

A Study on Adoption of Social Media for Enhancing the Growth of Farmers

Dr. Rajasmita Panda

Asst. Professor, Sri Balaji University, Pune
 rajasmita.panda@sbup.edu.in

Abstract

Social media has become a ubiquitous presence in today's modern era and has revolutionized the way we communicate with each other, share data and information and serves a myriad range of purposes from entertainment to business and to education. While social media platforms are often associated with leisure and entertainment, their potential impact on various sectors, including agriculture, cannot be overlooked. Agriculture, being one of the primary sectors of the economy, stands to benefit significantly from the adoption of social media technologies. This research paper seeks to explore the impact of social media on the growth and development of farmers in India, through the performance of an empirical investigation. Hence the research titled "An Empirical Study on the Impact of Social Media for the Growth of Farmers" delves into the current and future roles of the usage of social media in agriculture and will explore the significance and the influence of the medium into agriculture as the proliferation of technology and gadgets such as smart devices at economical prices along with availability of cheap and reliable internet, has enabled the farmers to take to the social media like fertilizers to the soil by leveraging several different social media platforms such as WhatsApp, YouTube, Facebook, Twitter, etc. for sharing and accessing valuable data and information related to agriculture as these platforms serve as avenues for farmers to connect with peers, experts, and organizations. These spaces facilitate knowledge sharing, discussion of best practices, and staying abreast of market trends and weather forecasts, cementing their place as valuable resources for agricultural decision making by farmers and is enabling them to expand their networks and communities. Among social media platforms, YouTube and WhatsApp have gained particular popularity among the farming community. These platforms offer opportunities for digital communication, information exchange, and knowledge dissemination in the agricultural sector. However, despite its potential, the adoption of social media among farmers is hampered by challenges such as the absence of training programs, lack of useful content, insufficient power supply, absence of ICT-based equipment, limited technical knowledge, and the complexity of social media usage. The study aims to explore adoption rates, methodologies, findings, and original contributions related to integrating social media to enhance farmers' growth and income.

Keywords: Social Media, ICT, Adoption, Digital Communication

1. Introduction

Agriculture is the biggest industry in India, a statistic which has remained the same over a timespan of many thousands of years and is the primary source of livelihood for a significant portion of the population of the country (42.3 %) and has a share of 18.2% in the contribution to India's GDP when measured at the current prices (PIB,

Govt of India, 2024). Efforts for improvements by the Government of India have led to the extension of the 'BharatNet' Project in 16 states in India in order to cover more than 3,50,000 villages in order to connect them with the remainder of the country, enabling the provision of high speed broadband internet via fiber connectivity, enabling better and greater access to an entire spectrum of e-services provided by the private and the public entities

to the people living in the interior regions in India (PIB, Govt of India, 2021) so as to enable the farmers to get the opportunities for improving their income, access to schemes and plans for their welfare, to reduce their dependency on factors outside their control through technology, data and information and to bring them on par with the persons working in the nonagricultural industries in the country, in terms of profit, wealth and income generated from their operations.

The platforms of social media play a significant role in agriculture as they are extremely useful in the disbursement of valuable and useful data, information, news and statistics related to agriculture and agricultural activities to the industry and the information is worth its weight in gold as it plays as the decisive tool which can decide whether a farmer will face a drought or a bumper harvest, as through the medium of social media, new technologies, techniques, tactics, tips and strategies can be shared with the farmers which can help them in the long run, increasing the productivity levels in the farms. Social media is not only a source of information but also an association of and for the promotion of various agricultural products, farming techniques, avenues for business, agri information disbursement etc. The social media platforms are highly important in the industry of agriculture due to reasons such as – the rate of the growth of agriculture, development of agriculture knowledge, increased knowledge resources, empowerment of the farmers, agriculturists and other persons working in the fields and in the rural communities, to enable swift access for data and information and can benefit the persons and stakeholders working in the industry of agriculture in acquiring and deployment of technical manpower and related services, information about cost effective methods of planting, plant growth and techniques of agriculture along with the provision of services to the customers, stakeholders and other related parties. Under the aegis of social media, farmers are now able to acquire the necessary information about the agricultural sector through which, they will be able to develop a fundamental understanding of the various techniques and methods used in agricultural practices in the country.

