

Institutionalization of TechMODE: Learning in framework, systems and policy model developments from the Maharashtra Animal and Fisheries Science University, India

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Background:

Over last six years the institutionalization of TechMODE at MAFSU has gone through intensity fluctuations, changes in management and faced administrative and conviction obstacles. It provided a platform for understanding of technology applications, contextualized approaches and to a great level, in system integration. As a university with a spread out physical presence, varied competency, focus areas and diverse research, MAFSU offered an ideal context for synthesize technology usage and customization. Simultaneously, developing a system with range of applications, designing policy framework and convincing the management through demonstration was required to initiate institutionalization of TechMODE. Also, it was essential to develop a partnership model and explore the possibilities of a stakeholder led mixed technology based outreach for addressing sustainability and livelihood issues in rural Maharashtra, often devoid of upgraded infrastructure and access. Different models were developed for experimentation and understanding various issues MAFSU needs to address to attain its goal of contributing substantially for the socio-economic growth.

This paper intends to review the experiments with systems design, technology synthesis and learning from a unique scenario and suggest models for ICT enabled sustainable development and socio-economic contribution.

Introduction

Maharashtra, though one of the most industrialized and urbanized state in India, shows a very high disparity between urban and rural population. A large percentage of rural and population (64.14%, 2001 census¹) is engaged in agriculture and allied activities; Maharashtra has a large population of marginal farmers and underprivileged rural poor especially in the tribal community- second largest in India (5.92 Million, 2001 census). A large percentage of this population is in areas with limited access and income generation opportunities. Drastic climatic changes and increased frequency of draught has led to decrease in agricultural production followed by a severe poverty crisis in many parts. This risk prone environment has resulted into frequent migration to the urban areas and a debt trap, which proved fatal for many small holders.

Maharashtra has a livestock population of 36.4 million; most of which is with the small and marginal holders. Organized efforts are lacking to improve productivity and marketing. Limited access, dwindling forest area and climatic changes have also increased risk of diseases and reduced productivity substantially.

¹ Source: <http://www.censusindia.gov.in/> as on 11.00 IST 13 November 2007

It has been observed over the last decade that livestock has become a driving force for Indian agriculture². Contribution of livestock to agricultural gross domestic product (AgGDP) has increased from 14 percent in 1980-81 to 23 percent in 1997-98. The share of agricultural sector in gross domestic product (GDP) fell from 35 percent to 26 percent during the same period. Demand for livestock produce has increased in an urbanized society, which is income-elastic; sustained growth in per capita income, changing food habits and lifestyles are fuelling further growth.

The importance of livestock in rural development is far beyond its food production value. It provides livelihood assurance against crop failure, particularly against frequent draught; livestock secures organic manure for agriculture and fuel for domestic use. It is an important source of income and employment for the landless and small landholders particularly in the risk prone environment. Livestock holding is more equitably distributed than land utilizing common natural resources like grazing land and water. For rural women, livestock provides a strong socio economic empowering tool. Opportunities must be realized to reduce inequity in general, and alleviate poverty to assure rural development. Improving productivity, providing information and knowledge to participate in markets will benefit the poor and marginalized rural population.

Maharashtra Animal and Fisheries Sciences University (MAFSU)

The Maharashtra Animal and Fisheries Science University (MAFSU) has been carved out of 4 existing Agricultural Universities by transferring 5 veterinary colleges, 1 dairy technology college, 1 dairy technology institute, 1 postgraduate Institute and 1 diploma institute. The mandate of the University is to impart education in veterinary medicine, animal and fishery sciences and technology and to further advancement of research and learning in these areas. The objectives of the University are to enable science and technology to benefit farmers and bring sustainable rural development,

The University now recognizes that a knowledge intensive agriculture, animal husbandry and fishing have emerged as the driving force internationally. Animal and allied industries are also becoming knowledge driven. The University, therefore, has taken a few steps towards furthering the development of farmers, livestock holders and the rural and urban entrepreneurs and the relevant industrial workers, as knowledge workers through lifelong learning. The challenge for the University is to make the knowledge worker in animal and fisheries industries of Maharashtra competitive internationally and contribute to enabling Maharashtra to emerge as a major player in the knowledge economy by 2025.

