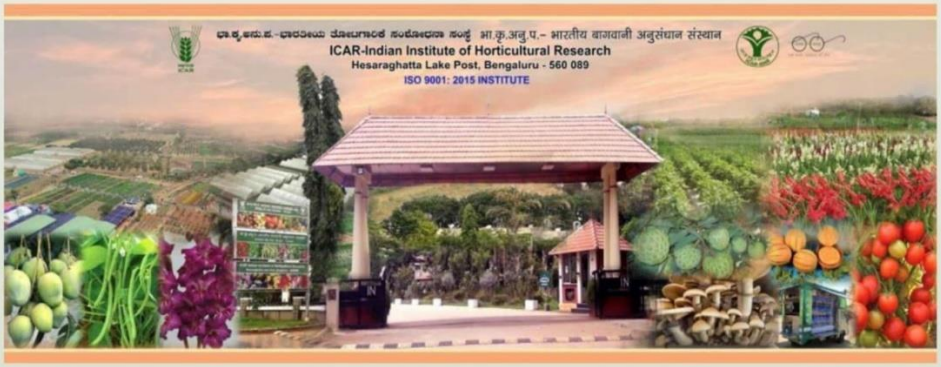
ICAR-IIHR, Bengaluru & MANAGE, Hyderabad

BOOK ON

MOBILE JOURNALISM

2023-24



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KARNATAKA

“Mobile Journalism”

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Dr Srinivasa charyulu Attuluri, Dr. P Sharath Kumar & Navaneetha R

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This *e*-book is a compilation of resource text obtained from various subject experts for Collaborative Online Training Programme of ICAR-Indian Institute of Horticultural Research, Bengaluru & MANAGE, Hyderabad entitled “Mobile Journalism” from 26-28 October, 2023. This *e*-book is designed to educate extension workers, students, research scholars, academicians related to horticulture and extension methodologies for promotion of mobile journalism, for value addition and doubling farmer’s income. Neither the publisher nor contributors, authors and editors assume any liability for any damage or injury to persons or property from any use of methods, instructions, nor ideas contained in an *e*-book. No part of this publication may be reproduced or transmitted without prior permission of the publisher/editor/authors. Publisher and editor don’t give warranty for any error or omissions regarding the materials in this *e*-book

MESSAGE

National Institute of Agricultural Extension Management (MANAGE), Hyderabad is an autonomous organization under the Ministry of Agriculture & Farmers Welfare, Government of India. The policies of liberalization and globalization of the economy and the level of agricultural technology becoming more sophisticated and complex, called for major initiatives towards reorientation and modernization of the agricultural extension system. Effective ways of managing the extension system needed to be evolved and extension organizations enabled to transform the existing setup through a profession guidance and training of critical manpower. MANAGE is the response to this imperative need. Agricultural extension to be effective, demands sound technological knowledge to the extension functionaries and therefore MANAGE has focused on training program on technological aspect in collaboration with ICAR institutions and State Agriculture/Horticulture Universities, who has expertise and facilities to organize technical training program for extension functionaries of State Horticulture Department.

In India, Horticulture sector contributes to the nutritional security of farmers through steady income, the export earnings from different horticulture products and their value addition are also noticeably contributing to the National income. On the other hand farm women through their involvement in farming, post-harvest management, horticultural crop production, livestock management, fisheries, natural resource management, and homestead resources, have made significant contributions to the expansion of the agricultural sector but the persistent gender disparity in resource access and control is a significant issue that has raised concerns about the sector's inclusive and sustainable growth in addition to keeping women trapped in a cycle of poor productivity. In this context India is implementing National e-Governance Plan in Agriculture (NeGP-A) in the entire country aiming to provide information to farmers free of cost on seeds, 1 A draft National Policy for farmers was prepared by Chairman of National Commission of Farmers (NCF), Prof. M.S. Swaminathan.

It is a pleasure to note that, Indian Institute of Horticultural Research, Bengaluru and MANAGE, Hyderabad is organizing a collaborative training program entitled "**Mobile Journalism**" from 26-28 October, 2023 and coming up a joint publication as *e*- book as immediate outcome of the training program.

I wish the program be very purposeful and meaningful to the participants and also the *e*- book will be useful for stakeholders across the country. I extend my best wishes for success of the program and also I wish Indian Institute of Horticultural Research, Bengaluru many more glorious years in service of Indian agriculture and allied sector ultimately benefitting the farmers. I would like compliment the efforts of Program Coordinators of MANAGE, Hyderabad and ICAR-IIHR (Indian Institute of Horticultural Research), Bengaluru for this valuable publication.

(P.CHANDRASHEKARA)
Director General, MANAGE

FOREWORD

India is one of the fastest growing economies in the world. Agriculture though contributes less than one sixth to the national economy, agriculture employs about half of the population directly or indirectly. Horticulture expansion can make a significant contribution to agricultural growth. To enhance the farmer's income, ensure nutritional security, and reduce the post-harvest losses of horticultural produce, mainly fruits, and vegetables, it is essential to promote horticulture based entrepreneurial development. Horticulture presents numerous avenues available for entrepreneurship activities. In this regard ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bengaluru has commercialised more than 300 technologies through technology transfer, horti-preneurship, development of value-added products for domestic and export through training, business incubation and acceleration.

Digital agriculture/horticulture uses various technologies along the agricultural value chain. The goal is to leverage Information and Communication Technologies (ICT) along with data ecosystems to provide timely, targeted information and services for profitable and sustainable farming, ensuring the production of safe, nutritious, and affordable food. In this context, mobile journalism plays a crucial role in creating, collecting, editing, and customizing multimedia content for stakeholders with minimal literacy levels and tacit knowledge. Digital agriculture aims to institutionalize farming with technologies like sensors, drones, GPS, and machine learning. ICAR-IIHR, Bengaluru, introduced ARKA BAGWANI and web applications & ARKA VYAPAR for data-driven, digital agriculture. Challenges include content development and mobile accessibility, requiring a strategic action plan.

Developing a mobile journalism workforce is crucial for effective knowledge transfer. MANAGE and ICAR-IIHR's training benefits participants across the country. Congratulations to them and the course leaders for advancing digital agriculture's benefits for farmers and horticulture stakeholders.

(SANJAY KUMAR SINGH)

Director, ICAR-IIHR,
Bengaluru

PREFACE

This *e*-book is an outcome of collaborative training program on "Mobile Journalism " from 26th to 28th October, 2023. The editors' main aim is to provide insights to all extension workers, faculties, researchers and students about developing Mobile Journalism concept, process, methodology, framework for effective and efficient delivery through various platforms and networks, including 5G. In India with 6,48,000 villages spread over a large area, spreading technology is a challenge, as physical contact through various technological processes is costly and time consuming, In this direction Mobile Journalism, protocols and processes comes as a panacea. To establish this new procedure the book helps Mobile Journalism practitioners to get a gainful insight and exposure to perform this technologically advanced task

The editors felt that all the experience of resource persons of this training should be integrated together for the unique proposition on Mobile journalism. Horticultural science has technologies which have different magnitudes, scale and direction coordinating both subjects from a common point was indeed a challenging job. The experts and resource persons in Mobile Journalism contributed immensely and tirelessly to develop various chapters of this e-book in very short span of time. They all deserve applaud. The editors extend their sincere thanks to all the experts who have contributed valuable time and put sincere efforts to produce this *e*-book.

The editors also thank MANAGE, Hyderabad for the financial support to the training program. The editor's expresses the gratitude towards the Director, ICAR-IIHR for the constant encouragement for this training and *e*-book creation for the participants. The editors hope that this *e*-book will help participants as well as other extension people across the country to gain valuable information on Mobile journalism process, methods and standard protocols.

Editors

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CHAPTER 1: MOBILEJOURNALISM-FOUNDATIONS FOR DIGITAL AGRICULTURE

Dr V.K. Jayaraghavendra Rao*

Introduction

Mobile Journalism (MoJo) is a form of digital reporting where trained journalists use mobile devices to gather news. A mobile device refers to a Smart phone or a Tablet with iOS or Android operating systems. Reporters use mobile devices as tools to shoot, edit and broad cast then ews contents. Media persons have become more mobile and independent in executing their assignments using Smart phones. It is gradually gaining popularity among reporters and news organisations as it helps the organisations to spend less on hiring crew and on expensive equipment.

MoJo is cost-effective as smart phones are more convenient compared to the traditional cameras that are heavy and require additional manpower to operate. Sometimes, it is not possible to send Outside Broadcast Vans(OBV)to cover news-breaks at several spots at the same time. It is during such situations that smart phones come handy for timely coverage of news occurrences. As smart phones are thoroughly equipped within-built audio video settings with different MoJo apps, reporters can easily shoot, edit and upload their news contents on the web or to their organisation.

Digital agriculture scheme in India

India is implementing **National e-Governance Plan in Agriculture (NeGP-A)** in the entire country aiming to provide information to farmers free of cost on seeds, 1 A draft National Policy for farmers was prepared by Chairman of National Commission of Farmers (NCF), Prof. M.S. Swaminathan.

Role of Mobile Journalism in Digital Agriculture

Digital agriculture encompasses a wide range of technologies, most of which have multiple applications along the agricultural value chain. These technologies include, but are not limited to: Cloud computing/big data analysis tools. Artificial intelligence. Machine learning.

Digital Agriculture is “ICT (Information and Communication Technologies) and data ecosystems to support the development and delivery of timely, targeted information and services to make farming profitable and sustainable while delivering safe nutritious and affordable food for all., it is here that mobile journalism plays an important role in creating, gathering, collating, editing and customizing multimedia rich content to be streamed on mobiles to stake holders whose literacy levels are minimum, and those who have tacit knowledge and not explicit knowledge, nevertheless who are consumers of this information through mobile platforms to sustain the evergreen revolution through improved knowledge management.

Therefore, Digital Agriculture aims at institutionalizing Digital farming as an approach to farming that uses digital technologies, such as sensors, drones, GPS mapping, and machine

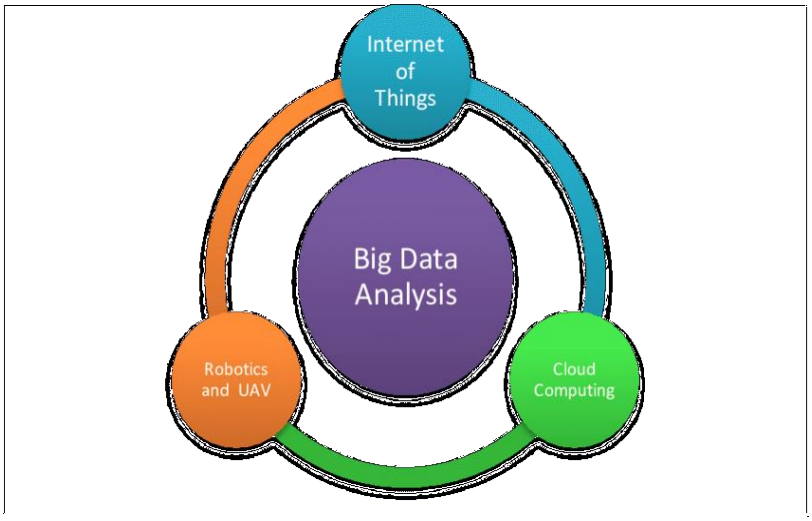
learning to optimize agricultural production. Already IFFCO Kisan has come out with the KRISHI DEV GYAN app for data driven, digital agriculture and provides information service and support through this app.

Impact of digitalization in agriculture

AI currently helps farmers increase yield by assisting them in choosing better crops, hybrid seeds, and resource-efficient farming techniques. It is also utilized to improve farming productivity and accuracy to assist farmers in creating seasonal forecasting models.

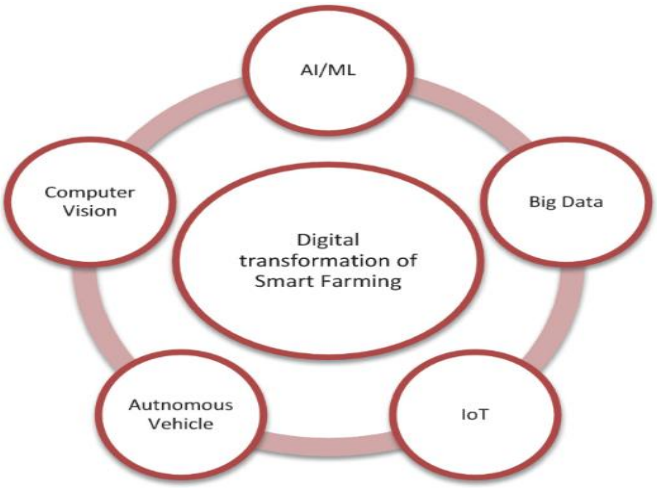
Components of digital agriculture

Agriculture 4.0 technologies like the internet of things, machine learning, unmanned aerial vehicles, big data analytics, robotics, and artificial intelligence can benefit all stages and processes of the agricultural production chain.



Internet of Things in digital agriculture

IOT TECHNOLOGIES IN AGRICULTURE. IoT smart agriculture products are designed to help monitor crop fields using sensors and by automating irrigation systems. As a result, farmers and associated brands can easily monitor the field conditions from anywhere without any hassle. E.g., ***KRISHI DEV GYAN*** app of IFFCO



How AI help agriculture

The growth of the global population, which is projected to reach 10 billion by 2050, is placing significant pressure on the agricultural sector to increase crop production and maximize yields. To address looming food shortages, two potential approaches have emerged: expanding land use and adopting large-scale farming, or embracing innovative practices and leveraging technological advancements to enhance productivity on existing farmland

Pushed by many obstacles to achieving desired farming productivity — limited land holdings, labour shortages, climate change, environmental issues, and diminishing soil fertility, to name a few, — the modern agricultural landscape is evolving, branching out in various innovative directions. Farming has certainly come a long way since hand plows or horse-drawn machinery. Each season brings new technologies designed to improve efficiency and capitalize on the harvest. However, both individual farmers and global agribusinesses often miss out on the opportunities that artificial intelligence in agriculture can offer to their farming methods.

MOJO has been , successfully implementing real-life technological solutions. With focus on developing innovative systems for quality control, traceability, compliance practices, and more. Now, we will dive deeper into how new technologies can help your farming business move forward.

Until recently, using the words AI and agriculture in the same sentence may have seemed like a strange combination. After all, agriculture has been the backbone of human civilization for millennia, providing sustenance as well as contributing to economic development, while even the most primitive AI only emerged several decades ago. Nevertheless, innovative ideas are being introduced in every industry, and agriculture is no exception. In recent years, the world has witnessed rapid advancements in agricultural technology, revolutionizing farming practices. These innovations are becoming increasingly essential as global challenges such as

climate change, population growth together with resource scarcity threaten the sustainability of our food system. Introducing AI solves many challenges and helps to diminish many disadvantages of traditional farming.

Data-based decisions

The modern world is all about data. Organizations in the agricultural sector use data to obtain meticulous insights into every detail of the farming process, from understanding each acre of a field to monitoring the entire produce supply chain to gaining deep inputs on yields generation process. AI-powered predictive analytics is already paving the way into agribusinesses. Farmers can gather, then process more data in less time with AI. Additionally, AI can analyse market demand, forecast prices as well as determine optimal times for sowing and harvesting.

Artificial intelligence in agriculture can help explore the soil health to collect insights, monitor weather conditions, and recommend the application of fertilizer and pesticides. Farm management software boosts production together with profitability, enabling farmers to make better decisions at every stage of the crop cultivation process.

Cost savings

Improving farm yields is a constant goal for farmers. Combined with AI, precision agriculture can help farmers grow more crops with fewer resources. AI in farming combines the best soil management practices, variable rate technology, and the most effective data management practices to maximize yields while minimizing minimize spending.

Application of AI in agriculture provides farmers with real-time crop insights, helping them to identify which areas need irrigation, fertilization, or pesticide treatment. Innovative farming practices such as vertical agriculture can also increase food production while minimizing resource usage. Resulting in reduced use of herbicides, better harvest quality, higher profits alongside significant cost savings.

Automation impact

Agricultural work is hard, so labour shortages are nothing new. Thankfully, automation provides a solution without the need to hire more people. While mechanization transformed agricultural activities that demanded super-human sweat and draft animal labour into jobs that took just a few hours, a new wave of digital automation is once more revolutionizing the sector.

Automated farm machinery like driverless tractors, smart irrigation, fertilization systems, IoT-powered agricultural drones, smart spraying, vertical farming software, and AI-based greenhouse robots for harvesting are just some examples. Compared with any human farm worker, AI-driven tools are far more efficient and accurate.

Applications of artificial intelligence in agriculture

The AI in agriculture market is expected to grow from USD 1.7 billion in 2023 to USD 4.7 billion by 2028, according to Markets and Markets.

Traditional farming involves various manual processes. Implementing AI models can have many advantages in this respect. By complementing already adopted technologies, an intelligent agriculture system can facilitate many tasks. AI can collect and process big data, while determining and initiating the best course of action. Here are some common use cases for AI in agriculture:

Optimizing automated irrigation systems

AI algorithms enable autonomous crop management. When combined with IoT (Internet of Things) sensors that monitor soil moisture levels and weather conditions, algorithms can decide in real-time how much water to provide to crops. An autonomous crop irrigation system is designed to conserve water while promoting sustainable farming practices.

Detecting leaks or damage to irrigation systems

AI plays a crucial role in detecting leaks in irrigation systems. By analysing data, algorithms can identify patterns and anomalies that indicate potential leaks. Machine learning (ML) models can be trained to recognize specific signatures of leaks, such as changes in water flow or pressure. Real-time monitoring and analysis enable early detection, preventing water waste together with potential crop damage.

AI also incorporates weather data alongside crop water requirements to identify areas with excessive water usage. By automating leak detection and providing alerts, AI technology enhances water efficiency helping farmers conserve resources.

Crop and soil monitoring

The wrong combination of nutrients in soil can seriously affect the health and growth of crops. Identifying these nutrients and determining their effects on crop yield with AI allows farmers to easily make the necessary adjustments.

While human observation is limited in its accuracy, computer vision models can monitor soil conditions to gather accurate data. This plant science data is then used to determine crop health, predict yields while flagging flag any particular issues.

In practice, AI has been able to accurately track the stages of wheat growth and the ripeness of tomatoes with a degree of speed and accuracy no human can match.

Detecting disease and pests

As well as detecting soil quality and crop growth, computer vision can detect the presence of pests or diseases. This works by using AI to scan images to find mold(fungal), rot, insects, or other threats to crop health. In conjunction with alert systems, this helps farmers to act quickly in order to exterminate pests or isolate crops to prevent the spread of disease.

AI has been used to detect apple black rot with an accuracy of over 90%. It can also identify insects like flies, bees, moths, etc., with the same degree of accuracy. However, researchers first needed to collect images of these insects to have the necessary size of the training data set to train the algorithm with.