Social media platform also helps to reach large number of audience, make direct contact between audience and experts, create content related agriculture sector, promotion of agriculture products, build up brand of product and get knowledge about new methods, technology, techniques and latest practices in agriculture sector. Social media platform has very importance in agriculture sector due to gives information related to weather, sharing the knowledge, provides self-help support system, open-up new opportunities for farmers, continuously provides the information related to new technology, weather, pests, seeds, chemicals, fertilizers and pesticides, methods and techniques learn from agriculture experts. Social media platform also shares

information related to agriculture, recent development in agriculture sector, introduction of new technology in agriculture, inform about the workshop, conference, seminars and agriculture expo, communication with same field of members and experts, influence the members of group, take advice and opinion from expert and make discussion on key issues.

The industry of agriculture can be stated to be the primary breadwinner of the country as millions of people are directly and indirectly dependent on it and it plays a very crucial role for the determination of the country's future growth and development and is a sector of particular importance, regarding the constructive uses of social media. Agriculture sector is not only providing the agriculture food and raw material but also provides wide range of employment opportunities to people living in the country. Agriculture sector has very importance in the economy due to source of livelihood, contribution in national income, provides raw material to industrial sector, create the employment opportunities, supply of food and agro-processing food, increase the share in international trade, boost the transportation system, increase the income level of farmers, which can lead to an improvement in the level of the standard of living of the people in the country, further leading to a booster shot to the economy, through increase of exports and self-reliance, through which we will become less dependent on other countries for our livelihoods.

Today, trends of global agriculture sector have been changed since past few decades and development of agriculture sector needs extension mechanism in order to stay ahead. There is equipped the farmers by the developing and enhancing their management skill, marketing skill and decision making skill. Agricultural sector is in vogue in India, since the last several hundred or thousand years. However, until independence not much significant improvements, technological innovation and other paradigm shifting changes took place in this sector as it was and remained a 'gamble with the monsoon'. It was after the independence and with the advent of the 'green revolution' that significant and measurable changes were introduced, which led to an increase in the level of adoption of new techniques and methods of agriculturing in this sector, the usage of social media being the latest one, which is in vogue today. Introducing new technology and innovation in agriculture sector helps to increase the productivity such as internet of things, machine learning and artificial intelligences. Further, extension activities and efforts in this sector are playing an important role in ensuring the desirable levels of growth and development in the sector as the farmers are extending the usage of scientific methodology, techniques and applications for the utilization of new information and knowledge for improving the yield of their crops.

Agriculture extension consists of wide range of learning and communication activities. Agriculture extension activities helps to enhance agriculture productivity, improve the water management system, developing agriculture marketing system, apply new advanced technology, increases competitiveness, using advance drainage management system, reforming agriculture research and extension, sustained the environment and diversion of low value commodities to high value commodities. Agriculture sector have various challenges such as low productivity of land, using of traditional methods of farming, poor infrastructure facilities, high prices of chemicals, fertilizers and pesticides, degradation of soil fertility, low use of farm technology, inadequate transportation facilities, lack of efficient irrigation facilities.

2. Literature Review

Literature Review: Previous research has highlighted the diverse ways in which social media can benefit farmers. Research studies have indicated that the platforms of social media enable the farmers for gaining access to the market data, information and other services such as forming connections with the buyers, sellers and intermediaries such as warehouses, transporters, freight forwarders, export houses, etc. through which knowledge can be acquired, shared and exchanged permitting the farmers to gain more returns from their fields. In addition,