The MAFSU TechMODE Programme, initiated in 2002 with support from the Commonwealth of Learning (COL) aims to contribute in alleviation of poverty among small farmers and livestock owners of Maharashtra. The concept of the program is to improve the knowledge and skills of field veterinarians who do not have opportunity through continuous learning. It was expected that with improved and new knowledge, skills and exposure to new technology, field veterinarians contribute more to

² Source: National Centre for Agricultural Economy and Policy Research, India/
http://www.ncap.res.in/upload_files/policy_paper/pp15/executive_summary.htm as on 11.33 IST 13 November 2007

improving productivity of animals and in averting risk and economic loss due to morbidity and mortality. In turn, this would contribute sustainable livelihoods and economic benefit at large.

In addition to the overarching goal of TechMODE program (contribute to the alleviation of poverty through sustainable livelihoods among animal owners) the program also contributes to development of a TechMODE model that is sustainable and replicable across the world in providing educational environment to those involved in providing knowledge based services to rural poor and underprivileged.

Context:

MAFSU posed an interesting problem of connecting nine different campuses located in different regions and throws challenges of integration and technology synthesis for adaptation. The colleges being part of different institutions in past have widely differing interpretation and development skills. Also, a large section of members had grown a mindset not so conducive for technology intervention.

It must be noted that the presence of colleges in interior regions itself is a hurdle for integrating the academic and operational systems, further complicated by fluctuating power supply and lacking infrastructure. Until very recently human resources available for these colleges were limited, both in number and in new skills. It must be noted that MAFSU being a state university has limited autonomy. The challenge is the organizational structure of MAFSU, which did not allow induction of technical resources, human or infrastructure as an integral part of its activities and management. The university also follows guidelines of the Veterinary Council of India (VCI), which limits them to utilize TechMODE as a support framework for regular academic activities research, extension and administration.

Initiative and primary experimentation

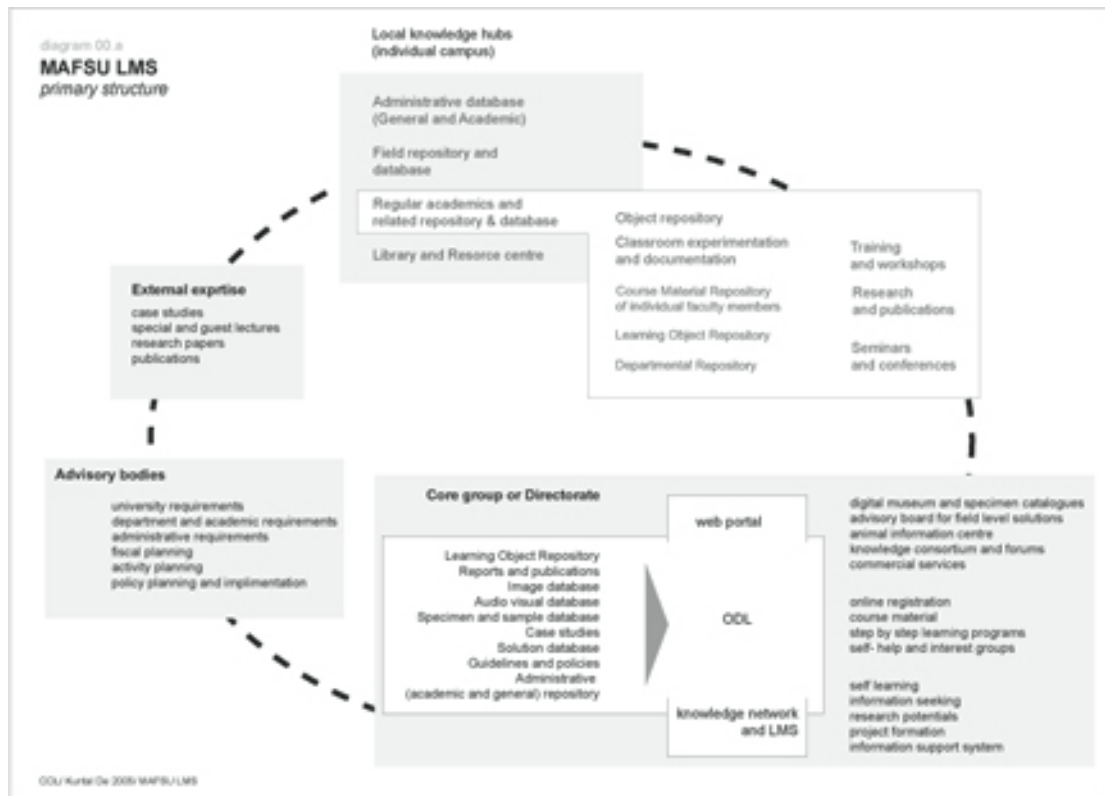
With such a context the entry point was to develop four programmes for extension purpose, supported by the International Service for National Agricultural Research (ISNAR) and Commonwealth of Learning (COL). The Directorate of Extension Services was the nodal agent within MAFSU to develop and implement the four programmes. The programmes were aimed at the field professionals who needed periodic up-gradation of their knowledge to perform better and address the upcoming issues. A strategic decision was to involve the post-graduate students for developing the programmes so that a faster and efficient path could be followed away from the operational regulations that bind the university faculty and staff. It was visualized that such an approach may create a bi-directional awareness amongst faculty members as well as in students.

