

Modelling Approach for Data Analysis

Area 2 – Technologies
Lesson 8 – Data Analysis
Sequence ID – 28

AUTH



About the Author

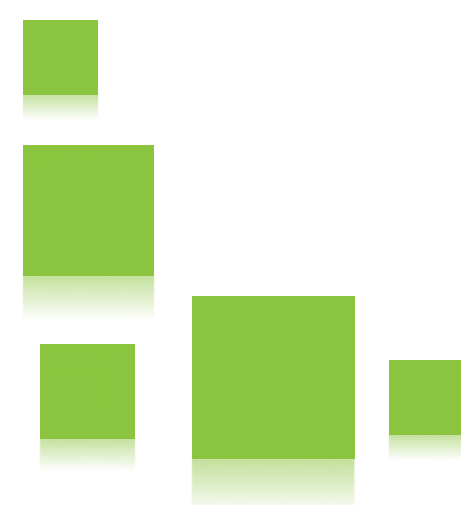


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DISCLAIMER

A2.L8.T3 Modelling approach for Data Analysis

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Decision Support System (DSS)

- DSS is a system that supports decision making in businesses or organizations of any size
- It is usually a computer program, used to support decisions, judgements, and courses of action in a business or organization
- It analyses a large amount of data, compiling comprehensive information used to solve complex problems in decision making



Types of DSS

There are five general types of DSS:

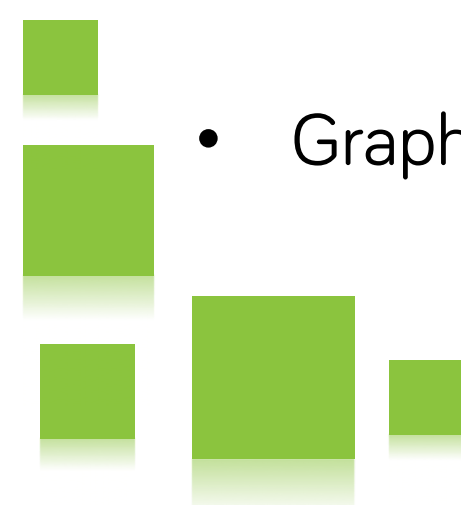
1. Communications driven DSS
2. Data driven DSS
3. Document driven DSS
4. Knowledge driven DSS
5. Model driven DSS





Features/Parts of DSS

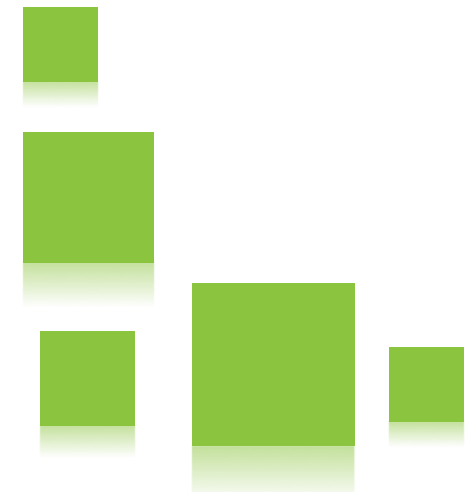
- Database
- Model base
- Knowledge base
- Graphical User Interface (GUI)