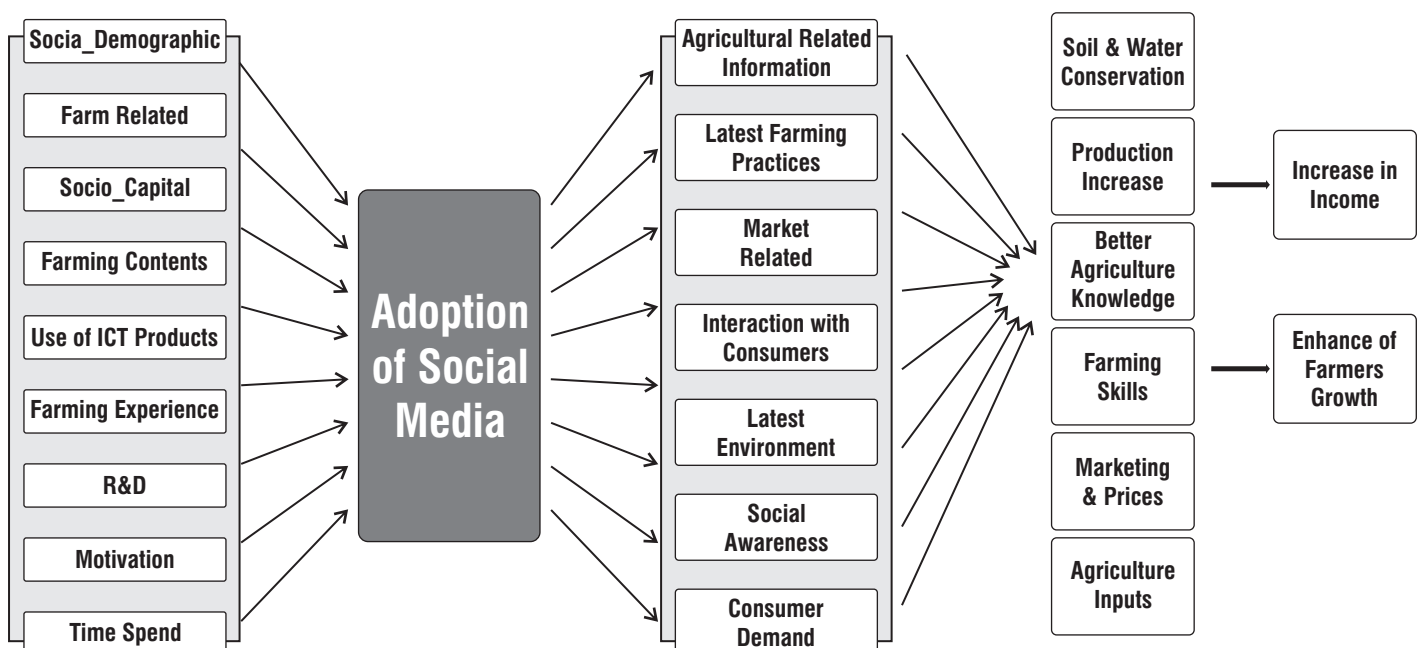
peer to peer learning networks can be created through the means of social media. Further, social media facilitates communication between farmers and agricultural extension services, leading to improved access to resources and support. However, challenges such as digital literacy, access to technology, information credibility, and privacy concerns have been identified as potential areas of concern, requiring the deployment of solutions to the challenges in order to use social media at its full potential.

3. Objectives of the research:

Objectives of present research study has given below:

1. To identify factors responsible for increasing farmer's income.
2. To study the usage of different platforms of social media used by farmers for acquisition of data/information related to agriculture.
3. To measure the time spent by farmers on social media on increasing the growth of farmers.
4. To perform an examination regarding the connection between the adoption of social media and the income patterns of the farmers.
5. To study the ways in which social media platforms could be used for agricultural extension activities.

Conceptual Framework: Adoption of Social Media for Enhancing the growth of Farmers



4. Hypothesis for the Study:

Hypothesis - 1

- H0 – There is no significant impact of liking the content on social media on sharing the knowledge on social media for larger benefit for farmers.
- H1 - There is a significant impact of liking the content on social media on sharing the knowledge on social media for larger benefit for farmers.

Hypothesis - 2

- H0 – There is no significant relation between understanding social media platform important of income growth and sharing the knowledge on social media for larger benefit of farmers.
- H1 - There is a significant relation between understanding social media platform important of income growth and sharing the knowledge on social media for larger benefit of farmers.

Hypothesis - 3

- H0 - There is no significant difference in income pattern of farmers in last 3 years w.r.t. understanding the adoption of social media on income growth.
- H1- There is a significant difference in income pattern of farmers in last 3 years w.r.t. understanding the adoption of social media on income growth.