The programmes were effective in terms of their appeal and effectiveness. However, due to the lack of a sustained effort and absence of regular review of the content, the preliminary effort could not be regularized. In the first phase, 65 field veterinarians completed the course and cleared the assessment through face-to-face interactions. It was difficult to conduct the face-to-face sessions as most of the registered field veterinarians were from interior parts of Maharashtra with limited access and bound by official timings at their workplace. The programme was shelved because of lack of

manpower and weak response of the university management to the needs of a continuous effort. The top management perceived the effort as an additional activity without much return. But with increased inputs in ICT related issues, a part of MAFSU was convinced about the potential of TechMODE and relentlessly propagated the need for a perspective change and stronger marketing strategy. This continuous effort led by the directorate of extension and few other departments in Bombay Veterinary College (BVC) and Nagpur Veterinary College (NVC) created a positive environment for initiating larger changes. The call for such changes and initiating a sustained effort to bring in ICT as a tool for more efficient functioning grew louder after some faculty and staff members were trained in ICT applications in various institutes of India. The need for a web presence and a digital archival system was felt. Some of the resource sharing and limitation issues brought in the idea that a digital platform could create equity among the colleges by sharing knowledge.

The four programmes also suffered from primary glitches such as content validation, slow and absence of communication with the participants and a limping evaluation structure. However, the four programmes developed at Bombay Veterinary College brought about a significant change in the departments they were developed and implemented by, namely Pathology and Surgery; inspiring a number of faculty members for using ICT to develop learning material, presentations and communication with the students. The management was ultimately convinced of the potential TechMODE offers. MAFSU, with its own initiative developed a web presence and developed a library access system. However, the effort was limited in two campuses: BVC and NVC.

With a somewhat better understanding of possibilities and potential, MAFSU, with help from COL, conducted a need and feasibility study for institutionalization of TechMODE. The main focus of the study was to understand the technology and training needs for the successful implementation of TechMODE and putting together a sustainable process through which the university could address the ICT issues and adapt technology mediated functioning. The study recommended a roadmap for institutionalization and creation of a directorate of communication and technology-aided education. The most positive outcome of the study was the management's acceptance of the entire process and potential of ICT assisted platforms in regular functioning. Though the direction was principally agreed upon, other than initiating the MAFSU portal, implementation of the recommendations did not begin.



Proposed structure of the MAFSU LMS and its functional guidelines

Institutionalization initiatives and modeling of experimentation

In the meantime through various schemes and other projects, MAFSU was able to develop basic infrastructure and initiated relevant capacity building. As the awareness about the potential of TechMODE to integrate the colleges, reduction in replicating efforts and sharing of information and knowledge grew, it was felt that MAFSU needs to understand and take a step forward to attain dual mode status. The need and feasibility studies suggested a number of initiatives encompassing administrative, academic, research and extension re-orientation and bring a structural change.

