at the same time, reveals differences across different respondents within various sectors and those who rely more on social media or less on social media.

## **6. FINDINGS**

There were four primary themes identified during the thematic analysis of the open-ended responses.

### **6.1. Theme 1: The Algorithm as an Unpredictable Gatekeeper**

The respondents often talked about social media algorithms as being a potent and unpredictable force that determines access to potential customers. Most people used the phrases like "it is what the algorithm wants us to do" or "the algorithm chooses whether or not we are likable." One of the respondents wrote, we have days when we make thousands of posts and a few other times only hundreds though the content here is similar. It is so much that the algorithm is the keeper of who we become visible. Another one claimed, we are not exactly conscious of the rules, but we are found guilty of them whenever we have posted them. This motif shows a feeling of the lack of control, which is relevant to the earlier descriptions of algorithmic power (Bucher, 2018; Gillespie, 2018). In the case of the small business, though, the game is directly economic, as visibility is typically sales or queries. It is in this way that the algorithm is being lived through not only technically as a system, but also as a power that can either approve a business or shut down its business.

### **6.2. Theme 2: Over-Optimization and Loss of Brand Authenticity**

A frequent reiteration amongst the respondents involved in more content starting to fit the algorithm as per their views, adopting trendy formats or hashtags, reducing complex messaging, and simplification to drive interaction. A fashion brand said, "We have begun to use more trending Reels and funny audio. It contributed to the level of attainment yet did not always correspond to the initial image of our brand, which is a tranquil and minimal image. We fear that it is perplexing to our persons. One consulting business wrote, "Brief and snappy tips are more effective than lengthy posts. We are publishing more superficial stuff than we would prefer. According to the respondents, there were several risks: Drift away from original brand values. Conflict between what the business has become and what the algorithm wants to reward. The worry is that the customers will see the brand as not being consistent or inauthentic.

This point sheds light on how over-optimization may slowly change the identity of the business, favoring the anxieties that platform incentives may be misaligned with long-term objectives (van Dijck et al., 2018).

### **6.3. Theme 3: Strategic Fragility and Platform Dependence**

Most of the respondents expressed high levels of dependence on one or two platforms for visibility and customer leads. Most people admitted that their business would be impacted



greatly in case their presence decreased on an important platform. One of the respondents mentioned that approximately 70% of our orders are based on Instagram. Our sales had gone down when the reach abruptly went dead in a couple of weeks. We knew how much we were. One of them had said, we are aware that we are supposed to develop our own email list or site more, but social media is quicker and more fulfilling, so we continue working there. Such a concentration and reliance on opaque algorithms generates strategic fragility: Visibility and sales are easily shifted due to changes on the platform or due to mysterious shifts. These systems do not have a lot of direct bearing on small businesses. There is a tendency to delay diversification efforts (i.e., development of other channels). The results go in line with the anxieties concerning the issue of platform dependence and precariousness (Nieborg and Poell, 2018), introducing a particular emphasis on small business marketing.

#### **6.4. Theme 4: Emotional Strain and Short-Term Decision-Making**

Respondents often referenced emotional reactions involved in measures like likes, reach, and views. The stress, pressure, and anxiety were among the common words. One cafe posted it so that, when a post fails, it influences our temper. We think we have done something wrong when we are not even certain why. Another interviewee said, We keep on varying the plan of our content depending on the current posts that were more successful. One cannot be loyal to a long-term strategy. This emotional stress adds to the daily, reactive decision-making: Often varying content style or subject matter following a recent success (or failure). Tendency towards fast, frivolous content rather than more serious and long-term assignments. Problem in upholding brand messaging. Such patterns indicate that ongoing surveillance of the feedback of the algorithmic processes drives small enterprises towards short-termism, despite the realization of the importance of longer-term brand building.

### **7. DISCUSSION**

The themes combined create a picture of small businesses trapped between a very strong, obscure visibility system. To have access and interaction on key social media platforms, they use optimization strategies that may slip into over-optimization, and there are several implications.

First, the algorithm can be understood as a ruthless screenwriter that can have a drastic impact on business by being unpredictable. It is an impression that motivates ongoing attempts to make changes and optimize with scarce or skeptical information and is reminiscent of more widespread critiques of algorithmic opacities (Kitchin, 2017).

Second, excessive optimization usually creates conflict between algorithmic incentives and brand authenticity. Small businesses complain that they make content simpler, falsify it, or trendify without necessarily aligning it with their accredited values and desired appearance. Although such practice can work to increase short-term measures, it will erode brand coherence and trust over the long term.

Third, the overdependence on a single or several platforms has structural vulnerability. As long as a single system governing the majority of the customers flowing into a business does, any alterations in such a system are exaggerated. Lots of respondents understood the necessity to diversify, although the incentives of the platforms and the pressure of short-term results did not allow them to redistribute funds to the more stable yet slower-constructing channels.

Last, there is the emotional aspect of algorithmic dependence. Measures-based stress, the fear of losing visibility, and the need to show the results every minute are part of the reactive and short-term strategies. This may take attention away from some basic things of operating an enterprise, like product enhancement, customer relationship development, and the proper planning beyond the next algorithm update.

These results address the previously identified gaps in the research by precisely targeting the issue of small businesses, over-optimization as a strategic risk conceptualization, and reported lived experiences of algorithmic visibility and change.

## 8. CONCLUSION

The present paper has investigated the dark side of algorithmic visibility towards small businesses on the major social media platforms that are not prohibited in India. With a qualitative study and questionnaire methodology, it found four primary themes, including the theme of algorithm as gatekeeper, the theme of over-optimization and loss of authenticity, the theme of strategic vulnerability of dependence on a platform, and the theme of emotional strain resulting in short-term decision-making.

The findings indicate that optimizing toward visibility and protecting core brand values are important; inclusion of alternatives to dependence on one platform can be achieved (such as websites, e-mail, offline groups, and so on), and monitoring and evaluation practices can be healthier.

This research can be extended in several ways going forward, namely, comparative research, including different industries, types of products and services, and regional and geographical locations, urban and rural India, and any other developing markets, would prove beneficial to inform how diverse settings of business models and various geographical areas can contribute to algorithmic visibility and over-optimization. Moreover, the mixed methods designs based on large-scale surveys and in-depth interviews would be capable of capturing more general trends, though also the personal stories, which would make the results stronger. Third, the longitudinal studies following the same small businesses through an extended period would be useful to inform on the alterations in marketing strategies, brand reputation, and emotional response to the constant changes in algorithms. Finally, the practical interventions that could be taken into consideration to help small businesses to be less over-reliant on the platforms, more diversified in their online appearance, and more sustainable and resilient in the planning of their social media approaches could be discussed within the frames of design-oriented and policy-oriented research.

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