Knowledge Agriculture by Mapping actual needs thru holistic approach

"Knowledge is not in generation of Information but is in management of the information"

1.0 Background on Agricultural Information importance and its applications:

Agricultural ministry, the prime department of state government has to manage the agricultural produce in the state, in line with annual agricultural action plans of the state for Kharif and Rabi seasons. These action plan detail out on various geographical aspects of agriculture about agricultural situations with important details in form of information like rainfall, land utilization and holdings, soil types, agro-climatic zones and cropping patterns and produce of the previous couple of years for comparison and analysis of the states role at national and international scenarios.

Further, these action plans detail out on seed and fertilizer requirements suiting to various agricultural situations and conditions, along with quality control measures, advices and facilities for execution of various programs and projects in the interest of farming community by extending all possible aids, advices and support thru appropriate implements (123 types/nos) supply in line with agricultural actions plan commitments. These efforts and plans are detailed out elaborately in 61 annexures analyzing the action points/elements for various districts of the state to perform to meet the targets of annual agricultural action plans of the state.

Execution of these efforts requires coordination amongst directorates and departments of Agriculture ministry warranting for grate amount of coordination and sharing of information generated at source point. Latest technologies are being deployed from remote sensing to SAP/ERP implementations for efficient coordination of information to be shared for efficient management and implementations of the various programs and projects of the ministry.

These efforts deployment goes in geographical area (in ha) of 27670732.64 with 11176156 farm holdings to be cultivated in 11767922.91 (ha) with different farming situations in the state proposing to sow and cultivate 20 varieties of crops with various varieties and grades ranging from 36 to 2 of these crops have to be managed with appropriate seeding and fertilizer solutions management detailed out in agricultural action plan.

Concepts conceived & developed by
Ravi Ganesh Mantha
CEO, Suswa Infoway (P) Ltd.
Email: ganesh_mantha@yahoo.com

2.0 Overview & analysis of Agricultural Information systems

Agricultural Information importance cited and expressed in Annual agricultural action plan indeed well organized and communicated requisite information to administrator's requirement. Management of these efforts are gauged and managed in the form of information communicating these very efforts in knowledge form a huge challenge that has to be addressed by technocrats and bureaucrats.

Today Information Technologies have almost reached to a saturation stage and **need of the day is to identify and evolve a standard mechanisms for efficient and effective management of Information systems within the ministry's departments** from the very technologies that are in use and deployment at the ministry for convenience and quick adoption of new fused techniques of technologies at ease in an as and when situation basis.

3.0 MIS Management overview/analysis – Data mining techniques

MIS of the ministry can be put in formula when whole MIS mechanisms are assumed as ATOM K then,

Equation 1 – Data Mining process

$$M (A T O \{M\}) = K \dashrightarrow [1]$$

[Existing MIS management]

Where

M = Management of Dbs thru data mining processes – within & overall MIS management

A = Administrative Dbs – supporting services for element T

T = Technical/prime Dbs – spatial & non spatial dbs integrations

O = Operational Dbs – Produce & statutory compliance management

The activities and databases are geographical and location based in nature with standard documentations and managing mechanisms duly documented in more of textual in nature that needs huge resources in compiling the requisite knowledge as and when required. The need could be a situation where the required knowledge should be automatic, as all required information for administration is well designed, defined, identified and documented.

Concepts conceived & developed by
Ravi Ganesh Mantha
CEO, Suswa Infoway (P) Ltd.
Email: ganesh_mantha@yahoo.com

Existing data/ information collection mechanisms at ministry for monitoring agricultural action plans.

- AEO – Agriculture Extension officer – Implementation responsibility
- **Mandal Agricultural officer** *– Supervising Authority
- Asst. Director – few Mandals in charge for generation of Mandal level knowledge
- Joint Director – Responsible for District knowledge compiling

* Source from nearest point of activity where information generation begins.

4.0 Proposed solutions to improve upon knowledge mechanisms

On scrutiny of MIS operations and its automations today, at the Agricultural ministry today would reveal that any service/product of any technology is only part of whole of Ministry's MIS. Thus, there is a huge gap for knowledge MIS for administrators to discharge roles and responsibilities towards ministry's goals and objectives.

Knowledge extracted from the data mining process will be the input for knowledge mining process for knowledge intensifications new dimensions in MIS that can be used exhaustively for all geographical relations for their functional & operational MIS needs. These knowledge intensifications would optimize resource in collection and compiling MIS in knowledge for administrators paving way for efficient administrations.

Relationships between service provider and the client are direct in case of banking and corporate sectors the benefits of such relationships are in direct / indirect feel for the society. Incase of government sector the relationships are indirect. Thus, the IT technologies deployment in e-governance and other programs are not yielding the intended results. To reap benefits of IT segments.

When location L , is added to the knolwedge K output of equation 1, would simplify knolwedge publishing mechanisms that deploys features and functanlaities of technologies that are in use and deployed at ministry would be soft skill requirement.