Such a structural and systemic change requires a consistent effort. Particularly if it demands rethinking and reorientation of practices that rooted in the past. Since such approach identifies the management rationale as a deterrent for establishing new frameworks, the suggestions, at times, were not well accepted. To overcome a covert avoidance and passive response from parts of MAFSU (referring to the two colleges as they were primary vehicles of instilling large scale changes), projects were designed aiming at the following immediate goals of convincing MAFSU management that:

1. TechMODE is a better and wiser choice to reduce replicated efforts
2. To minimize HR load by distributing tasks and creating a technology platform for both periodic and continuing communications
3. To demonstrate the possibilities of information and knowledge sharing; thus demonstrating the possibility of developing a common benchmark of operations in all the colleges

4. To develop an organized archive that adds value to the current academic structure and also be a source of income
5. To strengthen extension services and address a number of issues like reach, socio-economic viability, feedback for research applications and creating new opportunities in education
6. To develop an administering process that is cost and time effective

Looking at immediate needs, it was felt that the institutionalization efforts require a wider participation that are primarily from colleges in the remote areas and develop a voice within MAFSU that strengthens call for changes. Following this direction, the challenge of developing a pilot digital archive and access was taken up. The experiment led to the development of a model for integrating all the colleges; which were seemingly isolated in addressing the needs of a new university, development of new rationale and finding an appropriate direction to create a framework that supports sustainable development in the rural areas of Maharashtra.

Integration of Campuses, TechMODE for “scaling in”

Even after the feasibility study and presentation, the awareness and initiatives were limited to BVC and NVC. The other campuses experimented and implemented a few technology-assisted processes in isolation. At large TechMODE and ICT remained in isolation. To demonstrate the potential, it was needed to put together a system to explore the possibilities of knowledge sharing with the distant and limited access campuses. Unless the own campuses tasted the fruit of technology-mediated processes, it was difficult to develop a large-scale awareness and demands that could change the mindset. To bring in change in the perspectives of concerned authority it was felt that a “digital compulsion” could drive the systemic change. One of the ways was to increase the involvement of the students in knowledge sharing and demanding more access. In a sense the proposal was to “scale in” to draw a larger participation from the university.

To create an environment of inclusiveness and promote collaborative efforts within the university aimed at MAFSU’s research, education and extension and applications for sustainable development, it was essential to look at the remote colleges as they are the primary interface with the rural communities. To do so, supporting programmes were developed for the regular students of the university at three different levels:

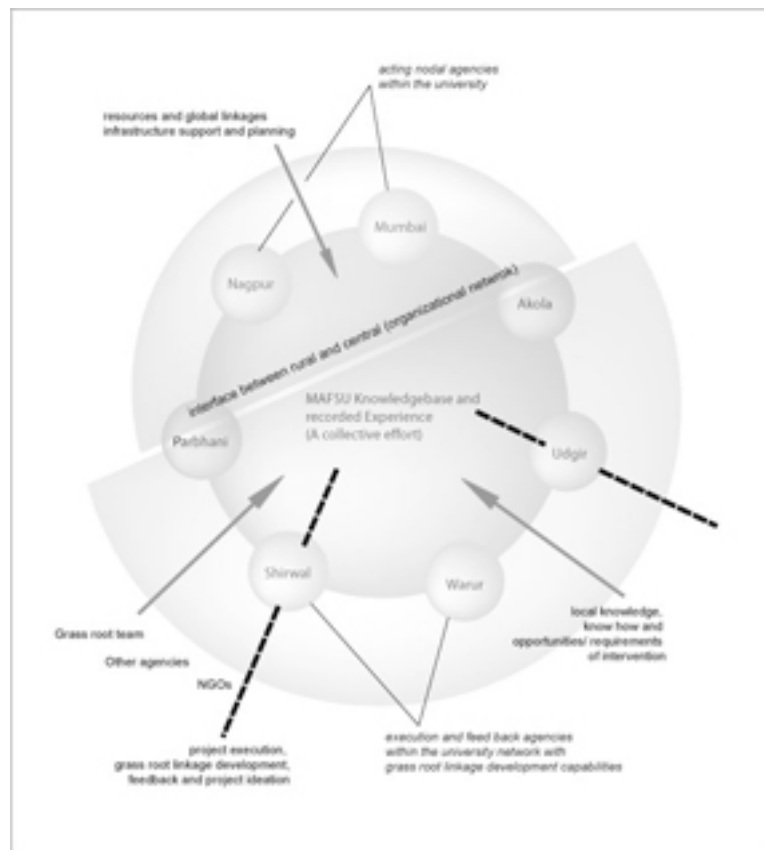
- 1) The second year students (who have already gone through basic ICT training),
- 2) The internship stage students, who are outside the campuses and still needs support from the institutes and mentors and
- 3) The practicing graduates with substantial and periodic connections with the university.