Monitoring livestock health

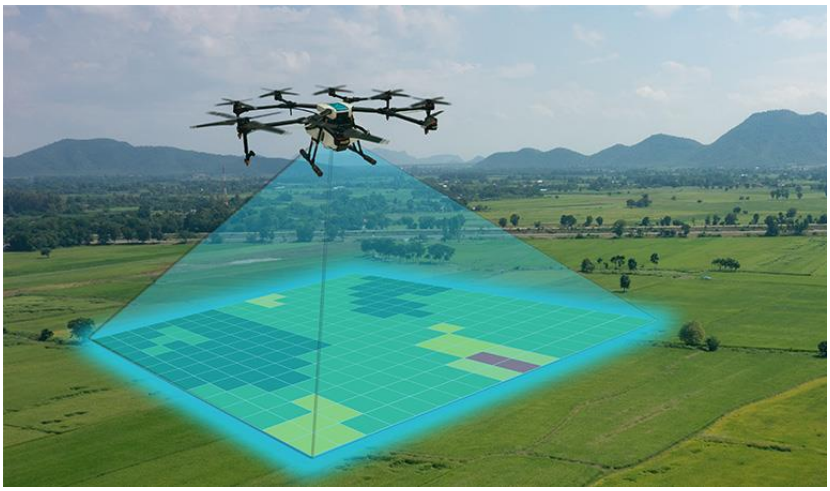
It may seem easier to detect health problems in livestock than in crops, in fact, it's particularly challenging. Thankfully, AI can help with this. For example, a company called Cattle Eye has developed a solution that uses drones, cameras together with computer vision to monitor cattle health remotely. It detects atypical cattle behaviour and identifies activities such as birthing.

Cattle Eye uses AI and ML solutions to determine the impact of diet alongside environmental conditions on livestock and provide valuable insights. This knowledge can help farmers improve the well-being of cattle to increase milk production.

Intelligent pesticide application

By now, farmers are well aware that the application of pesticides is ripe for optimization. Unfortunately, both manual and automated application processes have notable limitations. Applying pesticides manually offers increased precision in targeting specific areas, though it might be slow and difficult work. Automated pesticide spraying is quicker and less labour-intensive, but often lacks accuracy leading to environment contamination.

AI-powered drones provide the best advantages of each approach while avoiding their drawbacks. Drones use computer vision to determine the amount of pesticide to be sprayed on each area. While still in infancy, this technology is rapidly becoming more precise.



Yield mapping and predictive analytics

Yield mapping uses ML algorithms to analyse large datasets in real time. This helps farmers understand the patterns and characteristics of their crops, allowing for better planning. By combining techniques like 3D mapping, data from sensors and drones, farmers can predict soil yields for specific crops. Data is collected on multiple drone flights, enabling increasingly precise analysis with the use of algorithms.

These methods permit the accurate prediction of future yields for specific crops, helping farmers know where and when to sow seeds as well as how to allocate resources for the best return on investment.

Automatic weeding and harvesting

Similar to how computer vision can detect pests and diseases, it can also be used to detect weeds and invasive plant species. When combined with machine learning, computer vision analyses the size, shape, and colour of leaves to distinguish weeds from crops. Such solutions can be used to program robots that carry out robotic process automation (RPA) tasks, such as automatic weeding. In fact, such a robot has already been used effectively. As these technologies become more accessible, both weeding and harvesting crops could be carried out entirely by smart bots.

Sorting harvested produce

AI is not only useful for identifying potential issues with crops while they're growing. It also has a role to play after produce has been harvested. Most sorting processes are traditionally carried out manually however AI can sort produce more accurately.

Computer vision can detect pests as well as disease in harvested crops. What's more, it can grade produce based on its shape, size, and colour. This enables farmers to quickly separate produce into categories — for example, to sell to different customers at different prices. In comparison, traditional manual sorting methods can be painstakingly labour-intensive. One of the IIHR incubated companies Zentron who works on sensor based screening of Alphonso mangoes for fruit fly has become a UNICORN

Surveillance

Security is an important part of farm management. Farms are common targets for burglars, as it's hard for farmers to monitor their fields around the clock. Animals are another threat — whether it's foxes breaking into the chicken coop or a farmer's own livestock damaging crops or equipment. When combined with video surveillance systems, computer vision and ML can quickly identify security breaches. Some systems are even advanced enough to distinguish employees from unauthorized visitors.

Role of AI in the agriculture information management cycle

Managing agricultural data with AI can be beneficial in many ways:

Risk management
Predictive analytics reduces errors in farming processes.

Plant breeding AI utilized plant growth data to further advise on crops that are more resilient to extreme weather, disease or harmful pests.

Soil and crop health analysis
AI algorithms can analyse the chemical composition of soil samples to determine which nutrients may be lacking. AI can also identify or even predict crop diseases.

Crop feeding
AI in irrigation is useful for identifying optimal patterns and nutrient application times, while predicting the optimal mix of agronomic products.

Harvesting
AI is useful for enhancing crop yields and can even predict the best time to harvest crops.

Optimizing AI for agriculture and agricultural processes

While the benefits of AI in agriculture are vivid, it can't function without other digital technologies already in place such as big data, sensors, and software. Likewise, other technologies need AI for them to work properly. In the case of big data, the data itself is not particularly useful. What matters is how it's processed and implemented.

Big data for informed decision-making
Combining AI with big data analytics allows farmers to get recommendations based on accurate, real-time information, thereby increasing productivity hence reducing costs.

IoT sensors for capturing and analysing data
IoT sensors together with other supporting technologies (AI drones, GIS, and other tools) can monitor, measure, and store training data on various metrics in real time. By combining these devices with AI, farmers can obtain accurate information quickly.

Intelligent automation and robotics for minimizing manual work
AI combined with autonomous tractors and IoT helps to solve the common problem of labour shortages. Robotics are also important — agricultural robots are already being used for manual tasks like produce picking. Robots are more advantageous for farm work purposes due to their ability to work longer hours, enhanced precision on top of reduced susceptibility to errors.

Challenges of AI in agriculture

Stake holders perceive AI as something that applies only to the digital world, with no relevance to physical farming tasks. This assumption is usually based on a lack of understanding of AI tools. Most people don't fully understand how AI works, especially those in non-tech-related sectors, leading to slow AI adoption across the agricultural sector. Although agriculture has seen countless developments in its long history, many farmers are more familiar with traditional methods. A vast majority of farmers are unlikely to have worked on projects that involved AI technology.

Also, AgTech providers often fail to clearly explain the benefits of new technologies and how to implement them. A huge amount of work must be done by technology providers to help people understand the application of AI in agriculture. Considering the benefits of artificial intelligence for sustainable farming, implementing this technology may look like a logical step for every farmer. However, there are still some challenges to overcome.

Large upfront costs

While AI solutions can be cost-effective in the medium-to-long-term, there's no escaping the fact that the initial investment can be very expensive. With many farms and agribusinesses struggling financially, adopting AI may be impossible for the time being, especially in the cases of small-scale farmers and those in developing countries. However, the cost of implementing AI may drop as technologies develop. Businesses also have the opportunity to explore funding resources such as government grants or private investment.

Reluctance to embrace new technologies and processes

Unfamiliarity often makes people hesitant to adopt new technologies creating difficulties farmers to fully embrace AI, even when it offers undeniable benefits. Resistance to innovation alongside some reluctance to take a chance on new processes hold back the farming methods development as well as the sector's profitability in general. Farmers need to understand that AI is only a more advanced version of simpler technologies for field data processing. To convince agricultural workers to embrace AI, the public and private sectors should provide motivation, resources, and training. Governments must also develop the regulations needed to assure workers that the technology is not a threat.

Lack of practical experience with new technologies

Aspects of the agricultural industry differ in their technological advancement around the world. Some regions could leverage all the benefits AI, though there are some hurdles in countries where next-gen agricultural technology is uncommon. Technology companies

hoping to do business in regions with emerging agricultural economies may need to take a proactive approach. In addition to providing their products, they must offer training and ongoing support for farmers and agribusiness owners who are ready to take on innovative solutions.

A lengthy technology adoption process

In addition to a lack of understanding and experience, the agricultural sector generally lacks the infrastructure needed for AI to work. Even farms that already have some technology in place may find it difficult to move forward. Infrastructure is also a challenge for AgTech providers and software companies. One of the main ways to overcome this is by approaching farmers gradually: for instance, offering the use of simpler technology first, such as an agricultural trading platform. Once farmers get used to a less complicated solution, providers can add additional tools and features.

Technological limitations

As AI is still developing, the technology will have constraints. Accurate models depend on diverse, high-quality data, which can be scarce in agriculture. For robots with sensors, limitations can make adapting to changing farming environments difficult. Overcoming these limitations requires ongoing research and analysis of data. Farmers should also remain involved with decision-making rather than entirely handing control over to AI. Monitoring AI decisions manually is likely to be useful during the early stages of adoption.

Privacy and security issues

There is still a general lack of regulations relating to the use of AI across all industries. Particularly, implementing AI in precision agriculture and smart farming raises various legal questions. For example, security threats like cyber attacks and data leaks may cause farmers serious problems. It's even conceivable that AI-based farming systems could be targeted by hackers with the aim of disrupting food supplies.

Role of AI software development, ChatGPT or MOJO for content development?

The implementation of AI in agriculture opens up quite a lot of business opportunities for the industry in general and for individual farmers in particular. The technology requires deep understanding together with a well-crafted approach, though. There is no need to stay alone on the way to transformation. MOJO helps agricultural businesses and AgTech start-ups like Zentron a unicorn mentored by IIHR in screening fruit fly affected Alphonso mangoes for screening, create complete technology ecosystems around their agribusinesses. We leverage our accumulated expertise in various industries to enhance our agricultural technology advisory and software development services, enabling us to collaboratively create scalable customer-oriented digital products with our clients.

Digital Agriculture makes innovation tangible from idea validation through proof of concept to market feedback. By applying data analytics, cloud services, AI automation tools as well as location intelligence, we ensure that AgTech products improve not just ROI but also the agricultural practices and lives of farmers.

Pooling experiences enables Digital Agriculture and MOJO to tailor custom solutions to meet the unique requirements to take your business to the next level. Agricultural technologies and domain experts will help MOJO build custom farm management systems, indoor vertical farming solutions, as well as precision agriculture aerial drone analytics systems. For livestock farming, technology solutions for livestock management, behaviour monitoring, and health tracking are key issues in digital agriculture

Crop management software for sustainable farming

Digital Agriculture collaborations is to develop a crop management software platform that helps growers comply with GAP certifications. MOJO tries to bridge this gap through developing relevant content.

The resulting solution includes a soil health management application for risk assessment and analysis, so that farmers can evaluate field conditions and mitigate risks. It also helps crop chemical manufacturers assess and control the impact of their operations.

Unified farm management system

Another AI project, MOJO helps revamp the record-keeping software. For a comprehensive farm management platform.

This platform included tools for crop rotation, weather analysis, disease management, satellite imagery analysis, drill/soil mapping together with operations planning, resulting in a solution that empowers farmers to monitor and optimize their operations, enhance yields hence make informed decisions for sustainable farming. Although the cost of implementing AI can vary widely depending on the scope of the project, it is likely to turn into a profitable investment.

Future of AI through MOJO in agriculture?

AI through MOJO is sure to play an increasingly large role in agriculture and food sustainability over the coming years. Technology has always been at the forefront of agriculture, from primitive tools to irrigation to tractors to AI. Each development has increased efficiency while reducing the challenges of farming.

More importantly, the benefits of AI in agriculture are undeniable. Smart farming tools, intelligent automation, and AI-powered products perform repetitive time-consuming tasks so workers can use their time for more strategic operations that require human judgment. Increasingly affordable computer vision alongside agricultural robotics have the potential to accelerate AI advancement in farming.

AI has the tools to address the challenges posed by climate change, environmental concerns, and an increasing demand for food. It will revolutionize modern agriculture by improving efficiency, sustainability, resource allocation on top of real-time monitoring for healthier and higher-quality produce.

However, you can't just buy AI and start using it. AI is not something tangible — it's a set of technologies that are automated through programming. In essence, an AI algorithm mimics the way people think — it learns first, then solves problems based on data. AI-driven transformation of agriculture will require changes in the industry. Farmers need to be educated and trained in how to use AI-powered solutions.

What does this mean for workers in the agricultural industry? AI is likely to change the role of farmers from manual workers to the planners and overseers of smart agricultural systems. An understanding of IT solutions and agribusiness intelligence will potentially become more useful than the ability to use conventional tools or carry out physical labour.

Despite AI and machine learning having the potential to radically transform farming, they need other technologies to work in sync. To reap all the benefits of AI, farmers first need a technology infrastructure. It could take years to develop that infrastructure, but doing so could result in a robust, future proof technology ecosystem. Understanding how AI works and how best to integrate technical knowledge into real-life processes is vital for maximizing its benefits. That's why partnering with an expert software development team is an excellent first step. Providers of AgTech solutions have an important role to play. Each must consider how they can improve their tools, address challenges, and clearly convey the measurable

benefits of AI and machine learning. If this can be achieved, the future of AI in agriculture is bound to be fruitful.

The success of human society is essentially dependent on the optimization of its agricultural systems. Traditional farming methods are becoming outdated, need for advanced technological solutions. Worldwide, the impact of automation on industries has always been considerable. Digital technology is now playing a huge role in transforming agriculture, and the impact of artificial intelligence in agriculture is set to be vast.

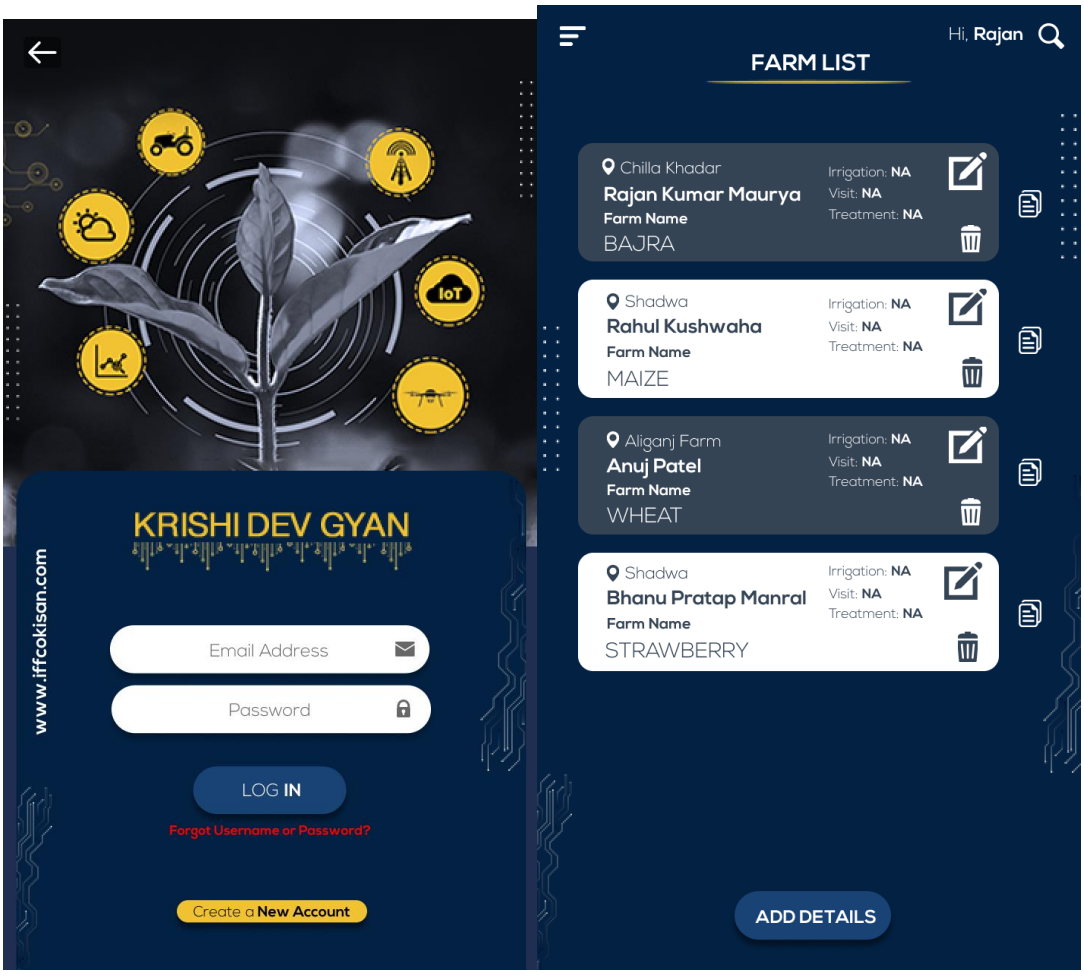
Looking for ways to implement AI in your farming operations? Let's discuss. Get in touch with our agricultural experts and take the next big step towards a sustainable future.

With a deep understanding of business processes as well as agile and waterfall methodologies, Dmytro is able to adjust workflows in agricultural projects and can quickly grasp business requirements to apply the right technology.

Monitoring Technologies to Save Crops from adverse Weather

The three main technologies that contribute to the development of intelligent weather monitoring for agriculture are **smart IoT sensors to collect and analyze data, satellites and weather stations, and AI and machine learning systems for weather predictions e.g., Krishi dev Gyan app of IFFCO**


Sensors mapping
Sensors data
GPS data
Crops forecasting models
BI dashboard
Weather precision data
AI algorithms
Satellite data
Input from open communities
Aerial images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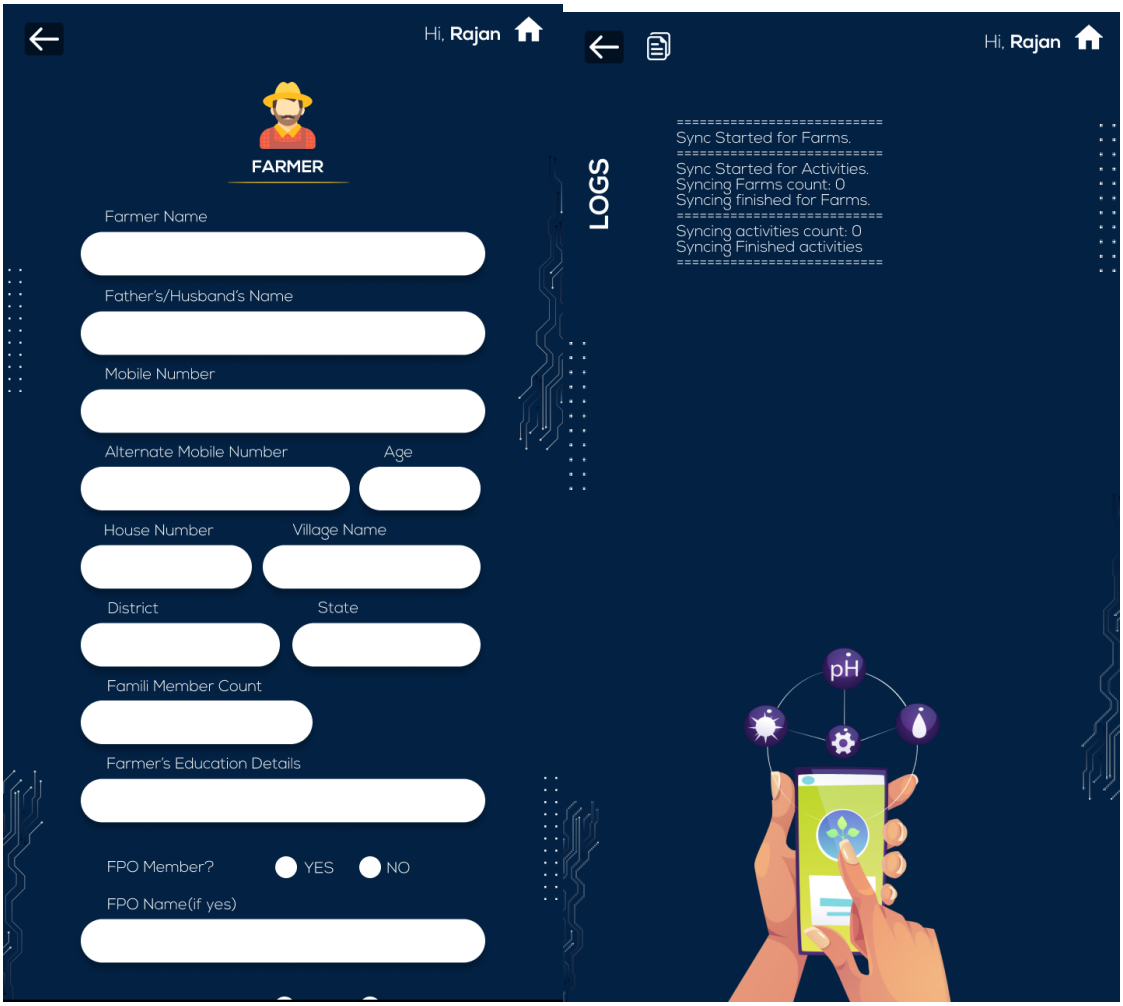
Shadwa
Rahul Kushwaha
Farm Name
MAIZE
Irrigation: NA
Visit: NA
Treatment: NA
Aliganj Farm
Anuj Patel
Farm Name
WHEAT
Irrigation: NA
Visit: NA
Treatment: NA
Shadwa
Bhanu Pratap Manral
Farm Name
STRAWBERRY
Irrigation: NA
Visit: NA
Treatment: NA
ADD DETAILS


Hi, Rajan
ADD DETAILS
FARMER
FARM
CROP
INVENTORY
GAP


Hi, Rajan
Add Farm Activities
IRRIGATION
CHEMICAL TREATMENT
FERTILIZER TREATMENT
ORGANIC TREATMENT



Smart Irrigation in Agriculture: How IoT Takes Ag Tech to the Next Level

These systems **use sensors placed in fields to accurately read the level of moisture in the soil**. Connected irrigation equipment can then use this data to precisely water crops, conserving water while ensuring that plants receive the right amount of moisture at the right time

Vertical Agriculture Roadmap: From Concept to Profit using MOJO

MOJO makes a vertical agriculture business profitable; you should consider several factors that influence ROI: the market size, crop variety, indoor system scalability, and level of implemented technologies. Similar to herbs, leafy greens are always good choices for profitable vertical farming. Leafy greens are easy to grow and there is consistent demand all year round. Lettuce is the most popular choice among all leafy greens., Broccoli, English cucumber and Capsicum which has year round demand in cities, use MOJO to link the stake holders, produce and market them. You need to make sure your production cost is low. So, the first step to ensure this is to pick the right crops. The aspiring vertical farmer needs to do a feasibility study and develop a profitable and sustainable plan. Determining the daily nutrients and lighting use required by each crop is very important.

