TATA CONSULTANCY SERVICES
Experience certainty.

Innovation for masses

TATA

The TCS PRIDE™ Model – Empowering Farmers!

Using Digital Five Forces to Revolutionize Agriculture:

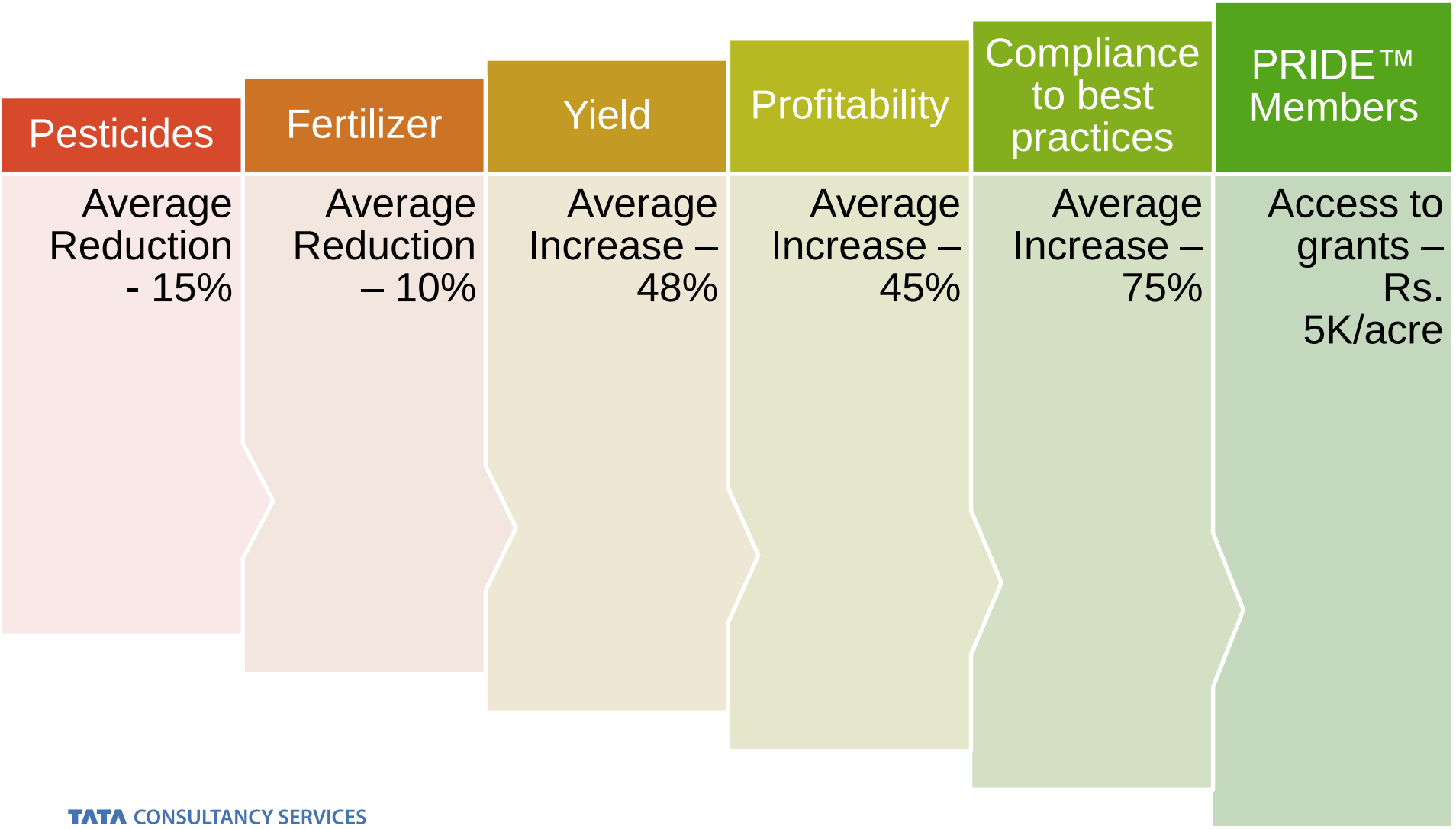
- **Better Prices**
- **Cost Reduction**
- **Mitigate Risk**
- **Improve Supply Chain efficiency**
- **Increase Yield**