These support programmes were designed to address the following issues:

1. An increased awareness leading to a wider support
2. Capacity building of faculty and students at large
3. Testing of technology platforms for a range of tasks including evaluation and administration
4. Development of access structure for different purposes

5. Developing suitable delivery models to overcome difficulties like frequent power cuts
6. To probe into possibilities of a partnership based outreach for sustainable livelihood generation

Since a complete centralized system is difficult, a di network model of interconnectivity among the various colleges were proposed. The best possible way was to develop individual systems for each college following set benchmarks and connect them through the MAFSU portal. The advantage the proposed system is complete localization and sustainability with a global network for functioning beyond the locale. It was also felt that MAFSU needs to re-orient its extension activities. Since the individual colleges would benefit by the umbrella approach, the extension departments must bring their efforts together for better efficiency. It was debated whether MAFSU alone can initiate the social change and address the need of the communities and a partnership model was proposed.



Proposed model of the system at MAFSU. Please note that each of the campuses has been proposed like complete components and are linked through the umbrella network. Partnerships would be essential for this kind of a system; particularly for field linkages

Learning

It has been a slow process at MAFSU to create a suitable environment where TechMODE can play a role. To realize the potential of TechMODE it still is a long journey that needs to be prepared for; the development since the beginning and the

current changes the ongoing effort has brought in is rich in learning that could be outlined as below:

1. Often the organizations are so used to a set pattern of functioning, the new process needs to be demonstrated at the local level with immediate results that can assist in efficiency building.
2. Visualization of a new process is often difficult for the management of an institute; it is important that a large section of the institute participates in developing the process so that the voice for change is stronger and is respected.
3. Students are the best catalysts of change. It is imperative that they form an integral part of the process and demands the needed change.
4. It is often that individuals do not care or have time to change their way of functioning. It is essential that the process builds a covert “digital compulsion” that initiates such individuals to the change process towards adapting technology mediated functioning and TechMODE
5. In a large organization like MAFSU, unless the change is visible within, it may be difficult to approach or initiate an outreach activity supported by TechMODE
6. Developing process owners are an absolute necessity; it is imperative to support these process owners to initiate a chain reaction.
7. Geological spread is often an opportunity to develop a systemic approach than a hurdle.
8. Bringing in external expertise is required, but the best possible way to develop sustainability in the process is to train and trust the individuals from the organization itself.
9. Often evolution is a slow process, but must be preferred over a forced change as such changes are limited