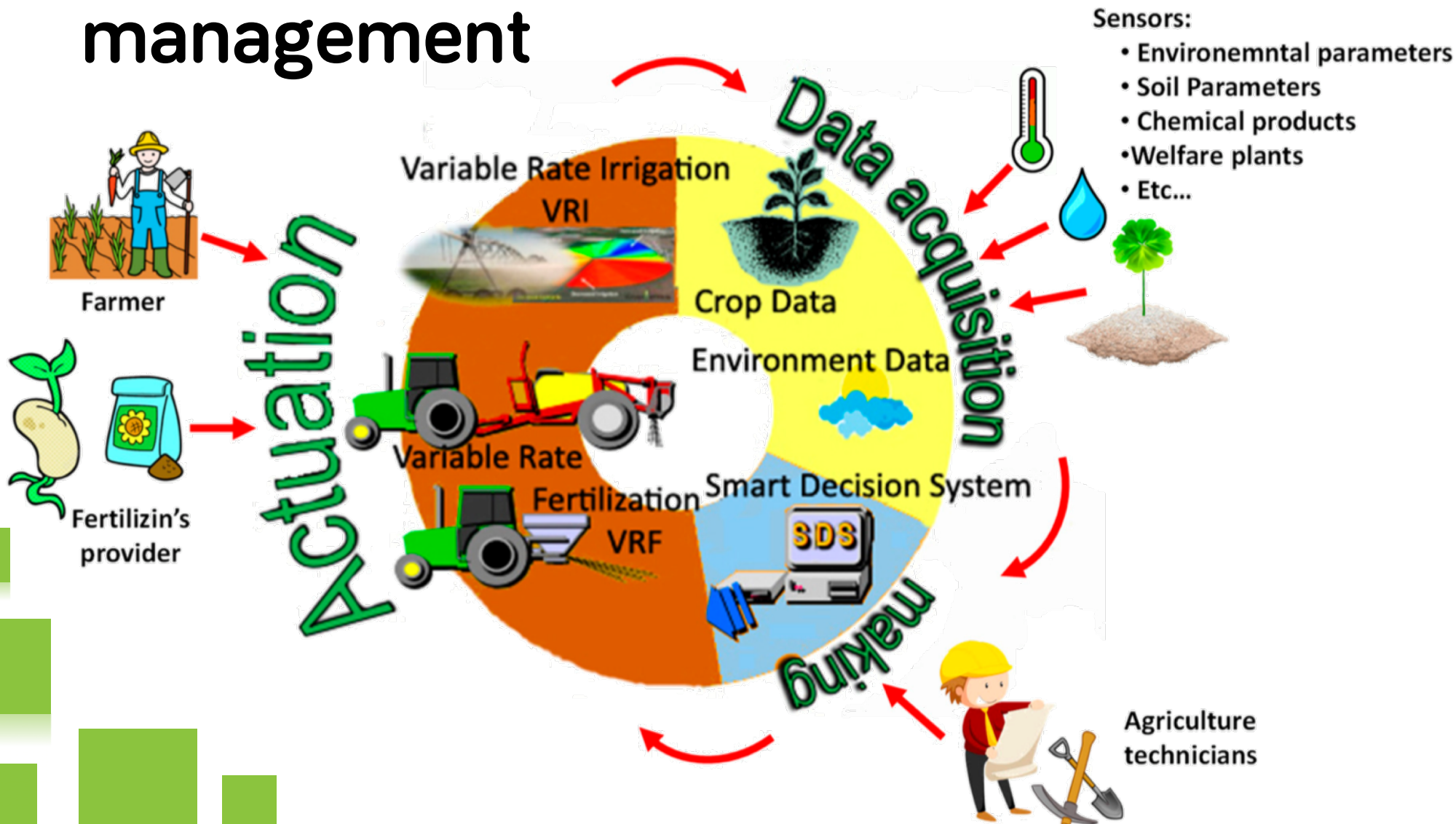
DSS in Agriculture



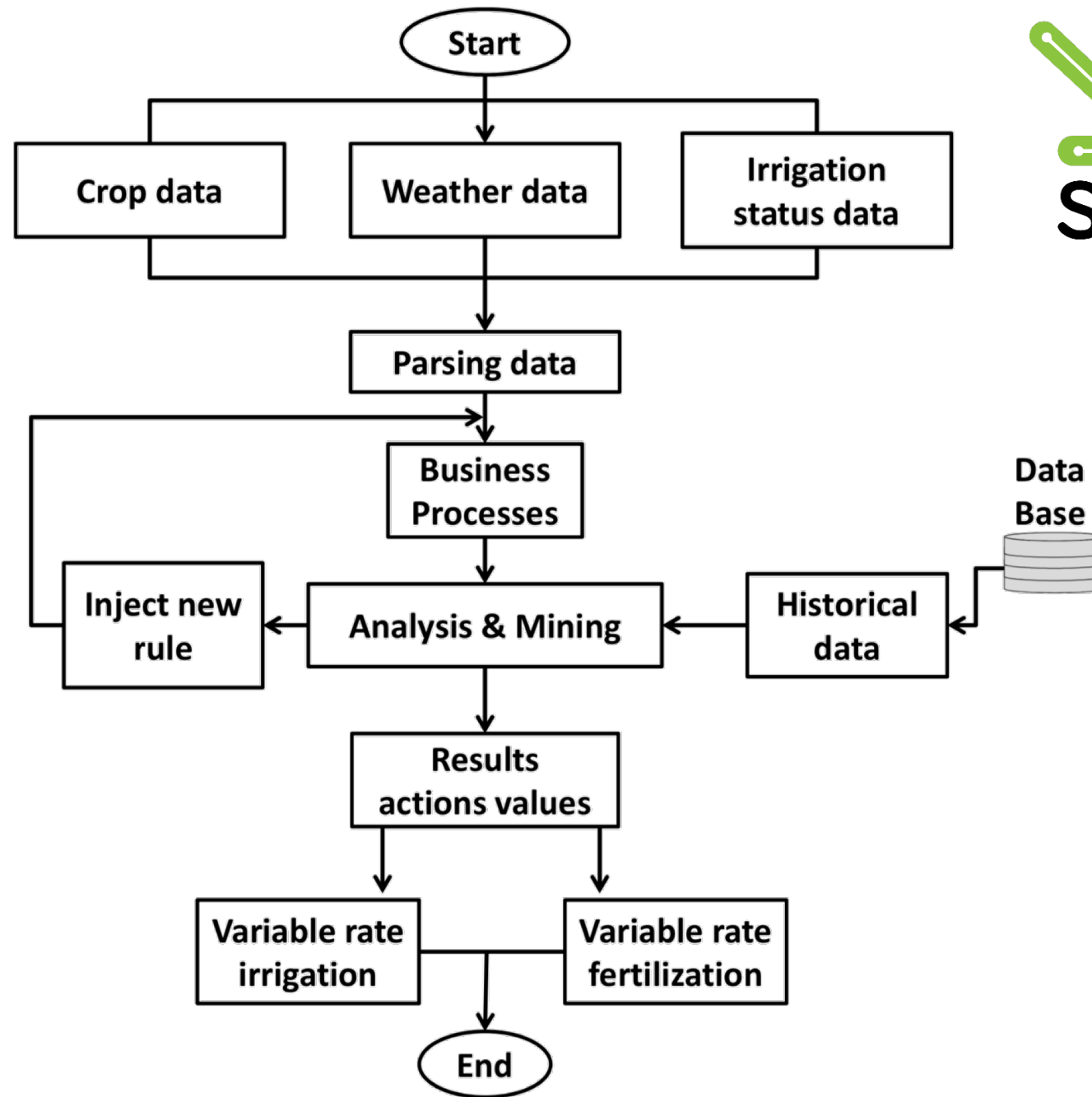
Farmers and agricultural scientists need to make in-season and across-season decisions depending on accurate climate, soil, plant and economic data