Mobile Journalism and Citizen Journalists

The term 'Citizen Journalist' has become exceedingly popular in recent times. Newsrooms all over India, in fact, the world, have opened their doors for citizens to report civic,

social, political and, other reader-interest issues. Citizen Journalism has also helped establish vital links between the government and farmers as they offer suggestions to the government through various media platforms. Since it is not humanly possible for reporters to be present at each and every news location whenever a news event occurs, it is the citizens who send reports of the event using their mobile phones. Television news channels have acknowledged the use of footage sent by citizen journalists in many cases, attributing the source.

From company executives to the rickshaw puller, vegetable vendor, daily- wage labourer, everybody can own a smartphone these days. In fact, owning a smartphone has now days has empowered the common people with the ability to express more openly than ever before. This increased access to mobile phones has facilitated citizen journalists enormously to perform their job promptly. They can instantly record the news event and upload it to the web outfits, or news media establishments. However, it is important to be responsible before uploading videos and audios as truth and credibility are essential features of objective and ethical journalism and the same is expected from Mobile journalists too. It is also important to verify, check and recheck the facts under coverage before uploading.

Prospects of Mobile Journalism

It soften said that owning a smart phone is like carrying a portable newsroom. There are several occasions, where breaking news has been flashed using mobile phones and exclusive news stories uploaded on the web from all over the world.

MoJo is gradually becoming popular with journalists, media, and news broadcast organisations because of its various benefits. The work of a journalist has become much easier and faster, thanks to smart phones. The benefits of mobile journalism are that, it is prompt; helps reporters beat deadlines; and is affordable. Also, smart phones are easier to carry, and trained reporters can broadcast breaking news or events from unlikely locations, where broadcast crew find it hard to reach on time.

MoJos have been able to capture shocking incidents and sights while happening and have drawn international attention. Accidents and disasters happen without warning and in such cases smart phones capture the authentic moments of the story. There are numerous opportunities for mobile journalism where videos can capture some historic moments and the same are instantly transmitted to the web. You may recall videos of people or cattle marooned in floods in different parts of the country or landslides taking places in the hills of Uttarakhand captured on smartphones making way in news bulletins.

Smart phones have made the life of reporters easier as they have become 'mobile' in their work and can work independently without being assisted by a large production crew. It is also cost-effective for media organisations as they do not have to hire additional professionals and instead spend funds on modem equipment for improved production techniques.

Mobile journalists can also go to those places where it's difficult to place camera equipments and hold interviews of people who are uncomfortable to face the production

crews. It has been observed that most people are willing to speak in front of smart phone cameras, while they get conscious or nervous in front of professional cameras with large crews. Even from remote places, reporters can use their smart phones to cover news events, without depending on computers or heavy broadcast equipment. The LIVE news-broadcast with the help of a smart phone is generally viewed as authentic coverage, because people trust live reports of news events.

It is important that mobile journalist is first trained on using smart phone for newsgathering, editing and broadcasting, before being sent for field reporting. Once a reporter is trained in MoJo, it becomes convenient to telecast exclusive news from any comer of the world.

TOOLS AND ACCESSORIES of MOJO

While citizen scan record any event ; trained reporters are required to handle the smart phone camera for professionally appreciable results. They are expected to follow the process of news selection and collection as well as ethics of journalism. The following are some equipment required for MoJo:

Equipment Required

Smartphone: Any Smartphone with Ios and Android with good Internet connectivity can be used for Mojo. These days, smart phones, are available with high quality video and audio features.

Tablets: Tablets are also equipped with high quality audio and video facilities to record, so that the news can believe-streamed easily.

Digital Cameras: Digital cameras, like smart phones are light, convenient, and easy to carry. High quality images and videos can be recorded using digital cameras, which can be later conveniently transferred to the computers and/or laptop for streaming online.

Tripod: For stability, a light tripod is required. A tripod-mount is also needed to support the smart phone.

Grips: It is attached to the tripod to move the camera around as you film.

Microphones: A clip-on microphone is usefull in capturing audio in an environment where it's noisy and windy.

Video Light: All smart phones come within-built camera lights, but using

An extern. Alight is also crucial for better results. However, natural light gives good results while shooting out doors, compared to artificial lights.

Power-Bank and Extra Batteries: Smartphone batteries do not last long when it is used for shooting videos Therefore, it is always advisable to carry a power-bank and extra batteries for shooting.

Backpack: Alight sturdy back pack is needed to carry all the equipment.

Mobile Applications

Mobile Applications for MoJo are more useful than other audio-video editing applications, which are convenient to learn and use by mobile journalists. In order to master the software, users have to be adequately trained. These apps help in recording, editing and distribution of the news content.

Webcasting

Webcasting is same as the LIVE broadcast of an event with the help of cameras. In webcasting, mobile phone is used to do LIVE coverage of an event with the help of Social media platforms. Facebook, Twitter and YouTube are the popular social platforms where live streaming of videos can be done for news channels and independent reporters. Even mainstream mass media often rely on social media to reach their target audiences.

PRODUCTION ASPECTS OF MOBILE JOURNALISM

Shooting videos for the purpose of journalism has to be taken seriously and done professionally. Reporters have to follow certain rules while shooting and preparing storyboards, with proper sequencing. There are certain production aspects that every trained journalist need to follow to produce quality news content.

Shots

While shooting for news content, it's important to know the shots and present it professionally. A shot is a single photographed scene taken from continuous filming. It is a single piece of action taken by camera. There are several types of shots:

Extreme Wide: It is also known as the 'establishing shot' - to show the viewer the surroundings of the scene being recorded.

Wide: Popularly known as a long shot, it includes a full view of the scene or shows the full body of a person from head to toe.

Mid-shot: A shot framing the person from their head to their knees.

Medium: Medium shots are usually taken during interviews or dialogue sequences. This shot is important to capture the emotion and body language of the participants. This particular shot is aimed at showing the object from head to the waistline.

Medium Close-up: The shot focuses on the face of the subject. It is taken from the head and cuts off around the chest. This shot is also commonly used during interviews with focus on subject and not the surroundings.

Close-up: This shot shows the subject from the head to the neck. The frame is filled with the subjects' face, while it captures the emotions and expressions.

Extreme Close-up: This shot focuses on a particular part of the subject - such as the eyes. It frames only a part of the face to highlight the emotions during the interview.

Two-shot: This shot is often used in interviews to bring into the frame both the interviewer and interviewee.

Over the Shoulder: The shot is taken from behind a person who is taking the interview

of the subject and may also show the interviewer. The shot is commonly cut in between the conversations, alternating the view between the two speakers.

Reverse over the Shoulder: The interviewer's frame is taken from over the shoulder of the interviewee.

Cut-ways: During interviews, extra shots are taken of the hands and eyes engaged in an activity to create variety and give context to certain points in an interview. Cut-ways can be taken for a maximum of 10 seconds because during edit only 3 or 4 seconds will be used for the content.

Overlay: The shot is taken of different scenes from internal and external locations that support the story. Overlay shots are important during edits.

Sequencing and Storyboards

Sequences are important to support the visual narrative of the content. It is a well-established form of narrating the story with a video. Sequences are formed using different types of shots that we have discussed above.

Storyboards or Filming for Editing Shots: Storyboards are graphic illustrations of stories created before any film shot and are used infilm making, documentary making and dramatic films. The drawings are the sequence of shots to make the edit much easier. The series of graphic drawings are also known as filming for edit. It is not possible to create a storyboard for live events, but it’s useful when the story is offline and based on news content. A storyboard will have some of the following information:

Title of the story:

Sl no	Voice-over	Type of shots	Bytes

Those of you who wish to use MoJo professionally should read more in this upcoming area and attend seminars to enhance your skills to become successful professional MoJos.

CHALLENGES OF MOBILE JOURNALISM

With the advent of 2G, 3G,and 5G technologies in India, mobile companies are producing high-end smart phones at affordable costs. The prices of smart phones are quite competitive and consumers have wide choices to pick and choose the brand of their preference. Let's discuss some of the challenges faced by MoJos.

Several technological, financial and logistical issues may arise while shooting with mobile phones. Some of these are listed below:

Battery Related: The average life of smart phones battery is low, especially while shooting. In order to avoid abrupt disconnection in the mist of important shoots of an

event, it is advisable to carry extra batteries and chargers. Solar batteries can be used to prevent such challenges. A power bank can also be helpful in such situations.

*Quality of Shots (*4K or HD): Mobile Journalists should be familiar with the quality and standard of shots, because whatever the medium of output is, it is highly important to shoot with 4K or high definition cameras. 4K is also known as ultra HD, its dimensions are 3840 x 2160 pixels. It is called 4K because its pixel size is four times the resolution of HD that has pixel size of 1920 x1080 pixels. While shooting with mobile phones, the format should be set before the shoot commences. While buying mobiles phone, it is important to check for high-resolution camera phones.

Internet Related Issues: In spite of the fourth generation 4G-network connectivity, sometimes due to poor network, journalists have to face problems in broadcasting live news content. While covering a live event or managing live chats, uninterrupted Internet connectivity is very important. If there is no Internet connectivity, it becomes very difficult to execute the job.

Reporting Challenging Situations: Mojos may face uncertain situations. For example, while covering protest demonstrations or riots where police or agitators indulge in violent clashes, police may resort to using water canon to thwart the agitators. The reporters could become victims of such circumstances in which expensive reporting equipment and smart phones, could get damaged, or even destroyed. In order to safeguard one's equipment and gadgets during such situations it is advisable to cover the smartphone with a waterproof casing. Se1fie sticks and mobile tripods should also be taken adequate care of.

Additionally, reporters may not able to send live feeds to their stations. If there is no connectivity, reporters can look for a place where there is Broadband connection or a Wi-Fi facility. If reporters are not able to send live feeds, they can record the events and send the tapes or the clips at a later stage, when internet connectivity is restored.

Theft of mobile phones: In the event of theft, valuable inputs and news recordings already collected may get lost; therefore, it is always advisable to keep mobile phones safe to avoid theft or loss. The recording should be transferred to Google drive or saved in a pen drive. An extra mobile phone helps during emergency situations.

Quality and Cost of Smart phones: The prices of smart phones are currently very competitive; but the quality of cameras can often be compromised. Smart phones are designed to be user-friendly with diverse inbuilt applications which feature advanced audio-video settings. People can shoot images and videos and share them with the social media subscribers, thereby becoming active social media reporters and citizen journalists. While the common people have the freedom to choose any smart phone, MoJos should not compromise on the quality of cameras. They should survey the market before opting for a brand of smart phone that is equipped with an inbuilt high-resolution camera and supports the apps needed for production and editing.

MOJO in Digital Marketing

A digital marketing agency specialized in agribusiness can offer your company a

number of valuable benefits, including market insight, personalized marketing strategies, improved online visibility, improved brand image and analysis and constant monitoring of your campaigns. E.g., AMAZON, FLIPKART, ARKA VYAPAR, KISAN SUVIDHA, KISAN RATH etc.,

Problems with digital agriculture

Challenges of digital agriculture. Some important challenges include the lack of awareness about the benefits of digital agriculture among farmers and rural residents, inadequate infrastructure and resources, unreliable internet connections, and a lack of skilled professionals.

Conclusion.

Mobile journalism, a form of digital reporting using mobile devices, has demonstrated strengths in creating news content using professional formats and techniques. Advocates of digital agriculture argue that digital tools in farming can reduce the need for chemical inputs, such as pesticides and fertilizers, by enabling more precise application. However, challenges faced by mobile journalists, including issues related to authenticity, credibility, and ethics, were also discussed. While smartphones empower users to capture video footage of events around them, this has led media experts to grapple with the complexities of news circulating without a firm basis or truth. Therefore, it is essential for journalists to adhere to certain criteria. It was emphasized that mobile journalists should view smartphones merely as tools for news gathering and exercise caution in reporting. The report should be accurate, unbiased, and obtained through ethical means, respecting the rules and laws of the land. Seeking permission from relevant authorities is advisable to prevent legal complications..

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CHAPTER 2: FROM NEWSROOMS TO SMARTPHONES: MOBILE JOURNALISM'S (MOJO) INFLUENCE ON JOURNALISM IN INDIA

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Introduction:

Mobile journalism (MoJo) is a form of newsgathering and storytelling that uses smart phones and other mobile devices to produce high-quality journalistic content. It has revolutionized the way news is reported and consumed in India, and has had a significant impact on print media houses in particular.

MoJo began to gain traction in India in the early 2010s in traditional print media, as smar t phone penetration increased and the quality of smart phone cameras and video recording capabilities improved. News organizations began to experiment with MoJo, and soon it became a regular part of their newsgathering workflow.

With the rise of platforms like YouTube and other social media gaining widespread popularity, coupled with India's staggering 650 million smart phone users, media organizations made significant investments in training their journalists in MoJo skills. They provided journalists with essential hardware and software tools and revamped their editorial processes and workflows to seamlessly incorporate MoJo content.

According to a Deloitte study, India will have one billion smart phone users by 2026 with rural areas driving the sale of Internet-enabled phones. After the decline in mobile data prices in India MoJo quickly became popular among journalists in the country, as it offered a number of advantages over traditional newsgathering methods. MoJo was more efficient, cost-effective, and portable. It also allowed journalists to capture stories from a wider range of perspectives and to reach new audiences on social media and other digital platforms.

The Impact of MoJo on Print Media Houses

MoJo has had a number of positive impacts on print media houses in India.

Increased efficiency and cost-effectiveness: MoJo has made newsgathering more efficient and cost-effective for print media houses. Journalists can now report from anywhere, at any time. According to a 2020 study by the Reuters Institute for the Study of Journalism, 83% of Indian journalists use smart phones for newsgathering. This is the highest percentage in the world.

More immersive and engaging storytelling: MoJo has made it easier for print media houses to tell stories in a more immersive and engaging way. Journalists are now using their smart phones to capture high-quality video and audio, and to experiment with new storytelling techniques, including podcasts and video stories.

Wider reach: MoJo has facilitated print media houses in expanding their audience reach. MoJo content is frequently shared on social media and various digital platforms, enabling it to reach a

broader audience compared to traditional print journalism. Print media websites have transformed into fully multimedia platforms, embracing the diverse possibilities of digital storytelling.

New revenue streams: MoJo has ushered in fresh revenue opportunities for print media houses. Some have begun creating and selling MoJo content on subscription platforms. Additionally, many leading print media websites have implemented paywalls due to the high-quality multimedia news content they offer. This shift represents a novel revenue model wherein people pay for access to high-quality news content.

Challenges and Opportunities

While MoJo has had a number of positive impacts on print media houses in India, there are also some challenges that they need to address.

Training and resources: MoJo requires journalists to have specialized skills and resources. Print media houses need to invest in training their journalists in MoJo skills and in providing them with the necessary hardware and software.

Verification and fact-checking: MoJo content can be easily manipulated and spread as misinformation. Print media houses need to have robust verification and fact-checking processes in place to ensure that their MoJo content is accurate and reliable.

Competition: MoJo has also made it easier for new entrants to the media industry to produce high-quality content. Print media houses need to compete with these new entrants by producing innovative and engaging MoJo content.

Opportunities: Despite these challenges, the opportunities that MoJo offers to print media and all other traditional media houses in India are significant. MoJo can help them to produce more engaging and immersive content, to reach new audiences, and to stay competitive in the digital age.

The Future of MoJo in Indian Journalism:

In the vast landscape of Indian journalism, Mobile Journalism (MoJo) stands at the forefront of a transformative wave, reshaping how news is gathered, produced, and consumed. As India rapidly embraces digital technology, MoJo is poised to revolutionize journalism in the country, promising a future where storytelling is not confined to traditional media houses but extends to the palms of every individual with a smartphone.

In 2021, India boasted a staggering 1.2 billion mobile subscribers, out of which approximately 750 million were smart phone users. According to Deloitte's 2022 Global TMT predictions, the country is on the verge of becoming the world's second-largest smart phone manufacturer within the next five years.

The expansion is anticipated to be primarily driven by the rural sector, with a compound annual growth rate (CAGR) of 6%, in contrast to the urban sector, which is expected to grow at a CAGR of 2.5% from 2021 to 2026.

Empowering Citizen Journalism:

MoJo blurs the line between professional journalism and citizen reporting. In a country as diverse and vibrant as India, citizen journalists can capture local stories that might be overlooked by mainstream media. With just a smart phone, anyone can become a storyteller, highlighting issues that matter within their communities. This grassroots approach not only democratizes information but also fosters a sense of civic engagement among citizens.

Multimedia Storytelling:

The future of journalism lies in multimedia storytelling, and MoJo is at its epicenter. Journalists can now seamlessly integrate text, images, videos, and interactive elements to create immersive narratives. Visual storytelling, in particular, has a profound impact, resonating deeply with the audience. MoJo enables journalists to craft compelling visual stories, enhancing the overall news experience and making information more accessible and engaging.

Augmented Reality (AR) and Virtual Reality (VR):

As technology advances, the integration of Augmented Reality (AR) and Virtual Reality (VR) in MoJo is on the horizon. Imagine being able to explore a news story in a 360-degree virtual environment or interact with AR-enhanced info graphics that provide in-depth analysis. These innovations have the potential to elevate journalism to new heights, offering audiences an immersive and interactive news experience.