Srinivasu Pappula, Ph.D., CISSP.
Global Head – Digital Farming Initiatives, TCS

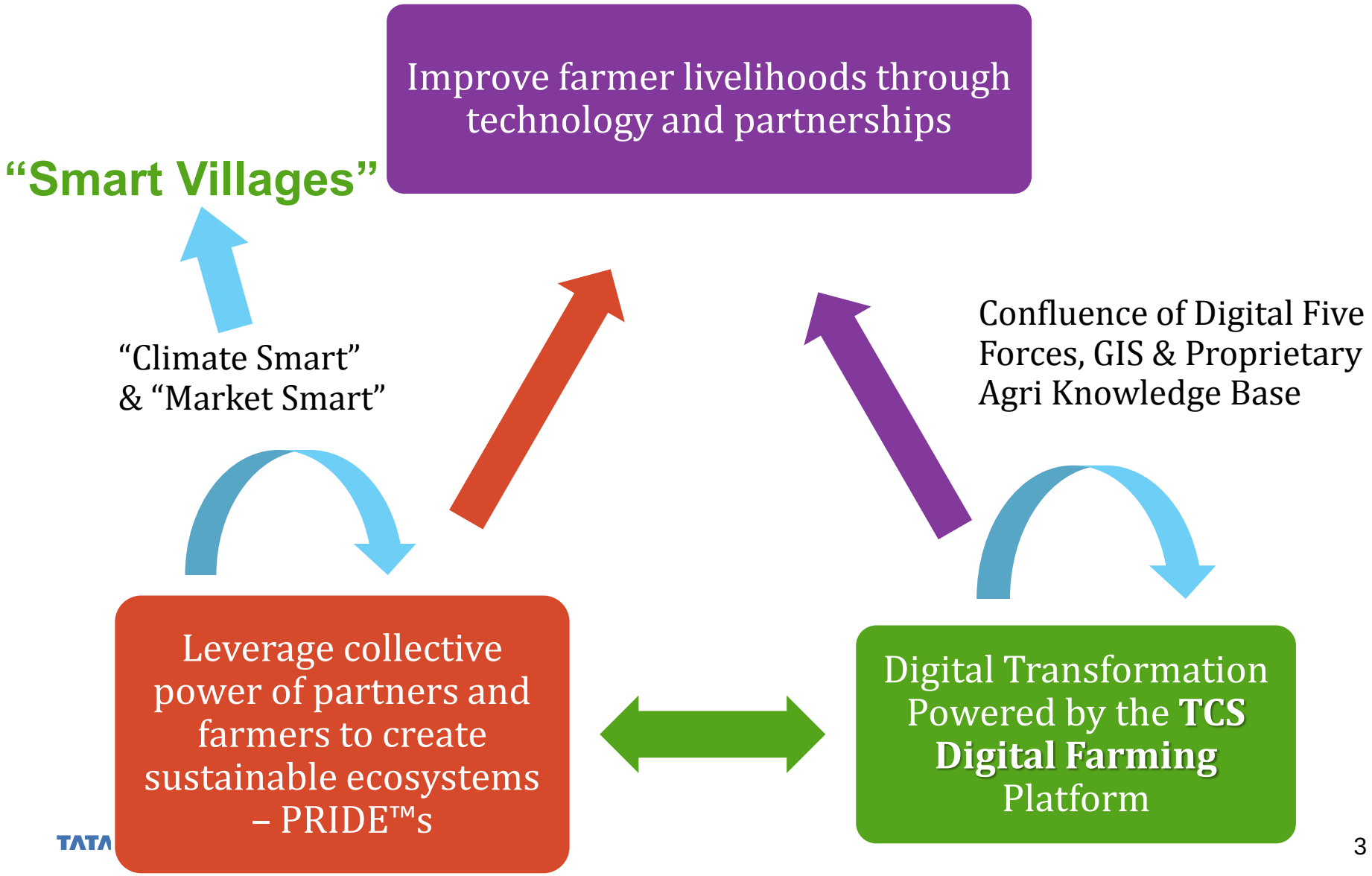
Patent Protected

Copyright © 2011 Tata Consultancy Services Limited
All images/logos in this document for idea demonstration purposes only.

Impact on Farmers – To Date



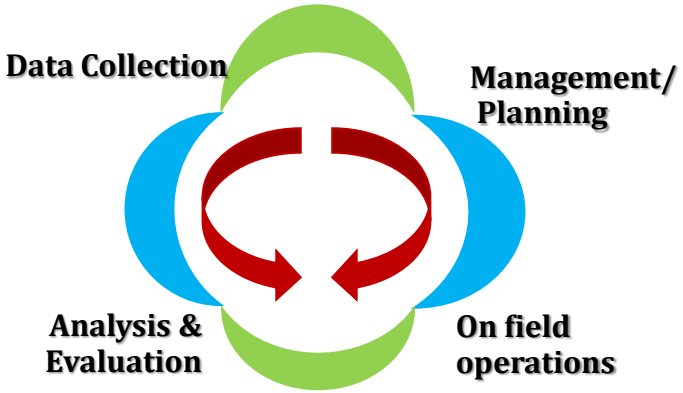
TCS Digital Farming Initiative - Mission