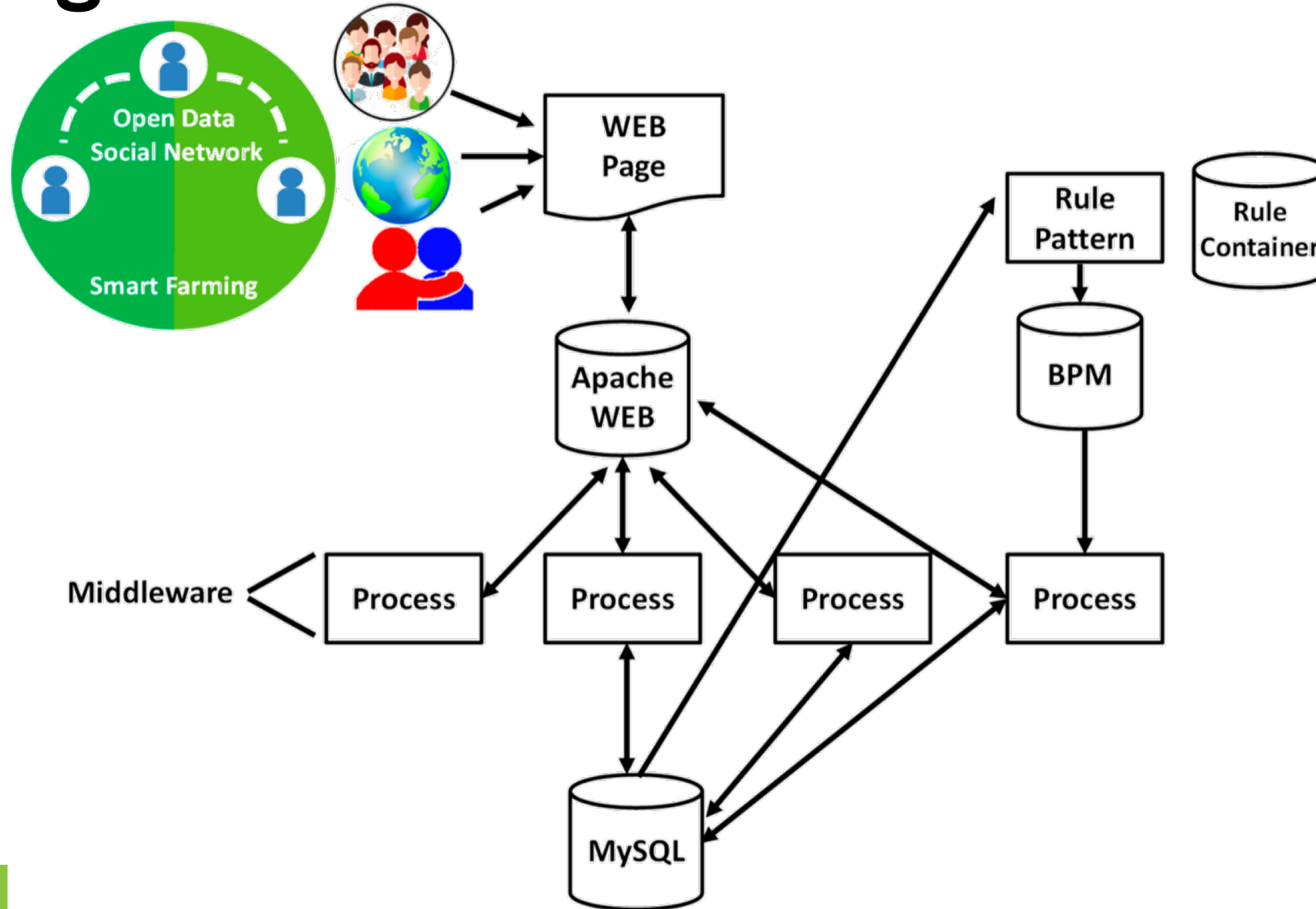
The cycle of smart farming data management



Farming DSS flow diagram



Farming SDS backend structure



Source: Baseca et al. (2019), A Smart Decision System for Digital Farming, Agronomy