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Equation 2

Proposed new MIS equation under Mantha concepts – MIS with high rate of standards those are acceptable to the most.

$$K_{Lo+Le}\,(\,A\;T\;O\;\{M\}\,) = K_I \longrightarrow [\,2\,]$$ **(new spatial MIS formula)**

Where

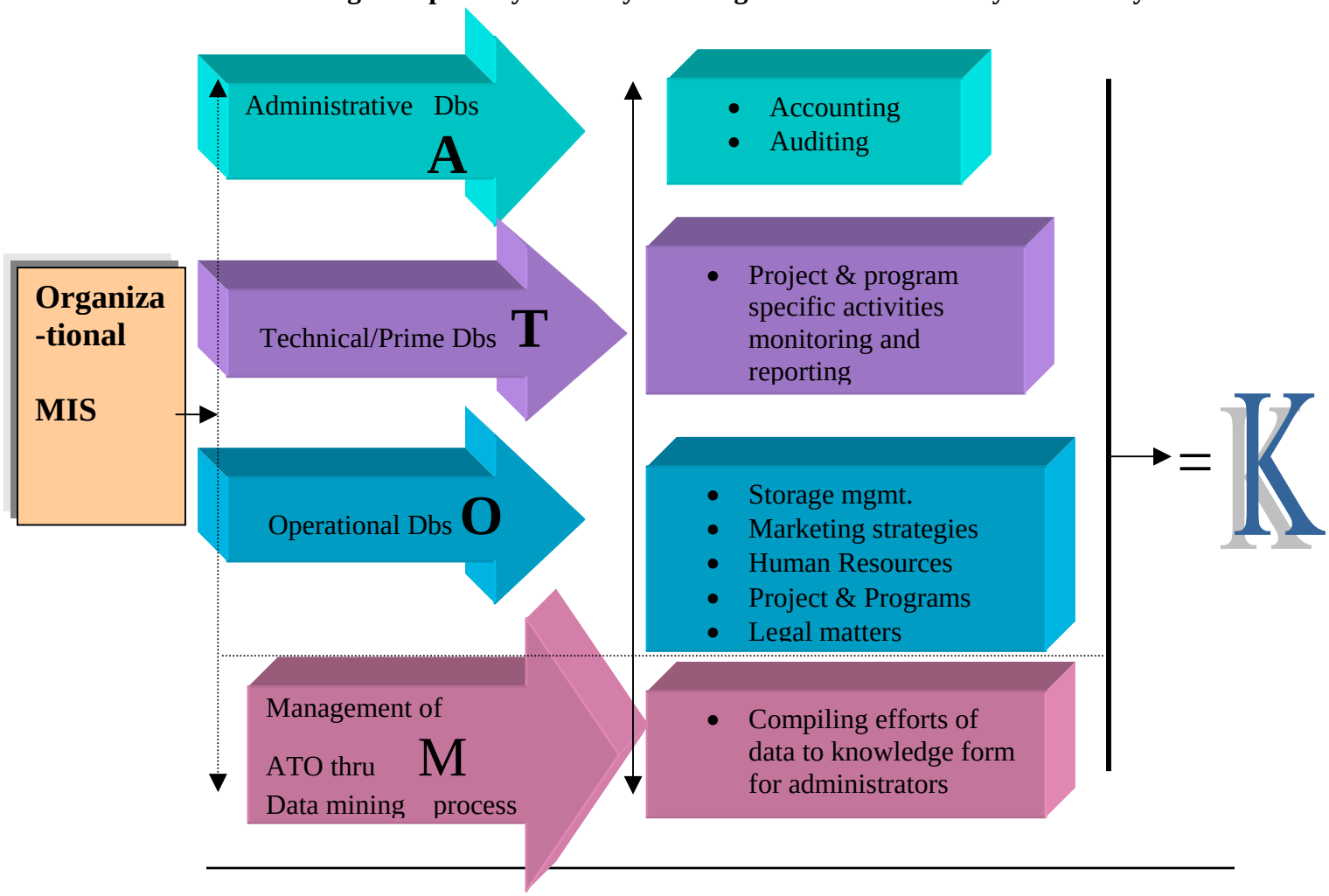
Lo = Location specific department databases – of an ATOM K

Le = Location specific external/other databases of organizational interest – Demographic & other location statistics in standard form

KI = Knowledge Intensifications for decisions – All existing MIS outputs with overlay mechanisms

MMIS Mantha & GOOD MAPS – Knowledge based spatial MIS would address this very huge gap of knowledge requirement for administrators to administrate towards organizational goals and objectives.