Embracing MoJo becoming MoJo journalists:

Presently, the influence of Mobile Journalism (MoJo) is reshaping the roles within media organizations. The traditional title of a 'reporter' has evolved into 'Multimedia Reporter,' reflecting the integration of diverse media formats. Editorial practices have undergone a significant transformation, prioritizing multimedia elements, particularly visualization, and emphasizing the rapid delivery of stories. Consequently, journalists are now required to produce multimedia content, marking a shift in their skill set and responsibilities.

Effective storytelling lies at the heart of MoJo. Journalists should explore various formats, such as short video documentaries, live streams, and podcasts, to convey their narratives. Interactive elements, like polls and Q&A sessions during live streams, encourage audience participation. Captivating visuals, concise scripts, and compelling narratives are key to creating engaging MoJo content.

The digital landscape is constantly evolving, and journalists must adapt to new technologies and trends. Continuous learning through online courses, webinars, and workshops keeps journalists updated with the latest MoJo techniques and tools. Adapting to changing algorithms and audience preferences on social media platforms ensures content remains visible and engaging. Embracing feedback and analyzing audience metrics provide valuable insights for improvement.

Mobile Journalism in India offers journalists an unprecedented opportunity to amplify their voices, connect with audiences, and tell impactful stories. By mastering MoJo skills, cultivating a strong social media presence, and upholding ethical standards, journalists can navigate the digital realm with confidence and credibility.

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CHAPTER 3: CONTENT DEVELOPMENT FOR MAINSTREAM MEDIA

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Research organizations serving under National Agricultural Research and Education System (NARES) of the country, such as State and Central Agricultural Universities, research institutes serving under Indian Council of Agricultural Research (ICAR), New Delhi strive to develop need-based technologies, especially varieties and hybrids of agricultural and horticultural crops, breeds of animal husbandry, fisheries and technologies pertaining to natural resource management and agricultural engineering with a main objective of disseminating the same to the needy farmers. The Extension Division of ICAR through its wide spread network of Agricultural Technology Application Research Institute (ATARI) and Krishi Vigyan Kendras (KVKs); and development departments of Ministry of Agriculture and Farmers Welfare etc., try continuously to disseminate such technologies among the farming community for their wider adoption. KVKs and development departments involve themselves in such technology dissemination through various modes of transfer of technology, of which, one of the major modes of transfer of technology is communicating the information about such technologies is through mainstream media, mainly, newspapers, radio, television and social media. These channels carry the treated messages about the agricultural technologies to the farmers in their own style to the intended audience, especially the farmers.

Out of these major channels of mainstream media, the newspaper and news magazines are distributed in a printed form and hence the news need to be comprehended by the farmers to move towards taking any desirable action for adoption of the disseminated technology. The other three components of the mainstream media such as radio, television and social media constitute the electronic media. When radio needs listening skills of the farmers before comprehending the technologies disseminated, the television and social media involves audio-visual skills of the farmers to understand them. Since, differential viewership and readership behaviour has to be exhibited by the farmers, content development for all components of mainstream media, varies drastically. Different set of skills are required by the subject matter specialists to treat the message to suit the requirements of these media and such skills can be mastered through experience and continuous practice. This chapter of work, tries to explain the various techniques that were used by the media personnel to effectively communicate through mainstream media listed above, so that the extension professionals of SAUs and ICAR organizations may understand and appreciate such techniques and also can use these media in an effective manner to disseminate the technologies developed under NARES..

Writing for Newspapers

Considerations for ‘art of writing’ for newspapers

The following are the points to be considered, while writing information about agricultural technologies through newspapers:

- "Allowing a considerable degree of participation by the readers (reading, imagining, interpreting, discussing and decision making etc.)", imply that for allowing the readers for their effective participation, the writing has to be so effective and attractive.
- "Serving a diverse readership (differences in literacy, age, gender, profession, purpose etc.)" imply that as such the literates, neo-literates and highly educated readers, women, men, youth etc., read the newspapers and they consume information about agricultural news. In order to satisfy the needs of such diverse readers will be a challenge and answer such challenge, the information has to be a complete one.
- "Compelled to emphasize on "depth" and "interpretation" of news", imply the competition faced by the newspapers from the corners of radio, television and social media.
- The competition from the electronic media, especially radio and television made the newspaper no longer a prime news medium. Hence, the writing through newspaper about agricultural technologies should provide information about impact created by the respective technologies under real farm situations.

Types of articles written in newspaper

There are two types of articles are written in newspapers as follows:

1. **News story:** A news story is a journalistic, factual presentation of news about current events, typically one presented as a narrative account.
2. **Feature story:** A feature story is distinguished from other types of non-news by the quality and depth of the theme and writing

Format of a New Story

- In order to arouse interest of the readers, there is no need for a definite format, in case of news story is concerned. However, following standard format may enable the farmers and other stakeholders, a clear understanding about the information given across.
- To be effective, in terms of understanding and follow-up by the farmers and other stakeholders, provide a single information/news in an article.
- To invite better follow-up by the stakeholders, write the story with enormous human interest, so that the stakeholders will exhibit positive and immediate follow-up towards the given information.
- However, when you would like to expect immediate and positive follow-up by the farmers, the story has to be substantiated with adequate facts and figures.

The following is the general format of a news story to be written in the newspaper:

- Title
- Punchline
- Lead

- Secondary Lead/ Catch-all paragraph
- Subsequent paragraphs
- End

Title: The title must be in such a way that it must tell the story in short. In order to do so, use active voice and present tense along with catchy verbs.

Eg.

- Indian Institute of Horticultural Research identifies third unique farmer's jackfruit variety for promotion *(The Hindu, 5.7.2023)*
- Berry borer infestation: Coffee Board issues advisory to farmers *(The Hindu, 15.3.2023)*
- Three multi-state societies to procure and distribute seeds *(The Hindu, 11.1.2023)*
- Kalanamak Rice, 'Buddha's gift to people', is now small and strong *(The Hindu, 29.10.2022)*

Punchline

The punchline (PL) accompanies the title and gives a conclusive message. The title and the punch line must tell entire story in a nutshell.

Eg.

1. Title: Indian Institute of Horticultural Research identifies third unique farmer's jackfruit variety for promotion
   PL: The new variety which is bigger in size is deep orange in colour and suitable for processing to make products like jam and squash (The Hindu, 5.7.2023)

2. *Title: Kharif* sowing turns around to rise 1.2%
   PL: Sown area for rice clocks growth for the first time this season; pulses still lagging (The Hindu, 24.7.2023)

3. Title: Govt. hikes sugarcane FRP by ₹10/quintal to ₹315/quintal for 2023-24 season
   PL: This FRP of ₹315 per quintal at a recovery rate of 10.25% is higher by 100.6% over production cost (The Hindu, 28.6.2023)

The Lead

The 'lead' is the first paragraph that catches the attention of the readers honestly. Also, it directs the feeling of the writer to the readers. Usually, the lead is given in two distinct phases. One phase gives maximum impact to the reader and the other one explains the meaning of the story with exact facts and figures. The following facts underlay the importance of the structure of a lead:

- The lead is a story in nutshell
- Gives abstract of the story in a meaningful way
- Determines the shape and tone of the entire news
- Need to spend more time, as it is the most difficult task

- ❖ Make the lead as short as possible
- ❖ A single emphatic sentence will do the job of a lead

Eg.

1. Title: Southwest monsoon arrives in Madhya Pradesh, bringing cheer to farmers
   Lead: The southwest monsoon arrived in Madhya Pradesh on Monday, bringing cheers to thousands of farmers in the state, which is the largest producer of soybean and also a major grower of paddy and pulses. (Mint, 26.1.2023)

2. Title: Indian Institute of Horticultural Research identifies third unique farmer's jackfruit variety for promotion

   Lead: Enthused by the massive response to two farmers' varieties of jackfruit — Siddu and Shankara — which were promoted by it, the Bengaluru-based Indian Institute of Horticultural Research (IIHR) has identified one more variety of jackfruit being grown by a farmer for promotion. (The Hindu, 5.7.2023)

3. Title: Three multi-state societies to procure and distribute seeds
   Lead: The Union Cabinet has approved the setting up of three national-level multi-State cooperative societies to act as an apex body for procurement, processing, marketing and distribution of seeds. (The Hindu, 11.1.2023)

The language of the lead is decided by the following criteria:

- ❖ Word order
- ❖ Voice
- ❖ Verb selection
- ❖ Sub-ordination
- ❖ Attribution
- ❖ Identification

Word Order

- ❖ Construct the sentence, in the beginning and at the end with emphatic words, whereas at the middle of the sentence reserve for less important part.

Eg.

Title: Weekly farmers' markets selling home-grown produce are big hit in Thiruvananthapuram
Lead: Padmaja Gladis looks forward to *Saturdays. That is when she sells vegetables and leafy greens grown at her home*, besides eggs, coconuts, coconut oil and mushrooms among other things, at the farmers' market near Avukkulam Sree Dharma Sastha Temple, *a few kilometres from Powdikonam junction. The homemaker is one of the vendors* at the Saturday market *organised by Haritham Organic Group, a farmers' collective. (The Hindu, 14.4.2023)*

Voice

- ❖ Use Active voice to have stronger and emphatic sentence

Eg.

Title: 'Inji gramam', a new scheme to cultivate ginger in Kulathoor grama panchayat in Thiruvananthapuram, yields a bumper harvest
Lead: An agrarian village well known for its paddy and banana, 35 kilometres from Thiruvananthapuram, is rooting for ginger. For the first time, VK Girijanadhan Nair had to dig up his fields to harvest the fruits of his labour. After growing plantain, coconut and varieties of vegetables on his two-and-a-half-acre plot, this year he added a new crop — ginger. (The Hindu, 17.2.2023)

Verb Selection

- Verb selection should be in such a way that the verb should tell, not only – what happened? but also – how it happened?
- However, 'accuracy' should be kept in mind, while explaining the 'how', i.e. there should not be any place for the exaggeration.

Eg.

Title: Declare floods as national calamity, compensate farmers: Samyukt Kisan Morcha
Lead: The Samyukt Kisan Morcha (SKM), an umbrella organisation of various farmers' outfits, urged the Centre to declare the floods and landslides in north Indian States, particularly in Himachal Pradesh, as a national calamity. The SKM said in a statement here on Friday that farmers should be adequately compensated for the loss they suffered due to the floods. (The Hindu, 14.7.2023)

Sub-ordination

- Frame the sentences, in a such a way that important news angle is covered first and the lesser important news is covered next.

Eg.

Title: Centre rules out an increase in MSP for cotton, but farmers seek more
Lead: While cotton farmers in several States have demanded an increase in the minimum support price (MSP) of the crop, the Centre has said that it is "watching" the cotton production scenario and decide accordingly.(The Hindu, December, 22, 2022

Attribution

- Link the noteworthy statement to an authority
- Factual statements must accompany accurate source

Eg.

Title: Fertilizer scarcity may hamper crop cycle, cautions scientist
Lead: South Asian countries may see fertilizers scarcity in the next crop cycle as a result of the conflict situation in Ukraine and Russia, cautioned Bram Govaerts, Director General of International Maize and Wheat Improvement Centre (CIMMYT) and the Borlaug Institute for South Asia (BISA). (The Hindu, 2.9.2022)

Identification

- ❖ Identification is concerned to referring of persons, places/ organizations, while giving data/ information about the news of huge impact. While doing so, the reader establishes relationship through the news article.

Eg.

Title: Five new varieties to expand India's Basmati platter
Lead: Five new varieties of seeds of Basmati rice, developed by a group of scientists led by the Indian Agriculture Research Institute (IARI) Director Dr. Ashok Kumar Singh in 2020 and 2021, are all set to bring revolutionary changes in the way Basmati rice is cultivated in the country. (The Hindu, 24.10.2022)

Secondary Lead – 'Catch All' Paragraph

- ❖ Write the next emphatic story to the lead as a second paragraph
- ❖ Lead and the secondary lead answers– what, when, where, who, why and how

Eg.

Title: Paddy cultivation sees decline

Lead: The trend of decrease in paddy sowing has continued even as the monsoon season in northern India is in its last legs. According to the data released by the Union Agriculture Ministry on Friday, the decrease in the area of paddy cultivation is 22.90 lakh hectares, 5.62% less that the area covered in 2021.

Secondary Lead: As of now, paddy has been cultivated in 383.99 lakh hectares of area and in the corresponding period of last year it was 406.89 lakh hectares. "Thus 22.90 lakh ha less area has been covered compared to last year," the Centre said. States such as Jharkhand (decrease of 9.80 lakh hectares), Madhya Pradesh (6.32 lakh hectares), West Bengal (4.45 lakh hectares), Chhattisgarh (3.91 lakh hectares), Uttar Pradesh (2.61 lakh hectares) and Bihar (2.18 lakh hectares) are the major contributors for the decrease in the cultivated area of paddy in this kharif season. Meanwhile States such as Telangana (increase of 4.71 lakh hectares), Haryana (0.94 lakh hectares), Nagaland (0.78 lakh hectares) and Gujarat (0.55 lakh hectares) showed an increase in the area of cultivation of paddy. (The Hindu, 2.9.2022)

Developing the story

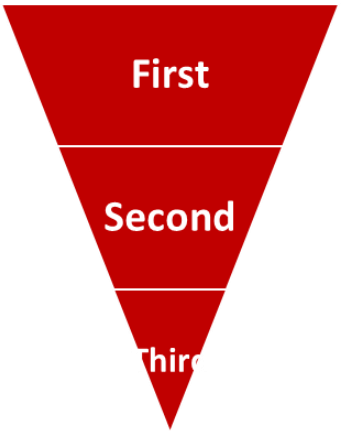
For developing the remaining paragraphs of the story, please follow the following criteria:

- ❖ Follow the order of importance of news pieces
- ❖ Follow to the possible extent, the chronology of events
- ❖ Write 'key words', to give signal to the readers for new ideas
- ❖ Use transitional words to indicate the relationship between one idea to another (Eg.)
    - ❖ Meanwhile

- Nevertheless
- As a result
- In a related action
- Pronoun references to emphasize the subject

- Do ‘Information weaving’ by making the story understandable to the reader

Order of importance for Story Development



Ending the Story

- Give a simple statement that provides accurate perspectives to the news story
- The statement should not be a comment by the writer
- No redundancy of statement should be noticed at the end; If so, manage with emphatic facts

Eg.

Title: Yellow revolution: Mustard farming becomes popular in Kashmir Valley
End: “Echoing the same, another farmer in the UT, Wali Muhammad, is happy to have switched to mustard farming instead of growing grass for animal grazing. "After 12 years, I again sow mustard seeds, which is giving 100 times more returns than grass," he said”. (Deccan Herald, 3.4.2023)

Essentials of a News Story

- Choice of words – brevity and clarity
- Use ‘non-technical’ words
- Use ‘unspoiled words’ i.e. unrepeated words
- Use active voice
- ‘Subordination’ is the key for better understanding
- Sentences should ‘move’ the story forward

- Prepare short and strong sentences
- Avoid ‘faulty relationship’ – always address the ‘subject’, in the sentences
- Avoid ‘false relationship’ – One sentence one idea; not to give two or more ideas in a sentence

Feature Story

Feature story is different from the news story from the angle of depth, meaning and perspective. When the news story informs the readers about the newness of the subject covered, feature story provides additional facts that gives in depth meaning and impact.

The Lead

The lead of the feature story captures the attention immediatelyof the intended readers.

Eg.

Title: Vertical farm cuts energy use 75 per cent by using sunlight
Lead: Walking into the newest greenhouse run by vertical farming company Eden Green on the outskirts of Dallas, Texas, I am greeted by floor-to-ceiling walls of lettuce. The greenhouse is warm, bright with sunlight and busy with workers tending to the more than 300,000 heads of romaine, butter head and red oak growing in hydroponic pots. (New Scientist, 7.4.2023)

Story Development

- In feature story, ideas are given in a way that one idea is given in one sentence/ paragraph; and the ideas are given for the follow-up by the readers, especially the farmers
- Hence, while writing the feature story, ‘empathy’ of the readers should be kept in mind. The story of the feature story has to be written in such a way that how the reader wants to read the story.
- The story has to be written in such a way that it should be able to keep the interest of the audience throughout the story. Hence, in each and every idea, the impact of adoption of the given idea, has to be explained to the reader.
- Further, all the techniques that are explained, while writing a ‘news story’ is applicable to that of ‘feature story’ also.

End of Story

The ‘end’ of the feature story must provide lasting impression about the story and the idea/ideas told in the story with facts and figures. The contact details of the references pronounced in the feature story also may be given at the end.

Types of Feature Story

There are three different kinds of feature stories are available, as follows:

- **News feature:** It is a combination of news item of a technology or information and the corresponding explanation for the same given in an in-depth manner.

- **Human interest feature:** It is an in-depth story about performance of a technology or an agricultural output over a larger area, so that the reader will be automatically motivated towards adoption of the particular technology, through aroused motivation.
- **Personality feature**: Personality feature is about narrating a personality who adopted the technology or invention and the impact accrued to him, so that the readers from the same agro-ecological situation will be motivated towards adoption of such technology.

Writing for Radio

Characteristics of Radio as a Medium

- **Aural medium:** Hence, only one sense of the reader is utilized to disseminate the information about inventions and technologies, which must be kept in mind while writing the script.
- **Time bound:** Since, only one sense of the readers is involved, the programmes must be organized with the objective of giving well-treated message in a shot span of time.
- **Spoken words**: Well-planned script must be used, as the reader cannot refer back the programme.
- **Feel of human presence:** The presenter or the host of the programme should create his voice signature through his programmes, so that the readers must be able recognise the feelings conveyed through the voice of the presenter.
- **Personality of speaker:** The voice signature of the speaker must create a positive impression about the speaker in the minds of the listeners. Thus, all the programmes hosted by such speaker will be well received by the listeners.
- **Represents the location:** The jurisdiction of the radio broadcasting is limited to a locality. Hence, the programmes must talk about subjects that represents the locality, so that the listeners from the same locality, will be able to appreciate the information broadcasted.

Challenges of Writing for Radio

- Radio listening is no longer a free time activity. Hence, the programme must be able to attract and maintain the interest of the listeners
- Since, the listeners are of diverse profile, complete information must be given to the intended audience.
- The speaker must be able to deliver his speech in a language that is familiar among the listeners of the locality.
- Since, radio listening is not a free time activity, the tone of the speaker should be delivered in friendly and informal way, so that the listeners will develop an informal relationship with the speakers.