5. Research Methodology

This study has employed the method of 'mixed methods approach' towards the research, an approach that has combined several methods such as Focus group studies, Surveys, Semi structured interviews and Analysis of secondary data for the acquisition of empirical evidences for studying the impact of social media on the farmers. The survey questionnaires were distributed across a small sample of farmers within the talukas of the District of Pune, for acquiring data about the demographic pattern of the farmers, their patterns of use, regarding social media platforms in order to acquire data about the perceived benefits and challenges regarding the usage of social media by the farmers for enhancing their growth. Semi structured interviews were conducted with a subset of the respondents for acquisition of valuable insights in a deeper way, which could cast a light regarding their experiences with the usage of social media for agriculture. Data from surveys and interviews were analysed using qualitative and quantitative techniques to identify key themes and patterns. 401 samples were taken for this study.

6. Data Analysis & Interpretation:

Testing of Hypothesis

Reliability Statistics

Cronbach's Alpha	N of Items
0.953	59

Interpretation: A value of .953 indicates a very strong level of reliability. Having a high Cronbach's Alpha value is important because it suggests that the research instrument is producing consistent and dependable results. It indicates that the items are reliable measures of the construct being studied and that the scores obtained from the instrument are likely to be accurate and consistent. This enhances the validity and credibility of the research findings.

ANOVA TEST

Q1. Social media platform is important for your income growth

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.359	2	12.68	18.36	0
Within Groups	274.925	398	0.691		
Total	300.284	400			

Interpretation:

The 'p-values' (Sig.) are found to be .000. for the F-Statistic. This suggests that there are differences in which income growth has been reported by the farmers, based on the levels of importance accorded by them to the social media platforms, which can suggest that the difference so identified is significant in a statistical way. In other words, there is evidence to indicate that at least one of the social media platform adoption levels has a significant impact on income growth.

Q2. What is your income pattern in last 3 years after using social media?.

Sum of Squares	Df	Mean Square	F	Sig.
8.766	4	2.191	2.634	0.038
88.171	106	0.832		
96.937	110			

Interpretation:

From the analysis of the above data, regarding the changes in the income patterns in the course of the last three years due to social media, it is revealed that the 'F-Statistic' for the 'Between Groups' item's comparison value is 2.634 and the significance value has been identified to be 0.038. The figure of 0.038 is less than 0.05 which can suggest that there is a statistically significant difference in between the patterns of income in the groups of farmers, based on their usage of social media. Also, the 'P-Value' being found to be < 0.05 , the Null Hypothesis is rejected.

CORRELATIONS TEST

		Social media platform is important for your income growth	You are sharing the knowledge, adding the post and videos on social media platform for larger benefit of farming community.
Social media platform is important for your income growth	Pearson Correlation	1	.293**
	Sig. (2-tailed)		0
	N	401	401
You are sharing the knowledge, adding the post and videos on social media platform for large benefit of farming community.	Pearson Correlation	.293**	1
	Sig. (2-tailed)	0	
	N	401	401
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation table provided to shows the results of the Pearson correlation coefficients between two variables: "Social media platform is important for your income growth" (variable 13) and "You are sharing the knowledge, adding the post and videos on social media platform for large benefit of farming community" (variable 16). Here's what each column represents: 1) The Correlation Coefficient: The value of this measure, depicting the correlation between the two variables is 0.293. The Correlation Coefficient is used for assessing the strength and the direction of the linear relationship amongst the variables in the study and in the context of the above the positive value suggests that there is a moderate chance for the variables to grow or decrease

together in a synchronized way. 2) Significance: This column describes the 'p-value' associated with the Correlation Coefficient. The p-value so found in the study is 0.000 which is less than the threshold quantity of 0.05, which indicates that the correlation between the variables is indeed significant in a statistical way. The data indicates that the Pearson correlation value is 0.293, which can imply that both of the variables are significantly related with each other. Further, since the quantity – 0.293 is lesser than 0.5, the null hypothesis is rejected.