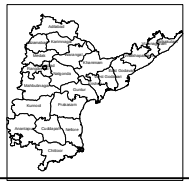
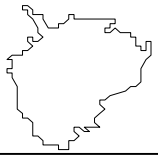
Logic Map of any Ministry's Management Information systems today



Mantha concepts for best knowledge applications

Concepts conceived & developed by
Ravi Ganesh Mantha
CEO, Suswa Infoway (P) Ltd.
Email: ganesh_mantha@yahoo.com

5.0 Base common Desktop application for all MIS users of Ministry for Self-knowledge publishing mechanisms

Base application Module (Product/service mix)	**Government machinery for all depts. (Central & State)**	**Administrative Dbs and [Operations integrations in one module]**	**Technical**	**Operations**	**Benefits**
	Fund Mgt. Audit of Program performances for appropriate Equation [2] like benefits	Monitoring ministry's customizations towards planning inline with Vision & Mission	Central offfice Dist. wise mgmt. equation [2] at best towards Goals & targets	Operations at glance Efficient Planning & Monitoring	Huge resource optimizations Vision, mission values monitoring & mgmt.
	Better coordn with center & Entire state level Mgmt. of project . MIS in knowledge	Operations info across state Equation [2] for state Best & efficient	day to day efficiencies management across state	Zone wise equation [2] like mgmt.	State level equation[2]
	Program implementation Instructions down Guidelines plan mgt. Infrastructure/HR cordn	District performance Equation [2] mgmt Hug MIS mgmt	Department efficiencies mgmt	Asset mgmt Personnel services mgmt.	GIS features overlay tech. for KIs
	Welfare programs Revenue mgmt Routine MIS crucial	Target performance behavioral MIS	Targets Project goals efficiencies Mgmt.	Statutory legal mgmt.	
	Actual village level	Implementations			
	Actual activities Implementations and source data Collection & Compiling.	Field level service support management	Welfare and project performances		

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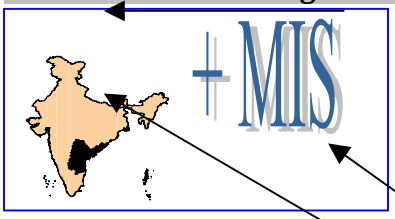
6.0 MIS Flow Diagram under Mantha concepts



+MIS = MMIS (MAP)

Mapping Goals
MMIS Mantha Objectives

- **Self Knowledge publishing**
- **Spatial project documentation**
- **Standardizations**

Spatial forms (textual)

Need & systems study

MIS

Management Information Systems

1. Routine
2. Program project
3. Need/cont-textual specific

Map Culture

MANTHA

Mapping needs

Holistic approach

- All existing methodologies in compiling MIS/Spatial
- Designing forms and formats to integrate MIS in maps
- Standard modes and methods to preach & practice

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7.0 Efforts & support

The said ideas were gradual evolution in nature and sought mandate on concepts from State/Central government, views were expressed at national and international workshops. Have sought support from central govt. on utilization of project specific databases under the project. Further at corporate and banking houses these ideas are being encouraged as they opine that they are best optimal knowledge applications mechanisms.

These ideas are getting culminated in Intergraph's GeoMedia product and have been working over 18 months now towards evolution of standard product best suiting to Government daily MIS management with a long term vision of integration of Precious spatial databases for uniform management of Information systems.

8.0 Advantages:

1. Efficient/effective coordination of govt. resources
2. Standard spatial documentation for all government departments (explain why)?
3. Database creation/administration/monitoring thru one single standard spatial with department specific customizations
4. Sharing of information thru standard spatial format is most critical and would result in huge reduction in time/cost in collecting the information required for administrators from time to time to discharge their responsibilities and goals more efficiently.
5. Mapping MIS in day-to-day office routine works at appropriate hierarchies and be made available in server for scrutiny & review for administrators regularly and as frequently as they desire.

9.0 Deliverables & conclusions

Outputs would be Textual & Graphical – communicating whole MIS efforts towards goals and objectives of ministry. The only knowledge solutions that tracks and from database from generations to deployments in most logically acceptable formats**.**

- **Exclusive, ideal & customized uniform product for agricultural action plans monitoring mechanisms i.e.**
  - **Designing of Action plans**
  - **Progress on action plan implementations i.e. execution details &**
  - **Actual action plans implementation status**

Thus, whole agricultural action plans status in single product form that integrates the current outputs thru organizations and standardization of departmental MIS. Standards are required because the functions & activities are fixed with respect to geography, as these standards would bring harmony for MIS integrations and management.

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Conclusions:

- Geography being common for every agro related effort & activity; MIS representation and management geographically would have advantage for bringing out efficiencies administration and management of action plans.

- The solution propose to design common MIS management modules from data generation point to knowledge deployment stage with appropriate modifications in forms and formats that communicates the requisite information to the administrators requirement.

- On scrutiny of equation [1] & [2] it is clear and evident that databases are more efficiently published in knowledge form thru maps

- These ideas were visualized and projected with GIS technology as prime front end product for publishing equation [2] type solutions.

" Technologies should ease tensions and bring peace for every one"

"Knowledge generated should be served and serviced as it is originated for"

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