Basic Elements of Radio

- Spoken Words
- Sound Effects
- Music
- Pause or Silence

Radio Formats (classified based on the 'sound')

With only Spoken Words

1. Radio talk
2. Dialogue
3. Interview
4. Discussion
5. News Bulletin

Spoken Words with Sound Effects

1. Quiz
2. Radio Report
3. Live Commentary

Spoken Words with Sound Effects and Music

1. Radio feature and documentary
2. Radio drama
3. Radio spots (Advertisements/ Commercials)
4. Docudrama
5. Newsreel

Categories of Radio Programmes (classified based on the 'purpose')

For Information

- ❖ News bulletins
- ❖ Programmes on Current Affairs
- ❖ Primary Information Disseminator

For Education

- ❖ Service to Visually Challenged
- ❖ Farmers Educational Programmes
- ❖ Students Educational Programmes

For Entertainment

- ❖ Vivid Bahrathi
- ❖ FM Rainbow/ FM Gold

Tips for Writing for Radio

- ➢ **Research for a Script: how to develop script for a radio?**
    - ❖ Books
    - ❖ Magazines

- Relevant articles
- Subject Matter Specialists
- Primary Survey

- **Attractive Beginning: how to attract the listeners in the beginning of the programme itself?**
  - Open decides fate of programme
  - Don't make a formal beginning
  - Connect to the listener immediately, through friendly statements
  - Create curiosity by telling impactful facts about the theme
  - Touch emotions, by talking about the gains, the listeners will be getting by listening the programme

- **Maintain the Flow of Script**
  - Maintain informal and friendly language
  - Present relevant facts in an interesting manner

Basic Rules of Writing for Radio

- **Use Simple Words**
  - Use easy, simple and common words
  - Write for 'how to speak' not 'how to write'
  - Remember a 'layman' as an audience and write the script

Example

Written	**Spoken**
Adequate	Enough
Anticipate	Expect
Commence	Begin, Start
Conclude	End
Manufacture	Make
Underprivileged	Poor
Purchase	Buy

- **Use Short Sentences**
  - Avoid conjunctions and make simple and short sentences
  - No opportunity for rehearing it, hence make the script with clear, easy and understandable words

- **One Idea per Sentence –** provide only one idea per sentence

- **Avoid Sound Clashes**
    - Avoid ‘difficult to pronounce’ words such as ‘institutionalization’
- **Use Present Tense**
    - To drive home immediacy and urgency, use only present tense

Example

- The monsoon session commenced (commences)
- We have responsibility (are responsible) for quality
- The Prime Minister has inaugurated (inaugurates)

- **Use Active Voice**

Example

- A new Governor was appointed by the President (appoints)
- Ten shops were destroyed by fire (Fire destroys)
- A meeting will be held by the teacher (Teacher will hold)

- **Avoid Stock Phrases, Superfluous Words and Clichés**

Example for Stock Phrases

- Lead from the front – write ‘lead’
- Follow the footsteps – write ‘follow’
- Ground rules – write ‘rules’

Example for Superfluous Words

- Set a new record; died in a fatal accident; holiday period;
- Future plan; it is a true fact; in a week’s time; first priority; past history

Example for Clichés

- Golden words can’t be repeated
- All that glitters are not gold

Precaution while Making the Radio Script

- Print the script in one side of the paper
- Finish a para in a single page; If not at least a sentence in a para
- Don’t write against the code of conduct of the broadcast organization
- Decency of language has to be maintained
- Don’t write against sentiment of any community or disabled people

Writing for Video

Points to be Considered While Writing for Video

- Maximum duration advisable is 15 minutes; hence don’t make lengthy video programmes

- Plan for a lot of visual medium; plan for sequence of scenes with a lot of short shots
- Portion of instructor or speaker should not be more than 20%; hence, plan for other video formats such as interviews, panel discussion etc.
- Assemble as much as number of shots in to a sequence
- Make proper mix of shots: use creativity and novelty in planning the shots to arouse interest of the audience

Tips for Video Script Writing

- For one short video, give one key message
- If several key messages are there, make multiple short videos
- Tell the key message early, viewers will be motivated and informed
- Plan and record lot of visuals with the help of video clips, photographs, charts, tables, animated messages etc.
- Avoid lengthy paragraphs of script
- Instead of giving more facts and figures, show tables, figures, graphs, photos and videos
- Instead of showing continuous and monotonous voice over, include other formats like interviews
- Grab the attention of the viewers through initial shots itself
- Get the viewers engaged throughout the video through creativity and novelty by mixing of different video formats
- Use simple language
- Avoid jargons such as highly scientific or technical words
- Use short sentences
- Read the script loudly to check verbal flow
- Review the script through other experts, so that the mistakes in the script will be pointed out easily.

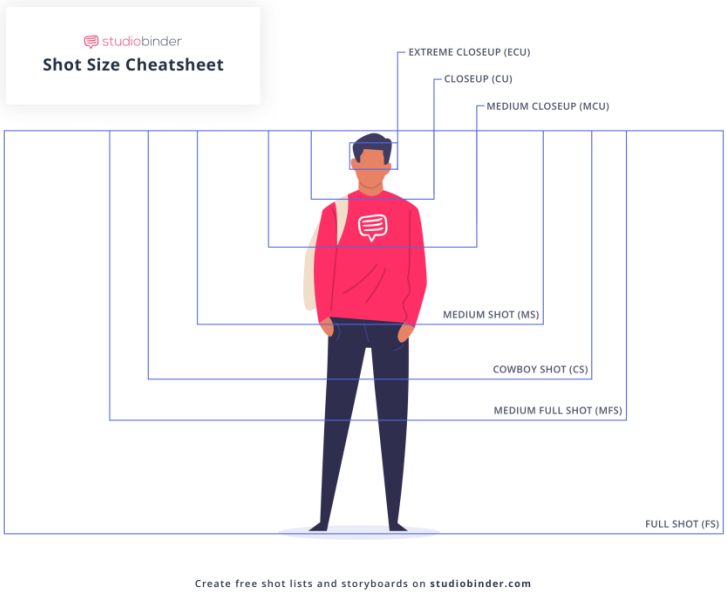
Video Production Approaches

1. Record the instructor's voice with supporting visuals

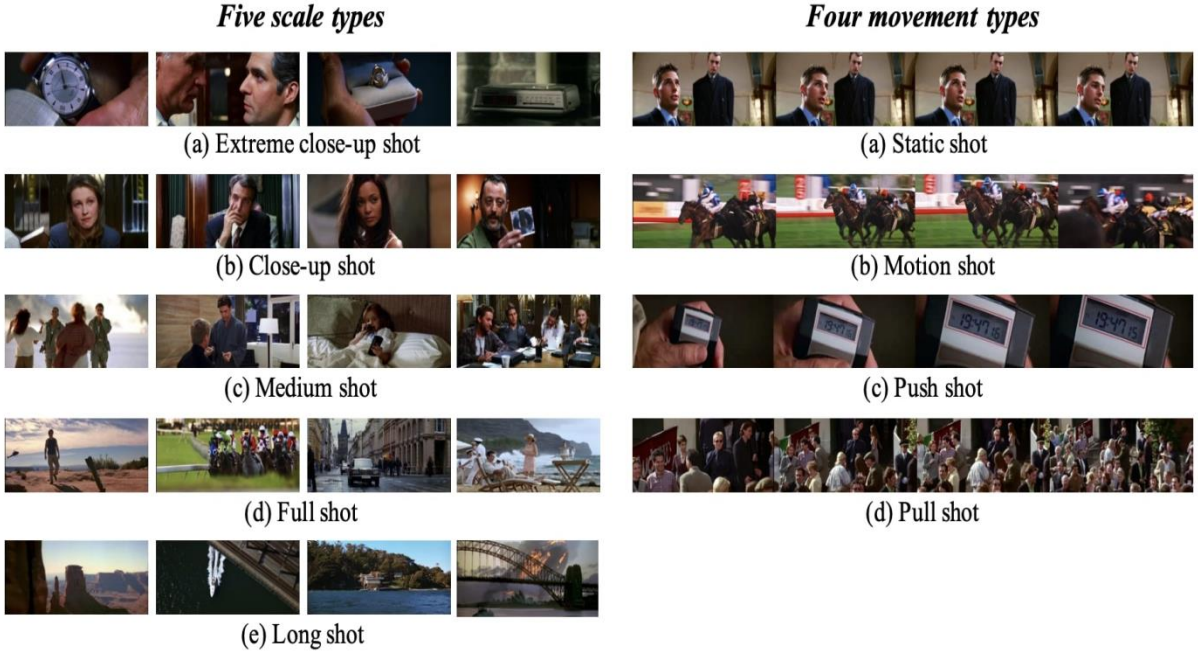
   (or)
2. Visual portion are shot as per the convenience; shots are rearranged during editing; Commentary is recorded separately as 'voice over'

Types of Video Shots

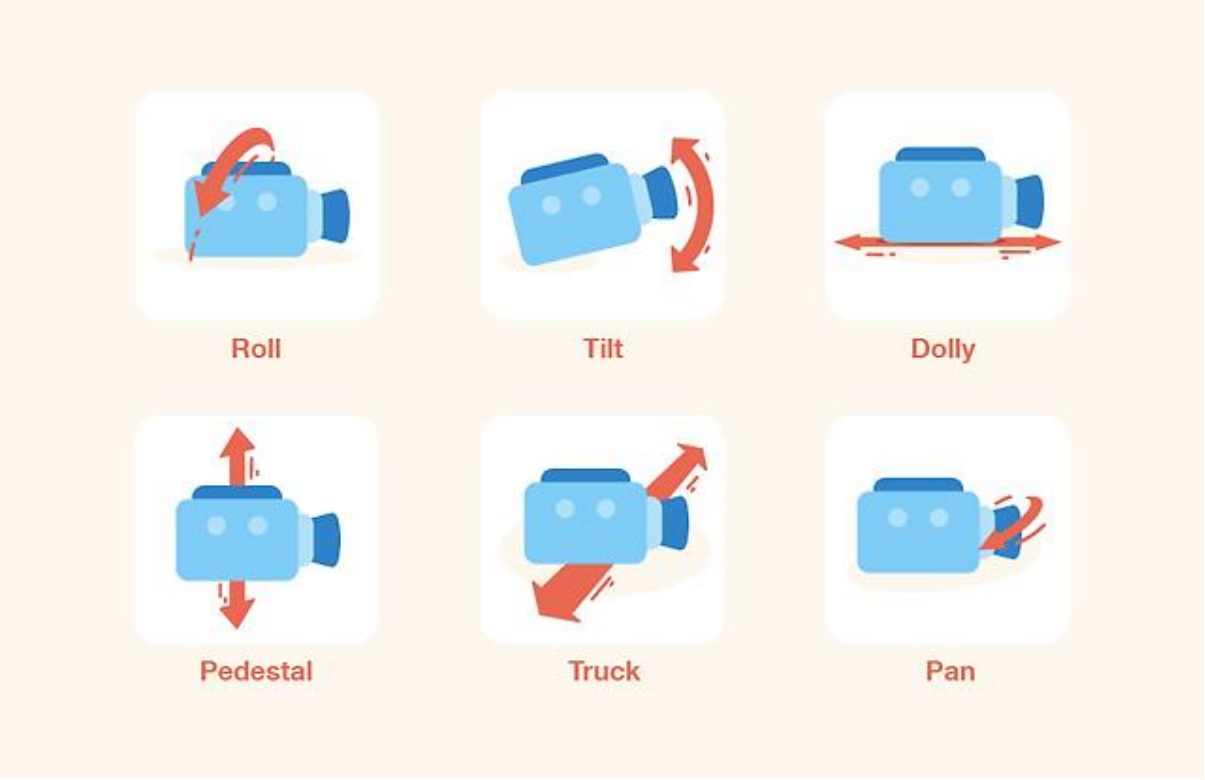
Classification of video shots based on the projection of the subject



Classification of the video shots based on the projection of the subject and movements of camera



Classification of the shots based on the movement of camera



Format for Video Script

Scene/ Shot No.	Type of Shot	Video	Audio	Duration

Writing for Social Media

What is Social Media?

- Web or mobile-based platform
- Enables an individual or organization
- To communicate interactively
- Enables exchange of user enabled content

Need for Social Media?

- Enhanced outreach
- Real time engagement
- Individual interaction
- Managing perceptions

Different Types of Social Media Networks

- **Social Networks:** Facebook, Twitter, LinkedIn
- **Media Sharing Networks:** Instagram, Snapchat, YouTube
- **Discussion Forums:** Reddit, Quora, Digg
- **Bookmarking & Content Curation Networks:** Pinterest, Flipboard
- **Consumer Review Networks:** Yelp, Zomato, TripAdvisor

Characteristics of Social Media

Social Media Types Used in Government Organizations

Social Media Types	Purpose
Social Networking	Chatting, instant messaging, photo sharing E.g. Facebook, Orkut and LinkedIn
Blogs	Descriptive content created and maintained by individual users with text, photos, links to other websites. Readers can leave their comments. Blogospheres can be used very effectively to gauge public opinion.
Micro blogs	Similar to blogs with typical restriction of 140 characters or less E.g. Twitter
Vlogs and sharing sites	Video blogs or Vlogs are blogging sites that mainly use video as the main form of content supported by text. E.g. YouTube
Wikis	Collaborative website that allows multiple users to create and update pages on particular or interlinked subjects
Slideshare	Presentations in PDF, PPT, Keynote or Open Office Formats can be uploaded
Picasa and Flickr	Photo sharing sites

Ways of Using Social Media by Agricultural Organizations

- Informing programmes and events
- Informing products/ services
- Making regular and periodical advisories
- Sharing publications/ press notes
- Publicity for occurred events
- Advertisements of various nature
- Profile of organizations
- Rules/ regulation/ guidelines

Tips for Writing in Social Media

- Keep the content concrete, concise and catchy
    - Headlines should be creative and compact
    - Body of the content should be informative/ valuable
- Keep quality of write-up
    - Don't use abbreviations/ other short forms of phrases
    - Exclude unnecessary wordings to avoid repetitive content
- Be grammatically correct to maintain professionalism; also increases the ease of understanding the content
- Avoid too much punctuations like exclamatory remarks
- Prepare different types of contents for different platforms
- Adapt to the new social media trends; colourful and impressive display of information through info graphics, memes, videos and pictures
- Keep your content plagiarism free; craft original content; take inspiration but don't copy
- Cite Sources – reliability increases; It increase the interest, curiosity and investments of the readers
- Don't make a promise you can't keep; provide reliable content

Core Values for Using Social Media

Core values	**Do's and Don'ts**
Identity	Publish in first person and use appropriate disclaimer
Authority	Do not comment or respond unless authorized to do so
Relevance	Comment on your relevant area and make relevant and pertinent comments
Professionalism	Be polite, be discrete, be respectful, do not make personal comments against individuals/ agencies, don't politicize professional discussion
Openness	Be open to comments, not necessary to respond to each and every comment
Compliance	Be compliant to relevant rules and regulations, do not infringe on copyright of others
Privacy	Do not reveal personal information about other individuals, do not publish your own private and personal details

Challenges in Using Social Media

Why to use social media-lack of clarity?	Whether to provide information or seeking feedback or generic interaction
Which platform to use?	Which platform to choose and how to interlink these platforms
Who will engage?	Need to authorize a person and information level, as social media demands a deeper and constant interaction
How to engage?	How to create and manage content, what should be the response time and the legal implications

Conclusion

In conclusion, the art and science of content development for mainstream media are pivotal in shaping narratives, informing the public, and fostering societal dialogue. The landscape of

mainstream media is evolving rapidly, demanding adaptability and innovation in content creation. A forward-looking approach involves not only understanding the pulse of the audience but also embracing diverse formats and platforms. As we navigate this dynamic terrain, several guiding principles emerge: a commitment to accuracy, a dedication to inclusivity, and an unwavering focus on ethical journalism. Content developers in mainstream media must harness the power of storytelling, visuals, and technology to captivate audiences and deliver information in compelling ways. The future of content development lies in a harmonious blend of tradition and innovation, where journalistic integrity remains at the core. By staying attuned to audience preferences, incorporating multimedia elements, and upholding journalistic ethics, content developers can continue to play a crucial role in shaping the narratives that define our collective understanding of the world. In essence, the journey of content development for mainstream media is an ongoing exploration, one that balances tradition with the demands of a rapidly evolving media landscape.

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CHAPTER 4: AGRICULTURAL VIDEO PRODUCTION AS DIGITAL PLATFORM FOR TECHNOLOGY TRANSFER

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The paradigm shift in agricultural Communication from Transfer of Technology to a Demand driven Approach has been accompanied by new extension methods implemented through a variety of institutional arrangements involving state institutions, private sector agencies, farmer organizations and farming communities. Information, knowledge and skills for sustainable agriculture can be delivered in a variety of ways: through verbal means, typically involving a trained facilitator, printed materials and Information Communication Technologies (ICTs), including two way ICTs such as mobile phones and the Internet and one way ICTs such as documentary video film.

Among the different sources of mass media, documentary film gains a special status because of its ability to communicate to the two sense organs, viz., eyes and ears, simultaneously and to reach a large section of population even those are living in isolated and remote regions.

Video documentaries are fact-based films designed to be educational, informational and instructional with the use of audio-visual inputs. Video documentary has the advantage of sound and sight that can catch, retain and sustain attention for a long period of time. Films can be stored and are readily available for use at any given time and area. They can also be used repeatedly over a long period of time without affecting the production quality. Since number of extension personnel is getting reduced in recent years, these documentary films are used as effective extension tool for communicating to farmers.

Use of documentary film as teaching extension aid could bring possible changes in knowledge level of the farmers. It helps them to adopt innovations and get better benefits in production and productivity.

Documentary films shared through social media have become most opted source of information by farmers in recent days. These developments have opened up new avenues for improving reach of extension services for the needy farmers and other stakeholders.

Use of Audio-Visuals as communication tool

- Audio-Visual Aids are found to be very effective for the following benefits in communication.
- Convey meaning clearly
- Capture attention, arouse and sustain interest
- Enhance the correctness, clarity and effectiveness of the idea and skills being transferred
- Help in learning more, faster, and with thoroughness
- Help in remembering for a longer period Extension Education, reach more people, irrespective of their level of literacy or language
- Save the instructor's time · Reduce the possibility of misinterpreting concepts
- Supplement the spoken word - the combination of audio and visual stimuli is particularly effective since the two most important senses are involved
- Highlight the main points of the message clearly

Production of a Video / Documentary film

"Successful production of a documentary film requires a comprehensive grasp of the concept, a clear identification of objectives or purpose, and a thorough understanding of the diverse stages involved in video film production."

Certainly, video films are created for various purposes to achieve effective communication. Here are some common purposes for which video films are made:

- To create Awareness
- To advise Farmers
- To educate farmers on scientific information
- For advertisement Promotional activities
- For entertainment
- For dissemination of Information Etc

Video documentation in farming can be a valuable tool for communication, education, and advocacy. Here are some specific areas where video documentation can be beneficial:

1. **Farmer Success Stories:**

   Showcase successful farmers and their stories. Highlighting their achievements, best practices, and the strategies they employed can inspire and motivate other farmers. It provides a platform for sharing knowledge and promoting positive farming experiences.

2. **Technology Stories (New Innovations):**

   Feature videos on the latest agricultural technologies and innovations. This could include advancements in farm machinery, precision agriculture, irrigation systems, and other technologies that contribute to improved efficiency, productivity, and sustainability in farming.

3. **Stories on Critical Issues (e.g., Climate Change/Global Warming):**

   Produce videos that raise awareness about critical issues affecting agriculture, such as climate change and global warming. These videos can educate farmers and the wider community on the impact of these issues on agriculture and explore potential solutions and adaptive strategies.

Video films come in various formats, including dramatic/dialogue versions, narrative styles, panel discussions, static interviews with scientists, and dynamic WALK–THROUGH interviews.

1. **Dramatic/Dialogue Version**

   This format involves creating a video with a scripted dramatic storyline. It often includes characters engaging in dialogue to convey a message or tell a story. It's a common format for fictional films, TV shows, and scripted videos.

2. **Narrative:** The narrative format is a broader category that includes any video with a clear storytelling element. This can include documentaries, short films, or any video that tells a story, whether it's fictional or based on real events.
3. **Panel Discussion:** In this format, a group of experts or individuals with knowledge on a particular topic engage in a discussion. It's a common style for videos aimed at presenting multiple perspectives on an issue or sharing insights from various experts.
4. **Static Interview of Scientists:** This format involves conducting interviews with scientists or experts on a specific subject. The interviews are typically shot in a static or fixed position, focusing on the person providing information. This format is effective for conveying in-depth information on scientific topics.
5. **WALK–THROUGH Interviews:** This format involves conducting interviews while walking through a particular location or setting. It adds a dynamic and visually interesting element to the interview. It's often used in documentaries or interview-style videos to keep the audience engaged. Each of these formats serves different purposes and can be effective in conveying information or telling a story.