REGRESSION TEST

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Error	Beta		
You are interested to like the content on social media?	0.79	0.135		5.873	0
Written Posts, Blogs, Articles	0.748	0.089	0.579	8.392	0
E-Books	-0.18	0.083	-0.152	-2.174	0.03
Videos	0.468	0.117	0.327	4.017	0
Live Videos	-0.227	0.089	-0.181	-2.543	0.011
Info Graphics	-0.16	0.082	-0.135	-1.946	0.052
Announcement	-0.127	0.077	-0.098	-1.655	0.099
Testimonials And Reviews	0.21	0.074	0.194	2.83	0.005

Inferential Analysis: Hypothesis Testing

- In research results indicate that there is a positive and statistically significant correlation between two variables. Specifically finding suggested that the farmers perceive social media platforms as important for their income growth are also more likely to engage in knowledge sharing and contribute to the farming community benefits on social media platforms.
- The findings suggest that there is a statistically significant & positive correlation between the variables, that is the perception that the social media platforms are indeed important platforms for farmers to enable their economic prosperity, to increase their knowledge about the latest and most reliable methods, ways and means of agriculture and as a medium for sharing of their knowledge, data and information with their peers through the aegis of social media.
- The data reveals that there is a significant change in the way the farmers earned in the last three years with reference to their understanding regarding the usage of social media on their pattern of growth of their income. Being that the P-value was found to be < 0.05 , the null hypothesis is rejected in the favor of the alternate hypothesis.

- There is a significant relationship between understanding social media platforms important of income growth and sharing knowledge on social media for the larger benefit of farmers.
- There is a significant impact of liking the content on social media on sharing the knowledge on social media for larger benefit for farmers.
- Agriculture inputs, acquire more farming skills, Soil and water conservation), indicating stronger associations with the extracted factors, while others have lower commonalities (e.g., Marketing and prices, Certification and gradation)

7. Results & Discussions:

- The data indicates that social media is a strong platform for enabling communication with the farmers and the farmers can benefit from an extensive usage of social media for marketing and selling their products.
- Farmers are using different Social media platforms like YouTube, WhatsApp, and Facebook. A maximum 66% belonged to the YouTube group, 26% represents belonged to the WhatsApp group whereas 8%, the minimum belonged to the Facebook group.
- YouTube and WhatsApp have been identified as popular channels for information exchange and knowledge sharing among farmers.
- Social Media is important for farmers' income growth: A maximum 88% represents belonged to the Strongly Agree and Agreed group.
- Social media like YouTube and WhatsApp are used by the farmer's communities extensively to disseminate information related to technology and innovation in agriculture, crop productivity enhancement, identifying the target markets, price and bring seller and buyer under one roof.
- Social media platforms provide several opportunities for the farmers to connect with each other, the intermediaries and their customers in a diverse form of ways, enabling the collection, collaboration and exchange of data, information and knowledge pertaining to agriculture in a swift, economically friendly way which can lead to better economical outcomes for the farmers.
- Sharing knowledge and adding post and videos on social media platform: Maximum 75% represents belonged to Strongly Agree and Agreed group
- Income pattern of last 3 years after using social media has increased: Maximum 60% represents belonged to the increases in income pattern group followed by 34%
- Social Media is instrumental in increased farmer's participation and engagement so ICT products are to be targeted to be used by the Farmers Community.
- Maximum 100% farmers are using smart phone, 77% having computer knowledge, 61% using either laptop/desktop/tablet and 99% using Internet. Hence ICT products and their knowledge is maximum in the farmer's group.
- In this research, it was found that, there is a statistically significant and positive correlation between perceiving social media platforms as important for income growth and actively sharing knowledge, adding posts and videos for the benefits of the farming community on these platforms. In research results indicate that there is a positive and statistically significant correlation between two variables. Specifically finding suggested that the farmers perceive social media platforms as important for their income growth are also more likely to engage in knowledge sharing and contribute to the farming community benefits on social media platforms. There is a significant difference in incoming pattern of farmers in last 3 years w.r.t. understanding the adoption of social media on income growth. The null hypothesis was rejected by the researchers as the statistical analysis of the data revealed that the P-value was <0.05 .
- There is a significant relation between understanding social media platform important of income growth and sharing the knowledge on social media for larger benefit of farmers. Correlation between the variables is significant in a statistical way.
- The findings in the research suggest that social media platforms are extremely important for ensuring the future of the farmers by ensuring their income growth as the data reveals that there is a positive and statistically significant correlation between social media and their income growth and the farmers can benefit by actively sharing knowledge, adding posts, and videos for the benefit of the farming community on these platforms.
- Analysis of the data reveals that the process of liking of the content on the social media or sharing of the knowledge on the social media has a significant impact on the ways the farmers can use the social media for improving their stock of data, information and knowledge about agriculture and assist their colleagues in the field using their knowledge, leading to an improvement in their income levels in life.
- The R value was found to be 0.32 which further leads to the rejection of the null hypothesis, implying that there is an impact of liking the content on social media on sharing the knowledge on social media for the

greater benefit of the farmers in a significant way.