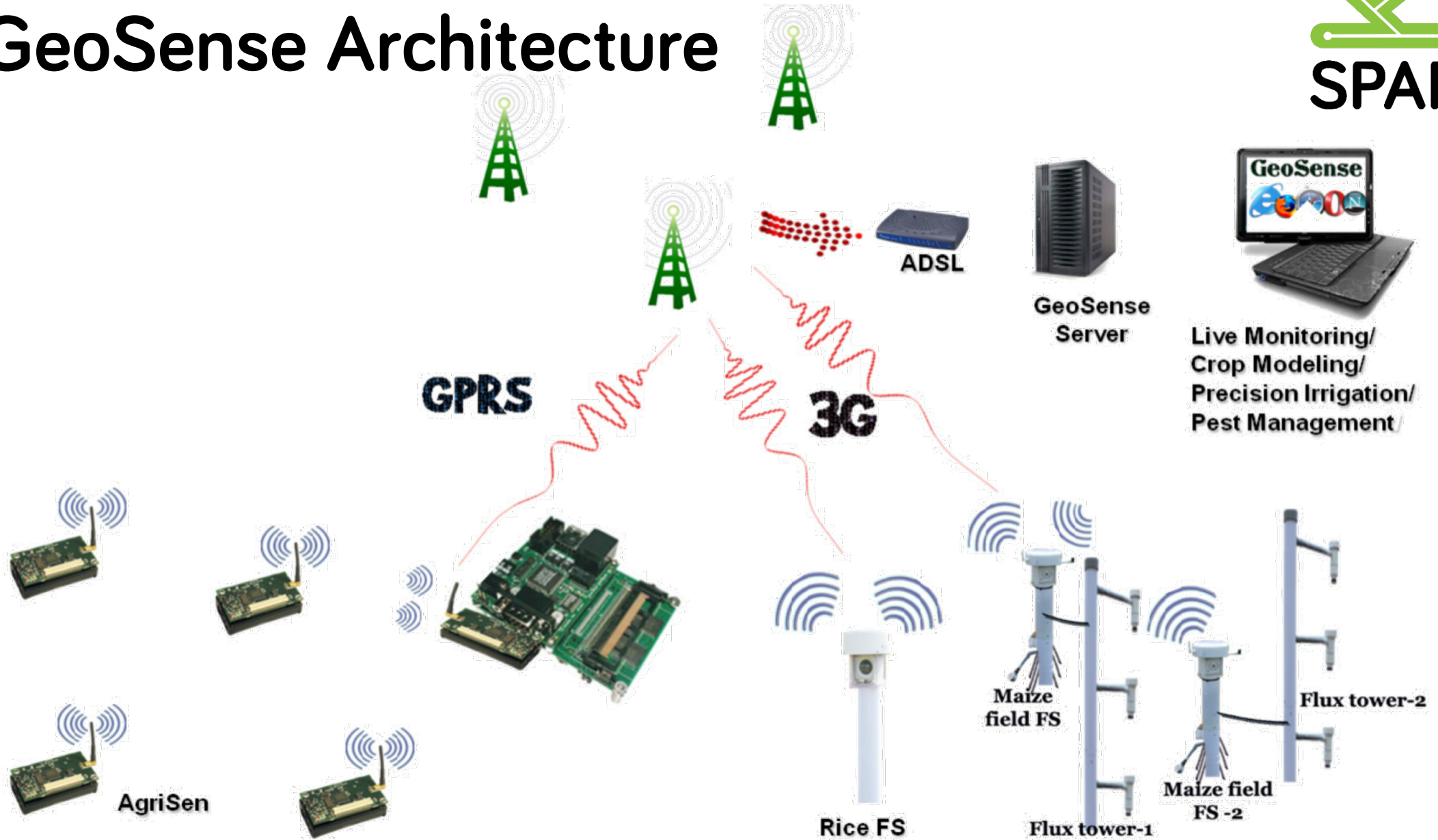
DSS Example Case Study

GeoSense (Adinaraya et al., 2012)

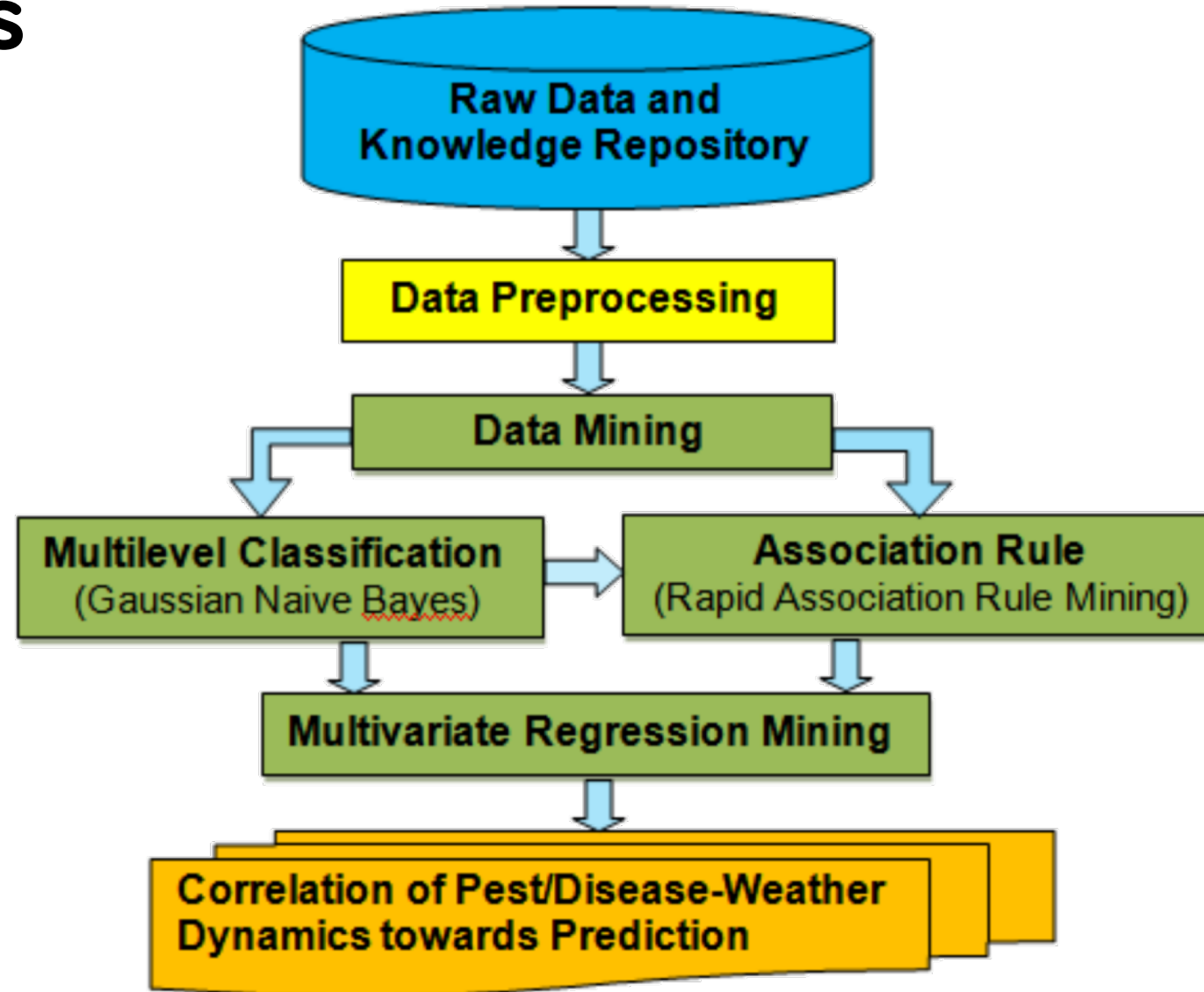
- Designed to help in decision making for precision agriculture
- The system consists of 5 modules: crop water requirements, rice yield simulation, energy balance, weather profile studies, crop pest and disease prediction