The choice of format depends on the goals of the video, the nature of the content, and the target audience.

Important elements of video film for effective communication include 1. Attractive voice narration, 2.The use of the most relevant visuals to the content 3.Engaging graphics or animation, subtitles for accessibility 4. Background music and sounds to enhance the viewing experience 5. Incorporation of emotional elements to connect with the audience on a deeper level.

Certainly, video film production involves several stages, often organized into a step-by-step process. The specific details may vary depending on the project and the scale of production, but here are the general stages of video film production.

Different stages of video film production

Pre-production	Production	Post production
1.Planning(Timeline, Production Team) 2.Developing concept 3. Research 4.Gathering relevant Information 5.Story board preparation 6.Video Script preparation	1.Identification of locations 2.Selection of camera and equipment 3.Identification of resource person for interviews 4.Preparation of Shooting Schedule 5.Recording of visuals and interviews	1.Preview of recorded video footage 2. Script finalization 3.Collection of Graphics, stock photos 4.Selection of Background music 5.Voice recording & editing 6.Video editing 7. Preparation of Master film

Guidelines for video shooting provide practical advice for capturing high-quality footage.

- Indeed, shooting in the morning or evening sunlight, often referred to as the "golden hours," is considered highly favorable for capturing the best shots.
- Avoid Shooting in Unfavorable Weather conditions like fog or cloudy weather
- Midday sunlight can be harsh and create unflattering shadows.
- Always use a tripod or gimbal to avoid shaky visuals.
- Your preparations for shooting encompass essential aspects that contribute to a well-organized and effective production.
- **Location Observation:** Observe the location from different angles to understand the lighting conditions, potential obstacles, and the best perspectives for capturing shots. **Position Selection and Listing:** Identify the best positions for filming and create a list. This includes considering lighting, background, and overall composition. **Interview Background:** Ensure that the background for interviews is appropriate and enhances the visual appeal. Consider factors such as lighting, composition, and relevance to the content.

- **Interact with Resource Persons:** Communicate with resource persons to confirm their availability and discuss the visuals required for the shoot. This ensures alignment with the script or concept.
- **Shot Planning:** Plan the shots according to the script or concept. This involves determining the sequence of shots, camera movements, and any specific framing requirements.
- **Avoid Date and Timings on Visuals:** Ensure that the date and timings are not recorded on visuals unless intentionally included for context. This helps maintain a professional and timeless quality to the footage.
- **Lens Cleanliness:** Check and clean the camera lens to avoid any distortion or artifacts in the footage. Clean lenses contribute to clearer and more professional-looking visuals.

These preparations reflect a comprehensive approach to ensuring a smooth and successful shooting process. By paying attention to details such as location assessment, shot planning, and equipment maintenance, you increase the likelihood of capturing high-quality and visually appealing footage.

Various types of video shots that filmmakers use to create visually engaging and dynamic content. Let's briefly describe each of them:

Close-ups: Focuses closely on a subject, often capturing facial expressions or details. Close-ups create intimacy and highlight specific emotions.

Steady Shot: A stable and smooth shot achieved using stabilization equipment like a steady cam or gimbal. It provides a steady and controlled view of the scene.

Pan Left/Right: The camera swivels horizontally from one side to another, capturing a wide view. This technique is commonly used to follow action or reveal a new part of the scene.

Zoom In/Out: Adjusting the lens to make the subject appear larger (zoom in) or smaller (zoom out). Zooming can be used for emphasis or to provide context.

Wide/Tight Shots: Wide shots capture a broad view of a scene, while tight shots focus on a specific subject, providing a closer and more detailed view.

Tilt Up/Down: The camera tilts vertically, moving upward (tilt up) or downward (tilt down). This technique is often used to reveal or follow a subject.

Low Angle: Captured from a lower position looking upward, emphasizing the subject's power or importance. It can create a dramatic and imposing effect.

High Angle/Top Shot: Captured from a higher position looking downward. This can be used to show vulnerability, insignificance, or to provide an overview of a scene.

Aerial View: Shot from an elevated position, often using drones or other aerial platforms. Aerial shots provide a unique perspective and are commonly used for landscapes and establishing shots.

Wide Shots: Captures a broad view of a scene, providing context and establishing the setting. Wide shots are often used as opening shots or to transition between scenes.

Each of these shot types serves a specific purpose in visual storytelling, contributing to the overall narrative and impact of the video. Skillful use of these shots enhances the viewer's experience and helps convey the intended message effectively.

Text to speech (TTS).

The integration of artificial intelligence (AI) in mobile technology has led to the development of advanced applications for converting text to voice, often referred to as text-to-speech (TTS) applications. These applications leverage AI algorithms to produce more natural and human-like voices, enhancing the overall quality of narration.

When choosing a text-to-speech app, consider factors such as language support, voice quality, and additional features that may enhance your user experience. Additionally, some

devices and operating systems come with built-in text-to-speech functionality that you can explore

Here are some popular ones:

Google Text-to-Speech,

Natural Reader:

Talk Free

T2S

Voice Aloud Reader

Narrator's Voice

Text to Speech (TTS)

My Voice Etc

Video editing has a diverse range of software options to cater to different needs and skill levels. Here are a few more notable video editing software options:

Video pad, Wondershare

VSDC , You cut

Open Shot, Filmora

Lightwork, Apple iMovie

Hitfilm Express

Apple Final Cut Pro, ETC

These tools cover a spectrum of user needs, from simple and easy-to-use editors to more advanced software for professional video production. The choice of software often depends on the user's skill level, specific requirements, and the platform they are using.

Video Editing:

Creating an effective video film on agriculture with the specified requirements involves a thoughtful approach to storytelling and technical execution. Here's a step-by-step guide based on your criteria:

1. Introduction: Start with the film title, and optionally, include the names of the producer and director. This can be accompanied by engaging visuals related to agriculture.

2.Music: Begin with folk music to capture the audience's attention. Use it sparingly and strategically, either at the beginning or intermittently to maintain interest.

3. Voice Narration: Use clear and dominant voice narration throughout the film. Ensure that the voiceover is louder than the background music to maintain clarity.

4. Video Shots: Select suitable video shots from your gallery and place them on the video track. Pay attention to the sequence and flow of shots to complement the narration.

5. Bytes/Interviews: Integrate short bytes or interviews (30 to 40 seconds) strategically between the narration to provide real-world insights. Ensure that these interviews align with the overall narrative.

6. Text and Graphics: Incorporate text where necessary, especially for statistics. Use visible colors, high contrast, and an appropriate font size for readability.

7**. Maps, Graphs, Animations:** Use maps, graphs, and animations if they enhance the storytelling. Ensure that these visuals are relevant and contribute to a better understanding of the agricultural context.

8. Superimpose Names and Designations: Superimpose the names and designations of the individuals being interviewed or featured. This adds credibility and context for the audience.

9. Smooth transitions For technical stories, focus on smooth transitions between shots. Avoid flashy effects that may distract from the technical content.

10. Background Music to Narration: Add background music to the voice narration but avoid melodies that may compete with the spoken content. Choose music that complements the mood of the film.

11. Credits: Include credit titles at the end of the film. Acknowledge the contributors, crew, and anyone involved in the production.

12. Closing: Conclude the film with a powerful message or call-to-action related to agriculture. Ensure the closing visuals and music leave a lasting impression.

13. Review and Edit: Review the entire film to ensure a smooth flow, proper pacing, and alignment with the intended message. Make necessary edits for coherence.

14. Export and Share: Export the final video and share it through appropriate channels, considering your target audience.

By following these steps, you can create an engaging and effective video film on agriculture, combining visual elements, storytelling techniques, and technical details for a compelling narrative.

Conclusions

Nowadays, farming sector demands planned, systematic and sustainable media intervention strategies for information on latest technologies adopted across the globe. Media is considered very important in enhancing farmers' access to information. Audio-visual media found to be a significant teacher of modern age. Optimum use of documentary films can certainly bring about comprehensive development in agricultural communication. The speed with which information is disseminated today is the outcome of social media intervention. The advent of social media platforms have saved energy and time of farmers and ultimately enhanced their knowledge level. Farming communities appreciate mobile phone as easy, fast and convenient way to learn the technologies and adopt in their farms. The government organizations in agriculture sector, farm universities and media organizations have to work in close collaboration towards developing a need based communication system for transferring technologies in rural areas.

CHAPTER 5: WEB APPLICATIONS FOR DISSEMINATION OF HORTICULTURE CROP PRODUCTION & TECHNOLOGIES

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Introduction

Digital technology will be key to increasing agriculture productivity by delivering recommendations to farmers, based on crop details. Cultivation needs skill and a farmer needs to know when to plant, irrigate, apply fertilizer, protect plants and when to harvest. To remain competitive, the modern farmer often relies on agricultural specialists and advisors for growing population demand. Internet of things based farming provides great benefits which includes optimization of inputs, water usage and treatments. Agricultural system requires the accumulation and integration of knowledge and information from many diverse sources. IT applications solves problems of farmers at doorstep, providing information about various management aspects, improving their livelihoods and bringing awareness. Web application is a cost-effective way of communications channel and is accessed over network using web technology to perform tasks over the internet. For higher productivity in farming an information-based decision-making system is the need of the hour. The end user or farmer must get information at the right time and place.

Mobile Journalism (MoJo) and Agricultural Journalism

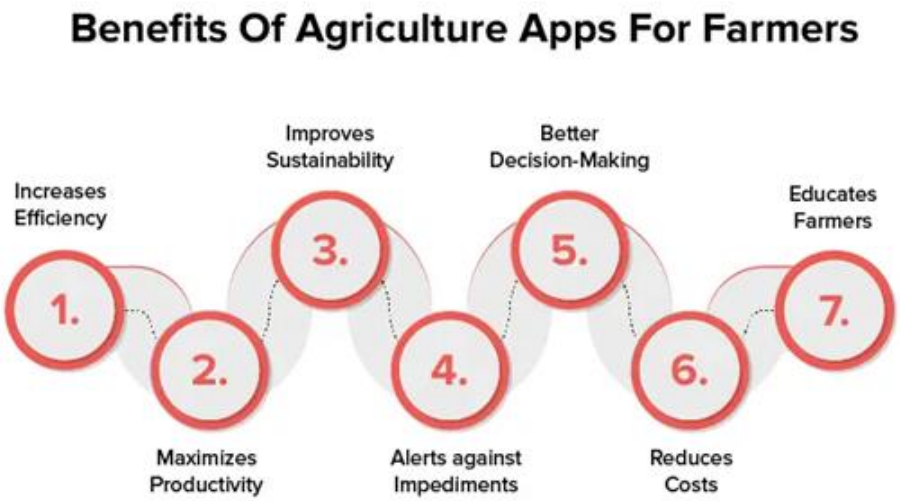
The world has become more accessible and one sector where its application has shown extraordinary results is the **agricultural sector**. It has also led to the metamorphosis of journalism with a change in the ways and methods new stories are produced and disseminated. Digital means of communication is an effective tool to achieve effective and timely communication of agro advisories to the farmers. Agricultural Journalists play an important role in communicating news and information to large group of farmers, agriculture officers and stakeholders in very short time and also strengthening agricultural extension services.

Agricultural Journalism is a branch that deals with the agriculture industry, food production and agriculture-related topics. It plays a vital role in informing and raising awareness among the general public of the latest developments in the fields of agriculture, farming, food production, food security and rural development. Agricultural Journalism serves as a platform to inform and educate farmers, policymakers, and the general public about the latest developments (farming techniques, crop patterns, soil health, and the impact of climate change on agriculture) in the agricultural sector. It also highlights the challenges and opportunities in the agricultural sector and provides solutions to these issues. It's a way for farmers, politicians, and the public to come together, share ideas, and come up with solutions to problems. As agriculture continues to play an increasingly important role in the

global economic landscape, agricultural journalism will remain an essential resource for informing and educating the public.

Importance of Online media in Agriculture

News organizations can now reach people all over the world, regardless of geographic location to reach a global audience. Basic steps to streamline the process of effective mobile journalism: research, write, shoot, edit, geotag, store and socialize. Artificial intelligence can optimize news distribution on digital platforms, provide personalized recommendations, or improve interaction with readers through virtual assistants. The result of Mobile Journalism (MoJo) can be printed on a newspaper or broadcasted on a television or radio channel or streamed as a podcast or published on a web portal. Important effective tool in transfer of technology in the form of videos covering success stories, sustainability, profitability and empowerment. Small duration videos and audios can be shoot and made in the fields, animal sheds, demonstration units and uploaded from anywhere for the larger benefit of farming community. It is said that we believe what we see, thus these videos and online media news ensures higher adoption of the technologies.



Web Applications

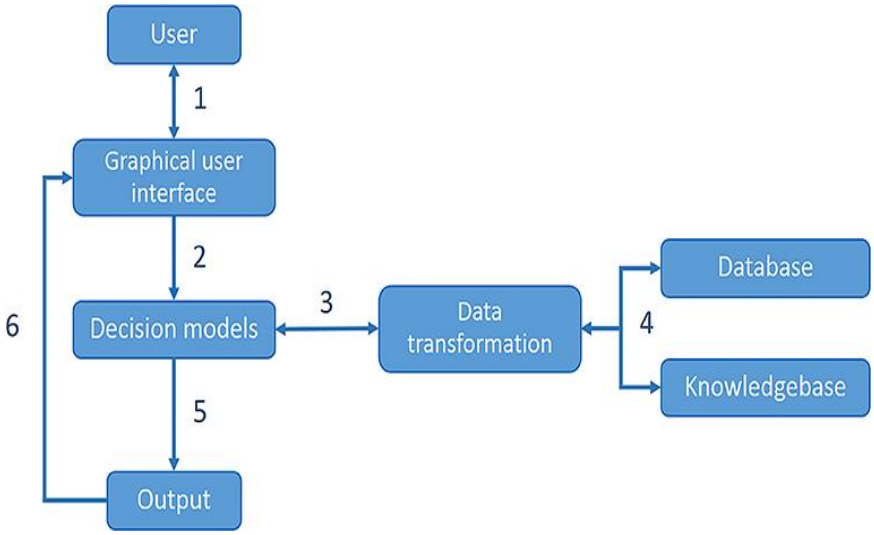
A web application is software that runs in your web browser. It needs a **web server, application server and database**. Web servers manage the requests that come from a client, while the application server completes the requested task. A database stores any necessary information. Developers write most web apps in JavaScript, HTML5 or CSS (front-end). Server-side programming creates the scripts a web application will use. Languages such as Python, Java are commonly used in server-side programming**.** Server-side processes are executed on the web server, while client-side processes are executed on the user's device. Web applications run on multiple platforms regardless of OS or device as long as the browser is compatible. They are not installed or downloaded on the hard drive

since they are accessed through a network, thus eliminating space limitations. However, they have an added advantage of working across multiple platforms, having a broader reach, and being easily accessible from anywhere. Users can access the applications through various platforms such as a desktop, laptop or mobile.

Decision Support System

Decision support systems (DSS) are **interactive software-based systems** intended to help users in decision-making by accessing large volume of information generated from various related information systems. Types of decision support systems: These can be categorized into five types: communications driven DSS, data driven DSS, document driven DSS, knowledge driven DSS and model driven DSS.

To develop DSS in Agriculture system, interdisciplinary knowledge combining different disciplines, accurate collection and recording of agricultural knowledge, list of advice for supporting their decision-making under different circumstances is required. First stage in developing a decision support system (DSS) is the acquisition of data. Information to be collected for developing a well-designed DSS varies from weather data such as temperature, relative humidity; biological data, pest population data and disease symptoms; biophysical data such as plant growth stages; geophysical data like season, climate, soils, etc. survey results, residual levels of pesticides, commodity prices; sensors that measure temperature, humidity, rainfall, leaf wetness, wind speed and direction, etc. DSS can help decision-makers to use models and data and solve defined issues. Most models developed in agriculture system are climate driven. Developing user-interactive content and real-time pest forecasts and management support is very beneficial for the end user thus avoiding unwanted consequences of pesticide applications, providing accurate application times for pesticides, nutrient, and fertilizer. Further with advanced development in technology real-time weather forecasting, irrigation management, market information and geographical information-based systems will maximize the crop productivity, improve decision quality and problem solving.



Web applications developed at ICAR-IIHR, Bangalore

ICAR-IIHR actively disseminates technical knowledge of the research outputs through print media, radio talks, TV programmes and social media reaching out to a number of growers and other stakeholders. The web applications acts as a powerful tool with extensive potential in agriculture and benefitting farmers. At IIHR, Bengaluru, several web applications are developed on horticultural crops; fruits, vegetables (Fruits: mango, papaya, pomegranate, guava, grapes &sapota, and on vegetables crops; brinjal, onion, okra, french bean, watermelon and tomato) and flower crops to disseminate the information.

The front end of the web applications were designed in windows platform using Microsoft web expressions to make it user friendly, with GUI using HTML and CSS scripting languages. With the user interface design the navigation to different web pages is made user friendly and attractive. The home page displays various features for crop cultivation and provides links to different important information such as Crop description, Area, planting, spacing, varieties, propagation, nutrient requirements, irrigation methods, soil & climate and cultural practices on each crop. These crop cultivation and disease and management information were collected from respective divisions and these contents were uploaded to system. Under varieties link, the varieties released by IIHR are given with detailed description and its disease resistance.

Web applications for flower crop management system was also developed covering all major flower crops viz., Carnation, China aster, Chrysanthemum, Crossandra, Gerbera, Gladiolus, Jasmine, Marigold, Rose, Tuberose & Orchids. The Disease diagnosis and management modules helps the farmers to view the various diseases affecting the crop with information on the disease symptoms, its development and management and control measures are provided in the system. Also various pests affecting the crops and its effect on the crop and the management measures are detailed in the application. The developed web applications are available in ICAR-IIHR website where

users can easily access through the web browser.

ICAR-IIHR Seed portal

The Institute is producing breeder seeds and has witnessed a huge increase in the demand for seeds which are sold with the brand name 'Arka'. Hence, the institute have expanded the seed production activities and also has developed ICAR-IIHR Seed portal through which farmers can get quality seeds through online. The portal, having information on seeds of high yielding and disease resistant varieties, and hybrids of 17 crops and 28 varieties developed from ICAR-IIHR for online sale, was made fully functional from 29 May 2020. It also collects data viz., region, district & state through customer registration and validation while signing up. It provides information to farmers about the suitability of crop varieties for different agro-climatic zones. The portal aims to take the institute's quality seeds to even remote places of the country. The productivity of horticultural crops will be increased as the seeds are high yielding and has resistance to several diseases. The online seed portal can be visited at https://seed.iihr.res.in.

QR code:QR codes allow users to access information instantly, hence it's called as **Q**uick **R**esponse code. It is an easy way to access online agricultural information. Every QR code consists of a number of black squares and dots which represent certain pieces of information, for a machine to read. When your Smartphone scans this code, it translate that information into something that can be easily understand by humans. These codes are commonly seen printed on product and food labels that lead to information about a certain item or product when scanned using a smart phone device. For example, from a food product it gives a better idea of what the product is all about, what the brand stands for, the nutrient content information, source etc., QR codes can store various types of information, including alpha numeric text, plain text messages, URLs, contact information, email addresses, phone numbers, etc. It is faster and more intuitive way to direct people to websites than by entering URLs manually. It could be a website, social media account, online menu or registration. QR codes are used for making payment, for accessing social media platforms, sharing contact information, for access control etc.