- Agriculture inputs, acquire more farming skills, Soil and water conservation indicating stronger associations with the extracted factors, while others have lower communalities (e.g., Marketing and prices, Certification and gradation), indicating weaker associations.
- The researchers would like to state that the farmers can benefit in a significant way through the adoption of social media as through the aegis of the platforms of social media they can enhance their economic growth and development through gaining access to valuable information, fostering knowledge exchange, and promoting farmer community through and on the social media.

On an overall basis it is concluded that the social media has a profound impact on farmers. It is a significant platform is being used by the farmers for their growth in turn increasing their income. So the livelihood of farmers is growing day by day.

8. Conclusion:

There is a popular saying which states that knowledge, data and information are the only treasures in the world which increase their value, the more one shares them and this is found to be true in case of this research as the farmers have reported beneficial results through their usage of the social media for acquiring and sharing valuable data, information and knowledge about agriculture. YouTube and WhatsApp have been identified as popular channels for information exchange and knowledge sharing among farmers as they provide opportunities for communication, connection, collaboration and disbursement of data and information in an economical, convenient, accessible and sure way to the farmers. Also, the farmers can seek and acquire information about the markets for their products, along with domain related information such as soil information, advanced farming methods and skills, ways for conservation of water, usage of organic fertilizers along with the development of ways and means for marketing and selling of their products in the markets through access to information such as the current pricing patterns through and via the social media. Careful and wise usage of the social media platforms by the farmers is sure to act as a gold mine for them, as through the exchange and acquisition of information, data and knowledge they are sure to reap bumper harvests which will surely lead to a measurable improvement in their livelihoods. Thus we can conclude that the adoption of social media does indeed have a profound effect and impact on the livelihoods of the farmers and its significance as a platform for ensuring their holistic growth and development should be promoted so that more farmers

can benefit through the usage of social media, which in turn can lead to an improvement in the economic future of the country, leading to the generation of a golden harvest for everyone in the country in the future.

9. Suggestions & Recommendations:

- Social media should be promoted as a strong medium for communication, collaboration and exchange of information for the farmers as the benefits of such efforts speak for themselves, as was found in this research. This can be done through private and public efforts, for beneficial end results.
- A dedicated social media platform for farmers, intermediaries and customers could be developed with the channels and sub-channels in the platforms dedicated for agricultural product marketing efforts, agricultural product purchase/sale efforts and rent/leasing of farming tools, vehicles and equipment along with dedicated portals and sub-portals for disclosure of peer reviewed information and knowledge about agriculture and agricultural practices as such efforts could lead to tremendous economic benefit for the farmers. The platform could feature access plugins, designed to work with the leading social media platforms such as YouTube, WhatsApp, Telegram, etc, enabling swift and sure connectivity in a seamless way.
- Social Media is instrumental in increased farmer's participation and engagement so ICT products are to be targeted to be used by the farmers Community.
- Social media like YouTube and WhatsApp and Facebook are used by farmer's community extensively to disseminate information related to technology and innovation in agriculture, crop productivity enhancement, identifying target market, price and bring seller and buyer under one roof.
- Stakeholders, including government bodies, agricultural institutions, and training providers, should collaborate for the creation and deployment of plans, efforts, schemes and efforts for ensuring the usage of social media by the farmers in effective, productive and responsible ways for beneficial end results in the days ahead.

10. Limitations of the Research:

1. **Specific Demographic:** Data related to present research investigation is collected from Pune district only.
2. **Restricted to Social media:** This research investigation is limited to social media uses in agriculture sector in Pune district only.

3. Restricted to Sector: Findings, suggestions and conclusion of present research investigation is only limited to social media users in agriculture sector in Pune district only.

11. Scope for Further Study:

1. Similar studies can be carried out in other domain apart from Agriculture
2. The study can be undertaken in other parts of India.

3. The study can be enhanced to overcome the challenges identified by the farmers in using social media.

4. The current study can be extent to provide various strategic and tactical decisions based on social media analytics and its usage.

5. The further study can be undertaken in association with Social Media Marketing and AI

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