GeoSense Architecture



DM Processing Flow for Pest/Disease Dynamics



GeoSense DSS



Designed to cater the rural/farming community for precision agriculture decision making

- How much to irrigate according to the plant and soil conditions
- How much yield the farmer can expect on a day/month/season basis
- Local agricultural market information
- Real-time location-specific distributed sensory information



GeoSense Homepage



The screenshot shows a web browser window with the URL <http://server.geosensefieldserver.operaunite.com/webserver/content/web/?session-redirect=noCookie>. The browser's address bar and tabs are visible. The website header features the IIT Bombay logo and the 'GeoSense' title in a colorful, glowing font. A navigation menu on the left includes links for Home, About us, Whats new, Crop Mgnt, Pest Mgnt, and Contact. The main content area is divided into two sections: 'Dynamic Sensory Information' with a background image of green leaves and a grid of sensor-related images, and 'Dynamic Weather Information' with a dark background and yellow text. The 'Dynamic Weather Information' section includes a description of the system, a link for further details, and three call-to-action buttons: 'View Meteorological Station Data', 'View Agrisens Data', and 'View FieldServer Data'. The footer contains the copyright notice: © Agro-Informatics Lab, IIT Bombay.

Dynamic Sensory Information

Dynamic Weather Information

This Web-Portal is a free, dynamic weather information system. It gives regional to site specific weather information, using Sensor Network (SN) and Geographical Information and Communication Technologies (Geo-ICT).

"Further Details Please Visit" <http://www.csre.iitb.ac.in/geosense/>

If you are interested to know more about GeoSense feel free to contact us.