Artificial Intelligence in Agriculture

Artificial Intelligence technologies can assist in monitoring crops, predicting weather conditions, develop plant protection measures, and derive the ideal growth conditions with input use efficiency.

AI techniques are used in agriculture in the following areas:

- Sensors
  - Soil Analysis
  - Automation of irrigation System
- Camera-Computer vision
  - Drones
  - Pets, insects and diseases
- Robotics
  - Classification of ripe fruits
  - Harvesting
  - Sorting and packing
  - Weed control

  Sprinkler management
- Weather prediction
- Smart Irrigation

Conclusion

Farmers face a lot of problems in agriculture from sowing to harvest and further with post-harvest period and marketing of the product. At farmers' level, productivity and monetary benefitsact as guiding principles while opting for a particular crop/cropping system. The lack of access to reliable and timely information about weather conditions, various management practices is another problem faced by the farming community. Thus a good decision making and information system with the help of advanced technology would provide valuable information to the farmer for his cultivation plans, recommendations for the appropriate use of fertilizers, crop protection measures and marketing strategies. Mobile journalism being one of the fastest growing area in the journalism industry, dissemination of information though smart phones and digital media is the fastest way to communicate to the farming community.

CHAPTER 6: MOBILE APPLICATIONS FOR HORTICULTURAL CROP CULTIVATION

Dr. M.K Chandra Prakash

With the advancement of technology and penetration of mobile phones, mobile apps and services are being exclusively designed for farmers in empowering them and facilitate the extension services that can address the global food security issues. The agriculture industry realizes the need to introduce tech-oriented innovation for providing value to its farmers. Mobile applications in agriculture have become increasingly popular and essential for modern farming practices. These applications offer a range of tools and features designed to help farmers involved in agricultural crop cultivation and enthusiasts improve productivity, manage resources, access information, and make more informed decisions.

Here are some common functionalities and types of mobile applications in agriculture:

Crop Management and Monitoring: Applications that assist in monitoring crop growth, providing information on planting, irrigation, fertilization, and pest control. Some apps use sensors or image recognition to monitor crop health. With the operation of real-time farm data, they are playing a key role in decision-making.

The mobile applications developed at ICAR-IIHR, Bengaluru are available at https://mobileapp-iihr.web.app **- Mobile app on Fruits & Vegetable crop cultivation**

The above Mobile apps are being developed in English and Regional language. Tomato, Onion, Brinjal, Mango, Papaya, Okra, French bean, Pomegranate, Sapota and watermelon cultivation in English language, and in regional languages the following apps are available:

- Tomato, Onion and Chilli cultivation in Kannada language
- Brinjal, French bean, Sapota cultivation in Tamil language
- The Pomegranate and Papaya cultivation in Telugu language

The app is included with crop management solutions and also providing the following features; Crop cultivation aspects, Disease and Pest management, FAQs, Farmers Query submission, Contact Us. In the regional languages, the language content was converted to Unicode format to display local languages in all mobile devices. Theses Unicode scripts were embedded in main program modules to display content in regional languages to cater local famers. The crop cultivation aspects will be benefitting farmers on crop production, disease and pest control measures and different varieties available with its salient features would be useful for efficient cultivation.

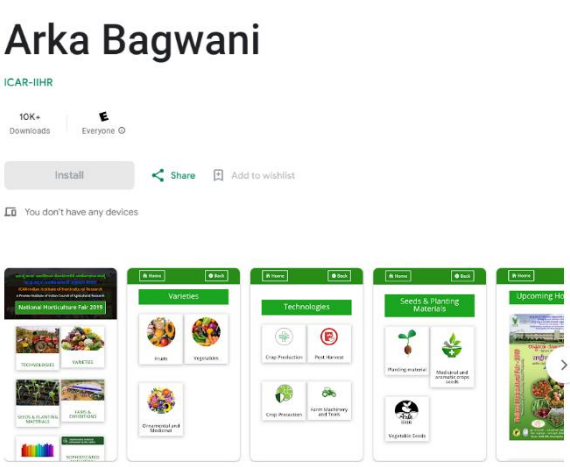
The mobile app for Tomato, Onion and Chilli cultivation app has been developed in Kannada language and Brinjal in Tamil language to cater the need of local farmers are displayed above. These apps are integrated with consolidated mobile app for fruits and vegetables developed for smart phones which could be installed from Google play store and as well as

from IIHR website.

The Mobile app was designed using Java script and jQuery codes for various modules of the app. The UI was designed to accommodate various Sizes of Digital Gadgets. Disease and Pest management: The dynamic sliders developed using jQuery codes embedded with Unicode scripts for Regional languages with main application on Disease and pest management measures. It includes various diseases and pests affecting the crop describing its symptoms and control measures to be taken by the farmers for better management. JQuery codes were developed for scrolling automatically and navigational features of various disease images. On selection of disease, jQuery codes enables to display the relevant information such as disease symptoms and control measures on parent window The crop cultivation aspects viz., Land preparation, Use of Bio agents, Nursery raising and Seed rate, Transplanting, Drip irrigation, Fertilizers and Fertigation, weeding, mulching, IPM and IDM, Harvesting and yield are provided in Kannada language in the application. The Cultivation aspects of Tomato were listed as Expandable and collapsible menu. From sowing to Harvest all process listed sequentially, the up down arrow buttons provides viewing each aspect in same screen.

The Tomato promising varieties cab be filtered based on selection Viz., rainfed, processing, TLCV resistant etc., The filters are listed in Kannada languages based on selection result are displayed. Further, Integrated Disease management modules were developed in local

language at different stages of crops, ex., IDM at Nursery stage, at the time of planting and after planting saplings. Similarly IPM(Insect pest Management) during Nursery stage while planting and IPM in the main field. All these are available as mobile apps link at institute website https://iihr.res.in. The details are provided in regional language for easily understandable language to cater local farmers. Further, the IIHR released varieties and hybrids with salient features are included, the other promising varieties and hybrids details are also included in the app on selection of the specific crop.A query window for farmers related to crop cultivation is available to post the cultivationproblems on above specified crops in regional language. The module designed to accept locallanguage as query input for the cultivation problems. All these farmers queries are received bymail and reply will be communicated by Email by domain experts. The application has been hosted in Google firebase cloud application. As the apps are available in Google Firebase Cloud it could be universally accessible throughout the year across the world.



ICAR-IIHR, Bangalore has designed and developed mobile app; Arka Bagwani to increase the visibility and client connectivity for instant information. The app provides information on varieties, technologies, success stories, seeds & planting material available for client's support. It also provides link to an online system – 'Sophisticated Analytical Instrument Facility' (https://saif.iihr.res.in) developed by the Institute for use by scientists, teachers, government institutions and private companies across India, Horti advisory for the benefit of farmers and the list of technical/extension bulletins released by the Institute. The app is simple and user friendly with continuous up gradation capability and have options of android /IOS mobile operations.

Conclusion: In conclusion, the integration of mobile applications into horticultural crop cultivation represents a significant leap forward in precision farming and resource management. The advent of these applications has streamlined various aspects of cultivation, offering farmers real-time data, insights, and tools at their fingertips. Mobile applications for horticulture facilitate more informed decision-making, allowing farmers to optimize water usage, monitor crop health, and implement precise pest and disease control measures. The accessibility of these applications empowers farmers, regardless of their location or technological expertise, contributing to increased efficiency and productivity in horticultural practices.

CHAPTER 7: ARKA SAMACHAR FOR YOUTUBE BROADCASTING, STREAMING ON MOBILE

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The use of mobile extension (m-extension) has enabled effective communication between farmers and extension scientists/workers and ensures that technology transfer continues in the absence of face-to-face communication. The aim of the mobile agro-advisory services is to complement and extend existing extension efforts, and to reduce the time lag in dissemination from research system to client system thus further empowering farmers to solve their everyday farming problems. The mobile revolution in the country is a powerful digital intervention that has empowered people and systems alike in achieving efficiency, viability, inclusiveness and sustainability which emphasizes the need for a "digital revolution" to usher in an "income revolution" in agriculture. ICAR Institutes, KVKs & ATARI have tapped full potential of different Information and Communication Technology (ICT) tools including Expert Systems and Mobile Apps, and provided advisories on appropriate crop management technologies to address farm challenges during the lockdown and supported farmers and farm women. It was documented that more than 5.48 crore farmers have already been reached through the issue of 1,126 advisories across the states by Krishi Vigyan kendras (KVKs) through m-Kisanportal. Dissemination of advisory was also made through WhatsApp groups (4893 KVK WhatsApp groups covering 5.75 lakh farmers) and other digital platforms (reaching 8.06 lakh farmers). 936 News items on advisories issued by KVKs appeared in newspapers; messages were disseminated through broadcast of 193 radio talks and 57 TV programs. (*e book:* ICAR initiatives during COVID-19 pandemic. 2020). Hence it is evident that e-extension models are effectively proving their worth in the difficult situations to reach the farmers rapidly.

An exclusive YouTube channel for diffusion of ICAR-IIHR, Bengaluru technologies: "Arka Samachar" would act as a channel comprising information on all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to assist them in developing their own technical and management skills and practices in horticulture production and processing, so as to improve their livelihoods and well-being. Arka Samachar being disseminated in 7 different vernacular

languages is a combination of personalized and ICT based extension approach due to the presence of human element called extension expert who handles ICT tools to link farmers and experts for the purpose of technology transfer. All news pertaining to IIHR Activities, services, research, education, training, weather forecasting, Government Schemes, exhibitions, fairs/melas etc, will be broadcasted through youtube and available on mobile for all the stakeholders.

Stages of Arka Samachar Production

1. Pre-Production

- Planning - (Timeline, Production Team)
- Developing concept
- Research
- Gathering relevant Information
- Story board preparation- (By developing Seasonal Calendar)
- Video Script preparation

2. Production

- Identification of locations
- Selection of camera and equipments
- Identification of resource person for interviews
- Preparation of Shooting Schedule
- Recording of visuals and interviews

3. Post-Production

- Preview of recorded video footage
- Script finalization
- Collection of Graphics, stock photos
- Selection of Background music
- Voice recording & editing
- Video editing
- Preparation of Master film –Arka Samachar

What to consider in developing writing materials for farming community?

- Educational objective
    - Whether you wish to change his knowledge, skill /attitude
- Educational task
    - Whether it is intended to be distributed to the whole world, nation, state, district, village
- The people to be reached
    - Farmers
    - Extension workers
    - Para extension workers etc

Characteristics for writing for farming community

- Accuracy (correctness)
- Brevity(brief)
- Clarity (clear)
- Concise(summarizing a lot of information)
- Consistent
- Avoid exaggeration

Steps to develop the material for Arka Samachar/any mass media

- Collect additional information for the topic/content to be covered
    - **Research-Write-Shoot-Edit-Geotag-Store-Socialize**
- Discuss with your colleagues/peers /scientists/extension workers and even farmers if feasible to whom it is intended
- Decide the style

Factors to be considered to decide the style

1. Quantity of the material after treatment

i. If your material has a wide applicability then think of popular article/feature story

ii. If it is immediate value to farming community then think of mass media video production, radio talk or TV talk

iii. If material is little then think of folder or a leaflet

iv. If the material is around 3-12 pages then go for a pamphlet

v. If it is a voluminous material then think of a bulletin

2. Time availability

i. Mass media video production, radio talk or TV talk involves preparation &takes time and is it worth the efforts?

ii. Whether the time put in earns him the recognition/prestige/promotion/award

iii. Above all useful to the farmer and satisfaction to the scientist

iv. If the material is for farmers/extension workers then better let it be in local language

3. Treatment of the material

i. Avoid generalizations
ii. Decide style and type of material
iii. Collaborate with institute staff/extension workers/farmers
iv. Include state and central govt organizations too see how they develop similar materials
v. Indicate exact action the farmer have to do e.g.., use 5kg Furadon granules before 15th January for Rabi sorghum
vi. Avoid vague statements like disease resistant breed helps, take preventive measures, sow in the optimum period

Readability

- Readability refers to the ease with which a written text can be understood by its target audience.
- A readability index, or readability score, quantifies how difficult a piece of text is to comprehend.
- These indices often use various factors such as syllable count, word count, and sentence length to determine a text's readability.

How to test the readability? And what is it?

- A written material is readable if it can be read by the intended users
- A good readability is that the reader(farmer/extension worker) feels interested/pleasant
- Less of scientific jargons/difficult words-more the readability
- Easy sentences/ and lesser words per sentence-better readability
- Active voice increases readability
- Limit sentences to one thought-it increases readability
- Cut useless words and information

Types of Readability Indices

1. Flesch Reading Ease: Developed by Rudolf Flesch, this is one of the most widely used readability tests. The score ranges from 0 to 100, with higher scores indicating easier readability.

2. Flesch-Kincaid Grade Level: This test indicates the American grade level a reader needs to be at to understand the document.

3. SMOG Index: An acronym for "Simple Measure of Gobbledygook," this formula was created by Harry McLaughlin. It focuses on words with three or more syllables to estimate the years of education a reader needs to understand the text.

4. **Coleman-Liau Index:** This formula uses characters rather than syllables to estimate the U.S. school grade level required to understand the text.

5. **Automated Readability Index (ARI):** This uses character counts to predict the grade level required.

6**. Dale-Chall Readability Formula**: Instead of focusing on sentence length and word length like many other formulas, this one relies on a list of familiar words to assess the text's difficulty.

7. Gunning Fog Index: Developed by Robert Gunning, this test estimates the number of years of formal education needed to understand a piece of text on the first reading.

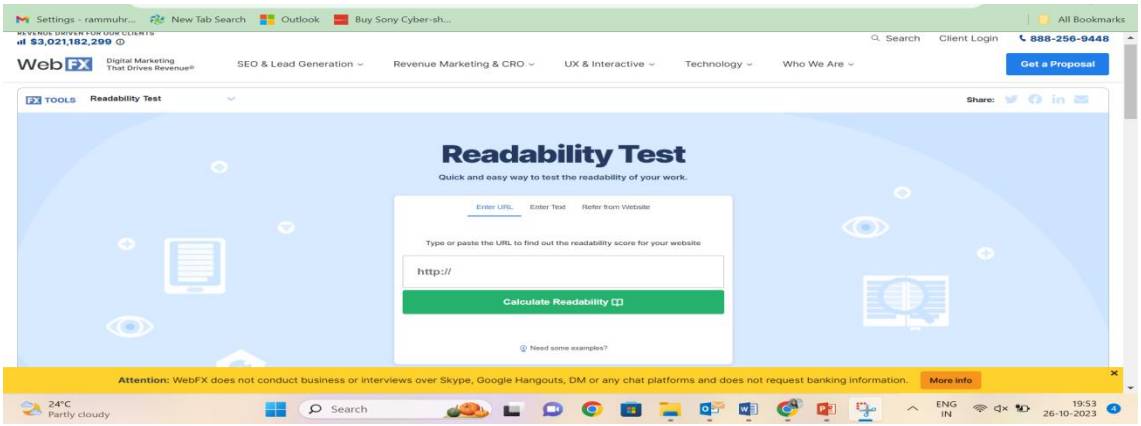
Gunning fog Index formula

Readability test using online tools

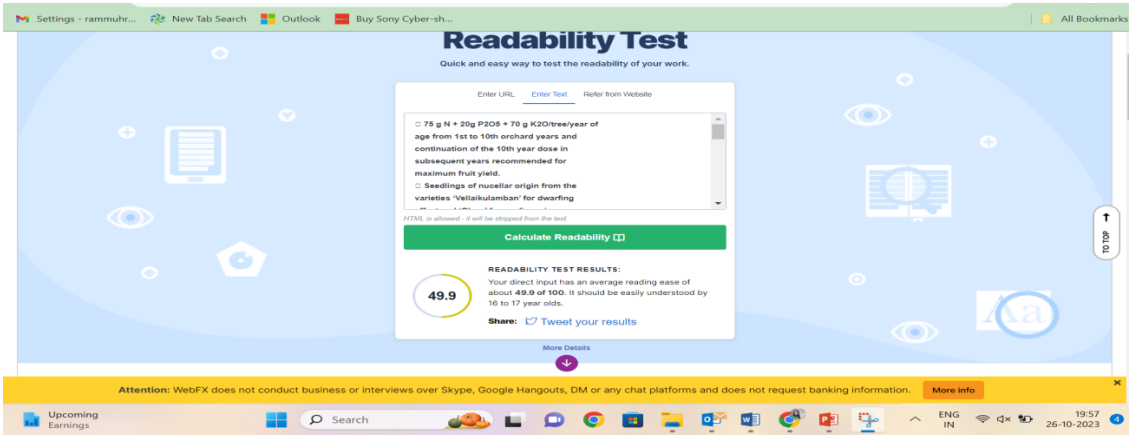
The online Readability Test Tool provides a quick and easy way to test the readability of your work. It is the most flexible readability software for assessing readability formulas.

Example: Web FX Readability Test Tool

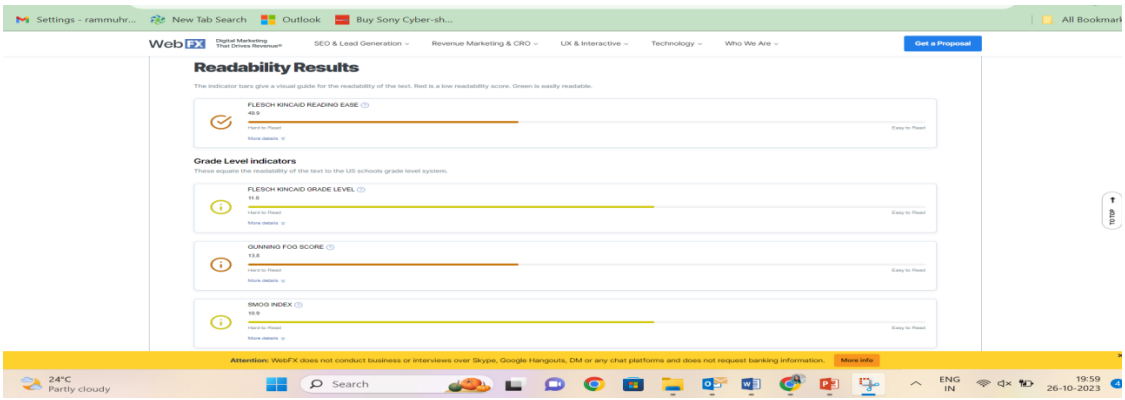
Step 1: open the web FX webpage and click on it, the window opens and then Enter text which you need to check for the readability level

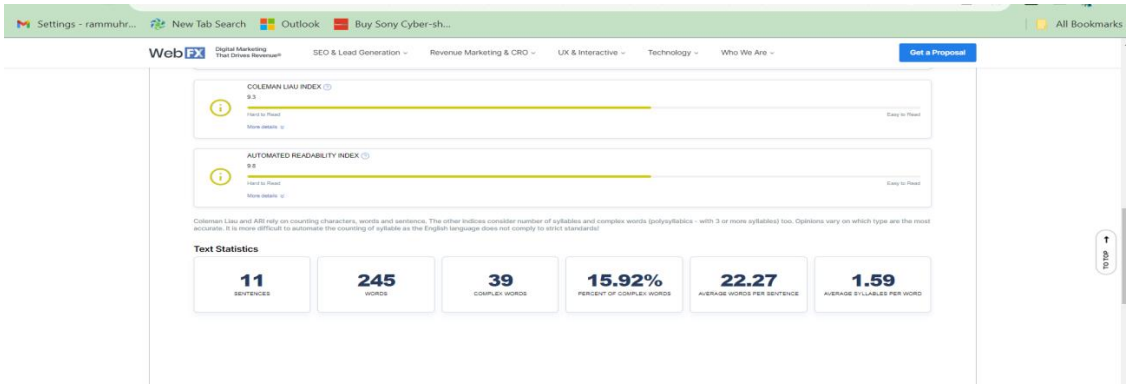


Step 2: Click on calculate readability



Step 3: Check on the readability results and draw inferences with comparison of different index





Criteria for Considering Hard and Easy to Read

- Generally, a higher score in Flesch Reading Ease indicates a more straightforward text. A score above 90 is considered easily understandable by an 11-year-old, 60-70 by 13-15-year-olds, and 0-30 is best understood by college graduates.
- For the Flesch-Kincaid Grade Level and other grade-level based indices, the score typically corresponds to school grade levels. For example, a score of 8 would indicate the text is suitable for an 8th grader.