Results till now

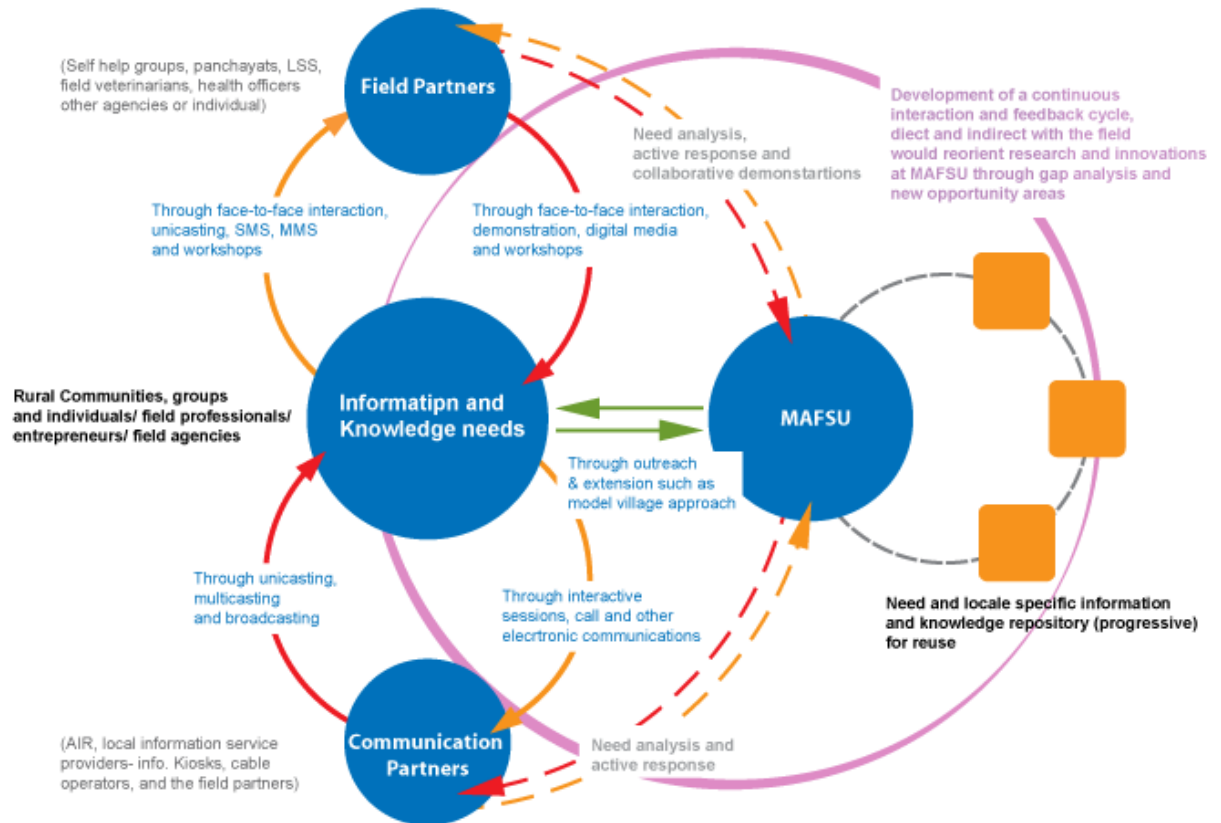
MAFSU is still evolving and hoping to develop a TechMODE system that caters to its outreach and regular academics both. It surely is a gold mine of challenges and opportunities. The process of scaling in is still incomplete and seeks larger participation from the university. It could be said that MAFSU has come a long way since the exercise started.

Since beginning of 2007, the drive towards spread of TechMODE at all levels of the university and experimentation with suitable technology platforms for more efficient use of resources has resulted in a pilot intranet at BVC, with relevant access structure to the archive, library system and individual departments, subjects as well as faculty members. The experimentation with an internet radio for academic activities and support is being conducted.

MAFSU has also developed a programme in association with the All India Radio (AIR) for the tribal and marginal farmers and successfully completed the first phase. To follow up the seemingly isolated developments, a retreat was held in Igatpuri, Maharashtra in October, 2007; the retreat aimed at addressing the management about the potentials of TechMODE and demonstrate its capacity to support MAFSU's

Vision 2020 which primarily aims at contribution to Maharashtra's socio-economic growth and sustenance.

A website (www.mafsutechmode.in) is initiated through which the university is intending to make all its extension and other learning material available for public use. The website and blog would also be used as a communication link between the partners and act as an access point for various dissemination material created by MAFSU.



The partnership model proposed for the outreach programme



An All India Radio representative is recording the interaction arranged by MAFSU in Chinsoli village as a part of the partnership based outreach programme

Currently, a partnership based extension model is being implemented (first phase) with the support of COL so that a more holistic approach could be achieved and strengthening of the institutionalization process is attained.