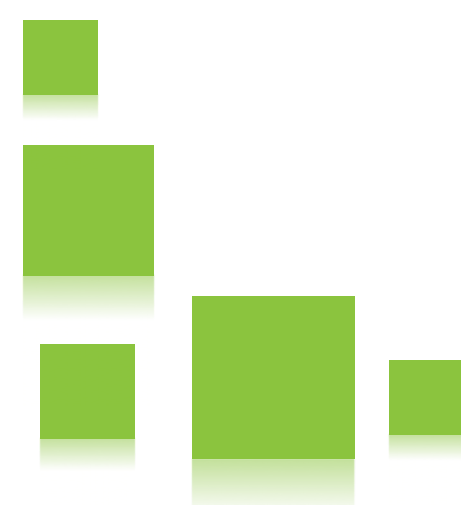
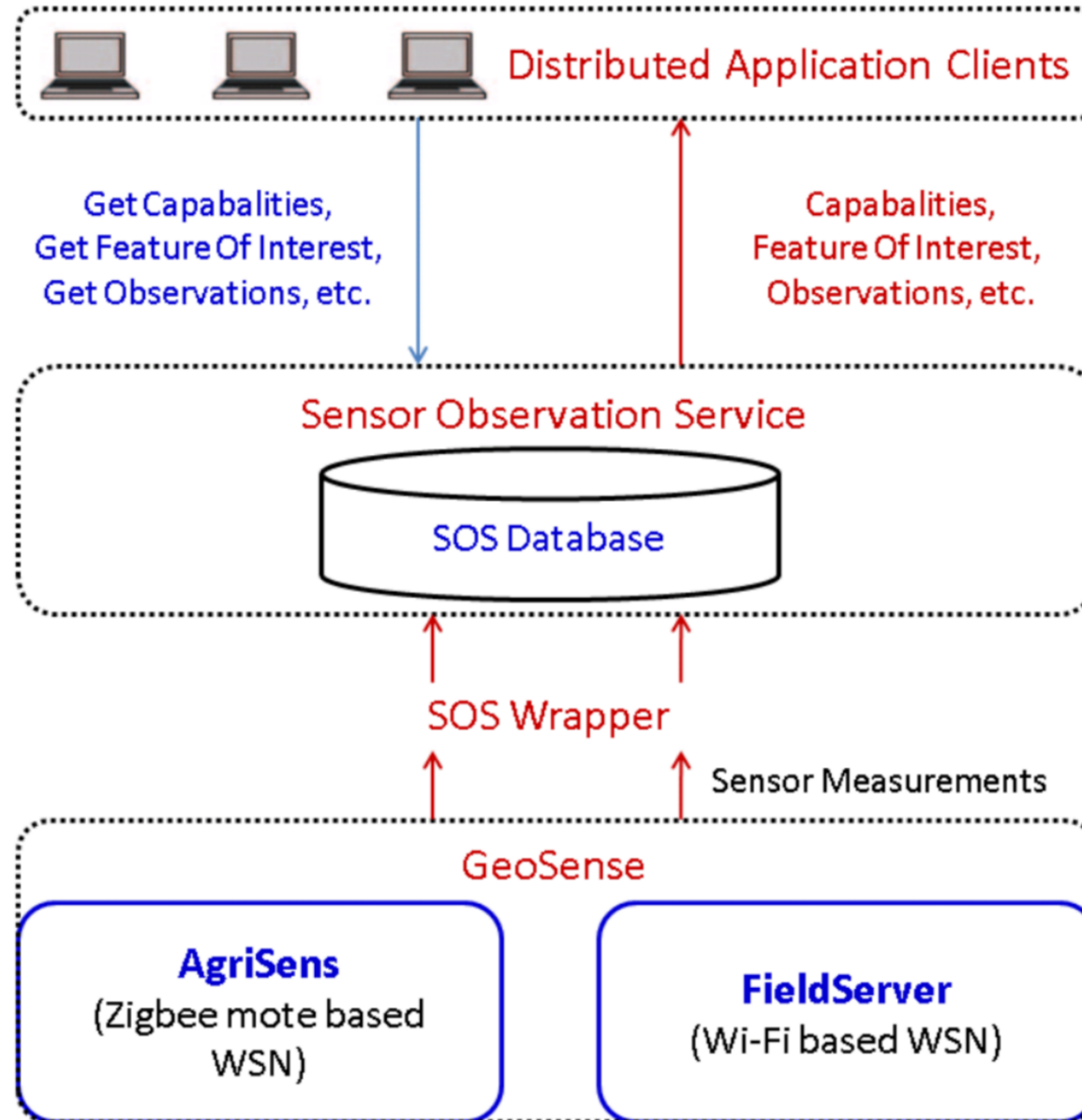
View
Meteorological Station Data
Click Here

View
Agrisens Data
Click Here

View
FieldServer Data
Click Here

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Service Oriented Architecture for GeoSense



References

Adinarayana, J., Sudharsan, D., Tripathy, A. K., Sawant, S., Merchant, S. N., Desai, U. B., . . . Kiura, T. (2012). GEOSENSE : An information, communication and dissemination system for decision support in precision farming. Paper presented at the Proceedings of Agrolnformatics and Precision Agriculture (AIPA), India.



Thank You!