TCS Digital Farming Initiative - Objectives

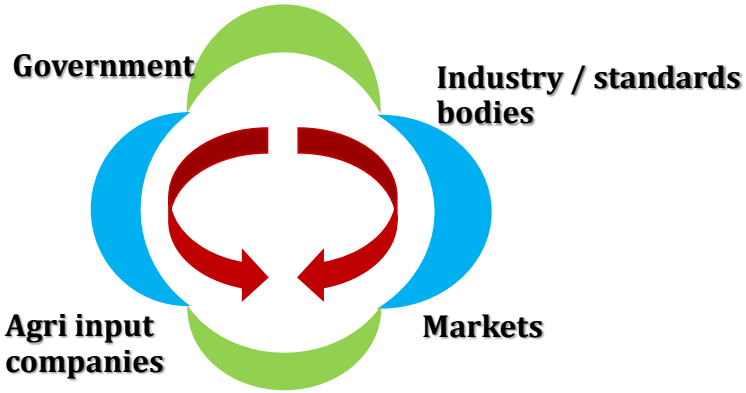
Objective 1: Improve crop production, efficiency

through cyclic optimization process

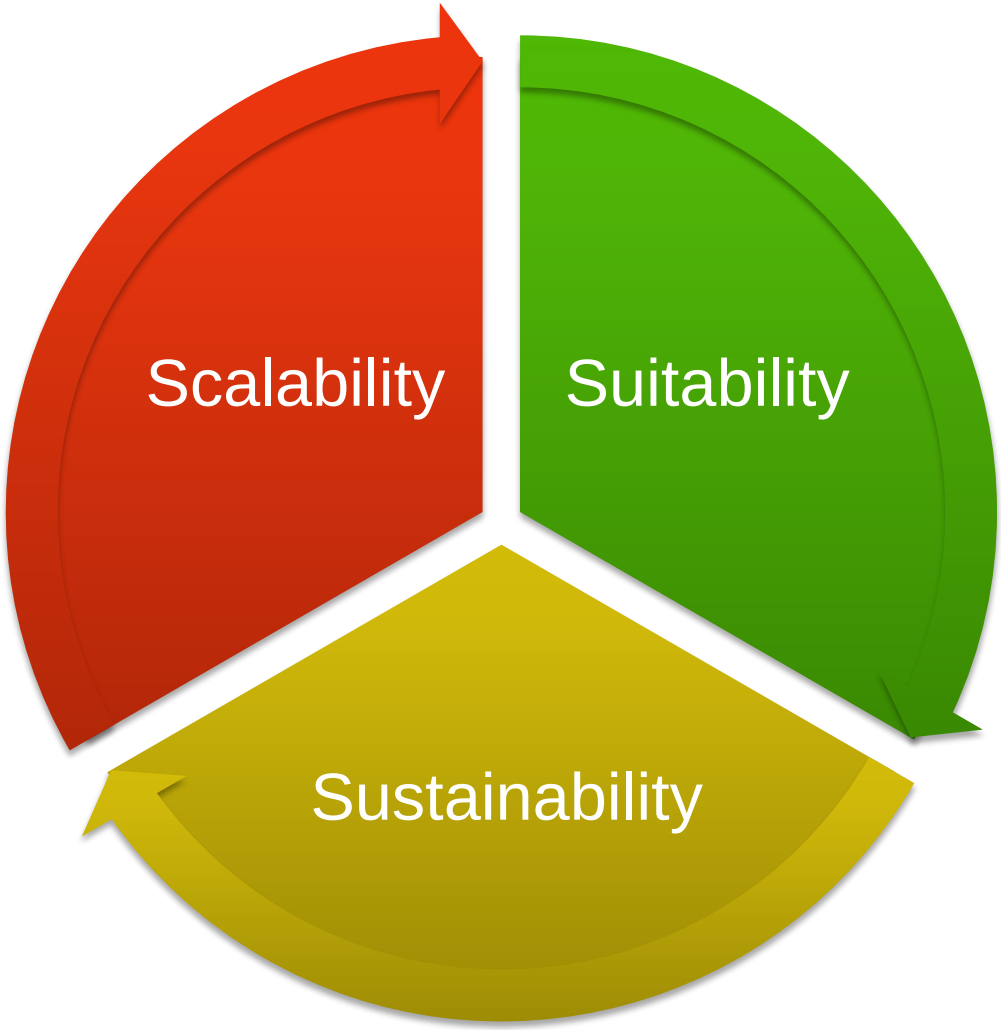


Objective 2: Establishing 'linkages' across partnership ecosystems

Forward & Backward linkages
Access to support groups



The 3Ss



InteGra Precision Agriculture Solutions

CONNECTED EDGE