Readability Score for Farmers: There isn't a specific "readability score for farmers," as farmers, However, if you're trying to communicate essential information to a broad farmer audience:

1. Make sure your content is free of jargon, unless it's industry-specific terminology familiar to most farmers.

2. Use clear and concise language.

3. Aim for a readability score that corresponds to **an 8th to 10th-grade reading level to reach a wide audience**. This is a general recommendation often used for mass communication.

What to do after you develop the material for mass media?

- Disseminate it without time loss
- Either to the public or to the intended end users

How do you find out Arka Samachar is relevant and useful?

- Follow up work- YouTube Analytics, Sentiment analysis, word cloud
- Surveys - telephonic survey, online survey
- Discussions with users and promoters
- Even a PRA/RRA would be good enough

Sentiment analysis

Sentiment analysis is the process of detecting positive or negative sentiment in text. Sentiment analysis algorithms fall into two buckets – Automatic and Hybrid.

- Types of analysis used– Fine-grained Sentiment Analysis, Emotion detection, Aspect-based Sentiment Analysis, Multilingual sentiment analysis.

Text Classifier : With the recent advances in deep learning, the ability of algorithms to analyse text has improved considerably. Creative use of advanced artificial intelligence techniques can be an effective tool for doing in-depth research. It is important to classify incoming beneficiary conversation about a technology based on following lines:

- Key aspects of a technology and service that beneficiaries care.
- Users' underlying intentions and reactions concerning those aspects.

Intent Analysis: Intent analysis helps in analyzing the user's intention behind a message and identifying whether it relates an opinion, news, marketing, complaint, suggestion, appreciation or query.

Contextual Semantic Search (CSS): To derive actionable insights, it is important to understand what aspect of the technology a user is discussing about. An intelligent smart search algorithm called **Contextual Semantic Search (a.k.a. CSS)**. The way CSS works is that it takes thousands of messages and a concept (like **Price**) as input and filters all the messages that closely match with the given concept.

Effectiveness of Arka Samachar using three measures;

i) Awareness
ii) Knowledge acquisition
iii) Knowledge sharing

• Awareness is measured by the number of farmers reached by information on new practices and technologies

•Knowledge acquisition is measured by farmers' reporting of understanding of information, and their perception of information relevance, timeliness, and reliability according to continuum with scores.

• Knowledge sharing is measured by the proportion of farmers who indicated to have shared information with other farmers within their community, and their willingness to share

information they receive, an indicator of trust in the information source and content received with the help of scales with continuum and respective scores.

Next steps to develop the material for mass media

- Use this feedback to prepare better material next time
- Modify the treatment, style and type every time avoid monotony
- Use as many channels as possible so that the technology is spread faster in the shortest possible time
- Preparation for mass media is a continuous process because technologies/audience/ and style of presentations keep changing

Care to be taken while translating

I. The matter must be produced without loss of information

II. Use correct local words for technical terms

III. Coin new words to fit the local language naturally

Case study of Pusa Samachar, IARI New Delhi

ICAR-Indian Agricultural Research Institute (IARI) in New Delhi developed 'Pusa Samachar,' a multimedia extension model for farmers using YouTube. The model aimed to provide timely, location-specific crop information and weather updates. To evaluate its impact, YouTube analytics were used for secondary data, and primary data were collected from 318 stakeholders, including farmers, students, researchers, and extension professionals.
Validation of the model considered three key criteria: content and design, ease of understanding, and fulfillment of information needs. Stakeholder responses, gathered through a Likert scale, indicated positive perceptions. The model demonstrated effectiveness in systematic content presentation, appropriateness for learning, and practical applicability. Stakeholders found it comprehensible, with self-explanatory graphics, and fulfilling information needs, including saving time and money. For validation of the model, stakeholders responded on a five-point Likert scale from strongly agree to strongly disagree.
In conclusion, 'Pusa Samachar' proved valuable in disseminating agricultural information through social media, garnering positive feedback from diverse stakeholders for its content, accessibility, and practical relevance. ('Pusa Samachar': an innovative multimedia-based extension advisory model **Article** *in* Current Science · August 2022 DOI: 10.18520/cs/v123/i4/574-582)

Recommendations for content development for mobile journalism

1. Audience-Centric Approach: Tailor content to meet the diverse interests and preferences of the target audience, ensuring relevance and engagement.

2. Multi-Platform Adaptation: Develop content that can seamlessly adapt to various platforms, including social media, websites, and traditional broadcast channels, to maximize reach.

3. Visual Appeal: Incorporate visually appealing elements such as graphics, videos, and interactive features to enhance storytelling and captivate the audience.

4. Fact-Checking and Accuracy: Prioritize rigorous fact-checking processes to maintain the credibility of content and establish trust with the audience.

5. Diversity and Inclusion: Reflect the diversity of perspectives and experiences in society to foster inclusivity and resonate with a broader audience.

6. Timeliness and Relevance: Stay current with news and trends, ensuring that content is timely and relevant to the audience's interests and concerns.

7. Collaboration and Partnerships: Foster collaborations with experts, influencers, and other media outlets to enrich content with diverse voices and expertise.

8. Interactive and User-Generated Content: Encourage audience participation through interactive features and user-generated content, promoting community engagement and loyalty.

9. Data-Driven Insights: Utilize data analytics to understand audience behavior, preferences, and trends, informing strategic decisions in content development.

10. Ethical Considerations: Uphold journalistic ethics, integrity, and responsibility in content creation, ensuring that information is presented in a fair and unbiased manner.

CHAPTER 8: ACCESS THE UNSEEN

Mahender Kondapalkala

Context:
The significance of mobile journalism, emphasizing meticulous attention to detail, high-quality content production, and strategic planning. The success in mobile journalism is contingent on factors such as audio and video quality, deliberate editing, and compelling narratives. The importance of having a clear mental picture of the story before utilizing mobile devices, stressing the role of thoughtful and well-considered approaches in the field. Overall, the portrayal of mobile journalism underscore sits dynamic nature, where innovation, curiosity, and strategic thinking play crucial roles in producing engaging and impact full content.

Topic	Details
1	**Soil Testing as a Service(STaaS) Platform by Krishitantra**
2	**By Green Bliss Agri Inputs-commerce platform Market**
3	**The Devilis in the detail**
4	**Everything is in mind**
5	**Inquisitiveness**
6	**Beneficial Productive Tools**
7	**Case Study**

Soil testing as a Service (STaaS) Platform by Krishi tantra

India has primarily been an agrarian economy, and farming has undergone significant changes in recent years. The Sustainable Development Goals(SDGs)usher in a new phase, addressing challenges related to farming and soil health, necessitating comprehensive resource management from holistic perspectives.

In light of above, several questions come to mind.

 Is there merit in adopting scientific management of plant nutrients for higher crop productivity? How can farmers optimize crop production for the market and margins?

Is the supply chain suffering due to an in ability to forecast?

In plain terms, how can we improve soil nutritional balance?

And is there a missed opportunity in Carbon Credits due to a lack of insight on their sustainability?

The answer with certainly is that we need to put the data and knowledge into the hands of the people who are going to use it: farmers, policymakers, and corporates. And that's where The Krishitantra Soil Testing as a Service (STaaS) Platform comes in as a partner.

By Green Bliss:

Agri Inputs e-commerce platform:

The agri-inputs e-commerce platform offers farmers the following benefits:

- Farmers can conveniently purchase agricultural inputs online
- Wide range of seeds, fertilizers, pesticides, and equipment available
- Ensures access to high-quality, climate-friendly inputs
- Encourages sustainable farming practices.

Market Linkages Platform:

The market linkages platform offers farmers the following benefits:

- Farmers can connect directly with potential buyers
- Platform facilitates direct sales and partnerships
- Eliminates intermediaries, ensuring fair prices for farmers
- Enhances market access for farmers and promotes local economies

"The Devil is in the detail"

the phrase "the devil is in the detail" emphasizes the importance of paying close attention to small, seemingly insignificant elements. It suggests that the success or failure of a project can hinge on the careful consideration of even the smallest details.

In the growing field of mobile journalism, meticulous attention to detail might entail producing audio and video content of the highest caliber, deliberate editing, and compelling narratives. The overall quality and audience engagement of a mobile journalism article can be greatly influenced by minor factors like as appropriate framing, well-lit scenes, and audible audio.

"Every thing is in mind"

"Everything is in mind" underscores the importance of strategic thinking, planning, and creativity. It suggests that success in these fields begins with a thoughtful and well-considered approach.

"Everything is in mind" refers to the idea that journalists should have a clear mental picture of the story they intend to tell before using a mobile device to cover a story. This entails thinking about the

perspectives, images, and scenes that will effectively convey the narrative. It high light show important it is to plan ahead and have a conceptual frame work before actually starting the journalistic process.

Inquisitiveness

Inquisitiveness is a foundational quality. This trait drives them to explore stories from different perspectives and seek out unique angles. Inquisitive minds are more likely to discover compelling narratives that resonate with their audience.

Curiosity Fuels Innovation:

In the rapidly changing field of mobile journalism, the confluence of innovation and curiosity is essential. It takes an inquisitive mind to embrace new technology, narrative strategies, and multimedia formats.
Inquisitiveness propels inventiveness in content production and sustains audience interest through novel and intriguing narrative techniques.

Asking the Right Questions:

Having the ability to pose intelligent inquiries is crucial for mobile journalism. To get to the core of a story, reporters need to probe deeper than the obvious. Proper questioning facilitates a thorough investigation of the topic and yields deeper under standings. Investigative journalism, on-the-ground reporting, and interviews all benefit greatly from this ability.

AI Thrives on Curious Minds:

An inquisitive attitude becomes an invaluable skill as artificial intelligence gets more and more integrated into mobile journalism. Innovative uses of AI tools can result from knowing their capabilities, investigating how they can improve storytelling, and being inquisitive about the data they provide.
Inquisitive minds in mobile journalism are more likely to use AI to improve the storytelling experience over all, evaluate data, and optimize work flows.

Beneficial Productive Tools:

pitch.com: The fastest and easiest way to make an A grade presentation with high quality design and data integrations.

examine. com: This website lets you cut through the noise of nutrition & supplements information. Get right into the facts that you want.
newspapers. com: The world's largest online newspaper archive. Unlock childhood memories or hidden gems with ease. Ith as location and date range search capability.
excelformulabot.com: This website uses AI to transform text instructions into an excel formula.my90stv.com:TV simulator showing shows, music, videos, ads &trailersfromthe1990s.toffeeshare.com: Share files privately and securely. With no size limit or storing anything online.tools.pdf24.org: This website allows you to access everything you need to handle PDFs online for free.tinywow.com: Powerful all in one website that can crop, edit and compress your picture, videos, PDF files and much more.

ChatGPT:

https://themarketergury.notion.site/themarketergury/500-Best-AI-Tools-Prompts-c50164c19ac4431590396c229d10be38

Case Study: Artificial Intelligence in Artificial Insemination

www.agverse.in

Conclusion

In conclusion, the realm of digital mobile marketing communication design stands at the forefront of modern advertising and brand engagement. As technology continues to advance, the importance of strategically crafted and visually compelling content for mobile platforms becomes increasingly evident. Digital mobile marketing communication design not only adapts to the evolving preferences of consumers but also actively shapes and influences these preferences. The key to success lies in a holistic approach that integrates user experience, data-driven insights, and creative innovation. By leveraging the interactive and personalized nature of mobile devices, brands can establish meaningful connections with their audience. However, it's essential to strike a balance between captivating design and respecting user privacy and preferences. As we navigate this digital landscape, staying abreast of emerging technologies and consumer behaviors is paramount. The future of digital mobile marketing communication design holds exciting possibilities, from augmented reality experiences to immersive storytelling. By embracing innovation, ethical practices, and a user-centric mindset, marketers can unlock the full potential of mobile platforms, creating memorable and impactful brand narratives in the ever-evolving digital era.

CHAPTER 9 : MOBILE JOURNALISM AND MEDICINE

Dr. Mandakranta Bhattacharya, M.O (ICAR-IIHR, Bengaluru)

Intro: Mobile journalism is a form of using devices like smart phones and tablets to capture, edit and share information or news. It is not a direct tool for medicine but it can play a role in several ways. The ability to download medical apps on the mobile has made a wealth of clinical resources available to healthcare personnel. There are medical applications for many purposes, here briefly a few will be mentioned in relation to mobile journalism. The mobile has proved to be one of the most powerful tools for communication and access to information, which is the essence of journalism.

1. **Medical Reporting**; The mobile was a most important tool for reporting during the pandemic. When Covid started I have used the mobile to get reports of those who were tested from IIHR campus, and about those who tested positive directly from the Hessaraghatta PHC (Govt Covid Testing centre) updated from BBMP sources. This information helped to isolate the persons and their primary contacts with in various divisions, and to have the affected areas sanitised as per the standard operating procedures given as guidelines by Government of India. By knowing how many were positive, and the medical profiles of these persons it was useful for statistical purposes or for preparing realistic reports. Similarly for vaccination it was a useful tool for drawing up lists according to who were more vulnerable or higher at risk of Covid, eg. Age wise, existing co-morbidities, immuno-compromised persons within our campus, and covering such people on priority.

2. **Crisis Reporting**: This includes reporting of medical conditions during any crisis, eg. A fire in a building happens. All hospitals in the area are alerted of it so as be prepared for any burns casualty. After a major disaster crisis reporting by journalists or even lay persons using the mobiles helps sending sms, visual or whatsapp alerts to medical facilities nearby regarding where, how many affected and what type of injuries are to be expected and helps them in preparing to handle sudden influx of mass numbers of patients. After the major train accident in recent times in Odisha all hospitals in the district had such alerts within minutes.

3. **Instant news delivery**: This happened during earthquakes, accidents and natural disasters like landslides or floods. Persons on sites end initial feedback and then an ongoing real time up date keeps circulating to concerned departments to avail maximum resources for management. It is also used in war inflicted areas. These frequent updates and information helps in medical management

4. **Citizen journalism**: This is a type of response involving the patients and caregivers to document their health journeys. Major hospitals use it for families of patients suffering cancer or other life threatening diseases. It empowers them to question, clear doubts, share their bad experiences in a specific group of members so that their experience can help others in a similar situation to handle the emotional and physical stress. It helps to remove stigma attached to various health issues. Citizen journalism can work like an audit in places where there is less transparency. It can reveal unwanted or unnecessary procedures, malpractice and negligence on the part of the medical staff in a particular situation if used by a vigilantlay person.

Health Education and Health Promotion; The mobile apps are frequently used to spread awareness of facts related to health, especially related to lifestyle and diet. In the medical fraternity it is useful in creating awareness of newer modes of treatment, newer investigations, and about new drugs available. Very useful to counter fake videos and false propaganda regarding certain forms of treatment which claim to cure or treat

without scientific data or evidence based backup.

One of the most influential posters which helped in showing a balanced diet was the picture of a dinner plate filled according to the required quantity of various nutrients (one third with protein items, one third with vegetables and fruits, and one third of grains). This plate picture was more impactful in community medicine than any number of lectures or charts

Telemedicine: Remote health centres like mine benefit from Tele medicine where mobile can be used to share reports of my patients with specialists in the city and get urgent advice. Useful during the pandemic as we extensively used messaging or video calls to advise patients for minor ailments or consultations for other problems and of course to monitor progress of the Covid cases on day today basis.

Remote Health Monitoring: This is an extension of telemedicine where regular patients send via whatsapp **self monitored readings** like BP, blood sugar levels, readings from oxy metersor some lab readings and as their regular doctor I can advise regarding dosage or change of medication. This is not a substitute for direct consultation with the doctor but for monitoring chronic diseases it can save time and resources It provides a supportive care over short term.

Medical Training, research and Investigative medical journalism:

Mojo is used to record various medical and surgical procedures and helps as a training tool for healthcare professionals and medical students. For example an intensives circulates a video of proper way to perform CPR and this helps as a refresher to both health workers as well as for lay persons.

Mobile is useful as it can keep all research results at the finger tips , accessible at all hours, and can be complied as needed to assess the impact or relevance of the work.

A professional can investigate health care related issues in uncovering malpractice or highlight challenges within the medical system. This promotes transparency and accountability.

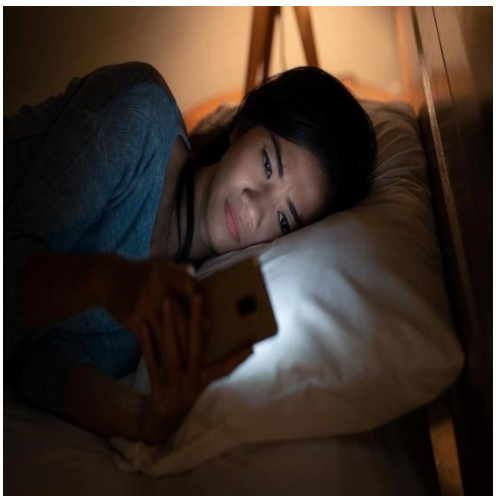
Collaboration with Healthcare Professionals

This is a very useful output of the mobile where immediate interaction is possible by sharing lab reports or scan reports with hospital or with specialists for proper guidance. It is useful in saving time of the hospital staff when a patient is referred there. There is useful creation of informative content instead of wasting time on fresh testing or interpretation, and even regarding the billing for admissions, whether they can avail treatment at discounted rates.

Medical mobile Photography: Useful tool in our hands for high resolution pictures and videos for recording events and sharing on professional basis with utmost care regarding privacy. Lot of issues still to be addressed in this regarding taking prior permission from the patient and how much privacy can be ensured.

Adverse effects of Mobile Usage

- Radiation Exposure.
- Impaired Cognitive Function.
- Sleep Disturbances.
- Increased Stress Levels.
- Eye Strain and Vision Problems.
- Neck and Back Pain.
- Increased Risk of Accidents.
- Decreased Social Skills



Conclusion

In conclusion, the fusion of mobile journalism and medicine marks a transformative era in healthcare communication and reporting. Mobile journalism's agility and accessibility empower healthcare professionals and journalists alike to share real-time, impactful stories from the medical field. The immediacy of mobile reporting facilitates faster dissemination of critical health information, bridging gaps in public awareness. However, as we embrace this dynamic synergy, ethical considerations must remain paramount. Upholding patient privacy, ensuring accuracy, and maintaining sensitivity in medical reporting are essential. Moreover, continuous training and adherence to journalistic standards are crucial for mobile journalists navigating the complexities of the healthcare landscape. The collaboration between mobile journalism and medicine offers unprecedented opportunities for transparency, education, and advocacy in healthcare. By harnessing the power of mobile devices, we can foster a better-informed society, enhance

medical awareness, and ultimately contribute to improved healthcare outcomes. As technology and medicine evolve, the potential for mobile journalism to positively impact the field is boundless, promising a future where information dissemination contributes to healthier, more informed communities.