Devices & equipment capturing sensor data, taking action

Compute Intelligence at the EDGE

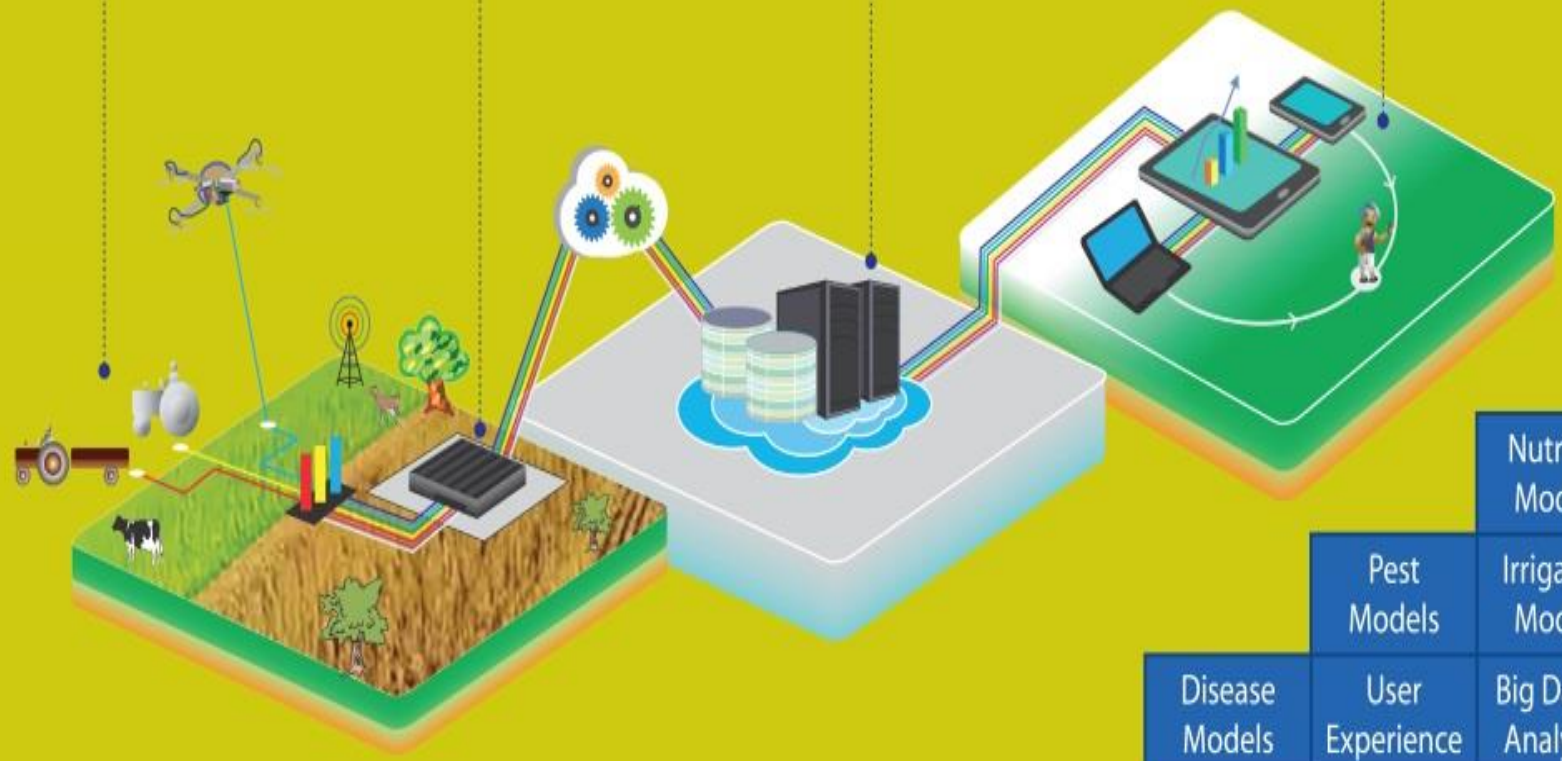
- Download Disease Prediction Models and other Agri related Models from the Cloud
- Enable Real-time Data Processing & Analytics

TURN DATA INTO INSIGHT

Process, store data, Cloud analytics, Manage devices, Precise networks

PRECISION AGRICULTURE

Actionable Information, Automate Operations

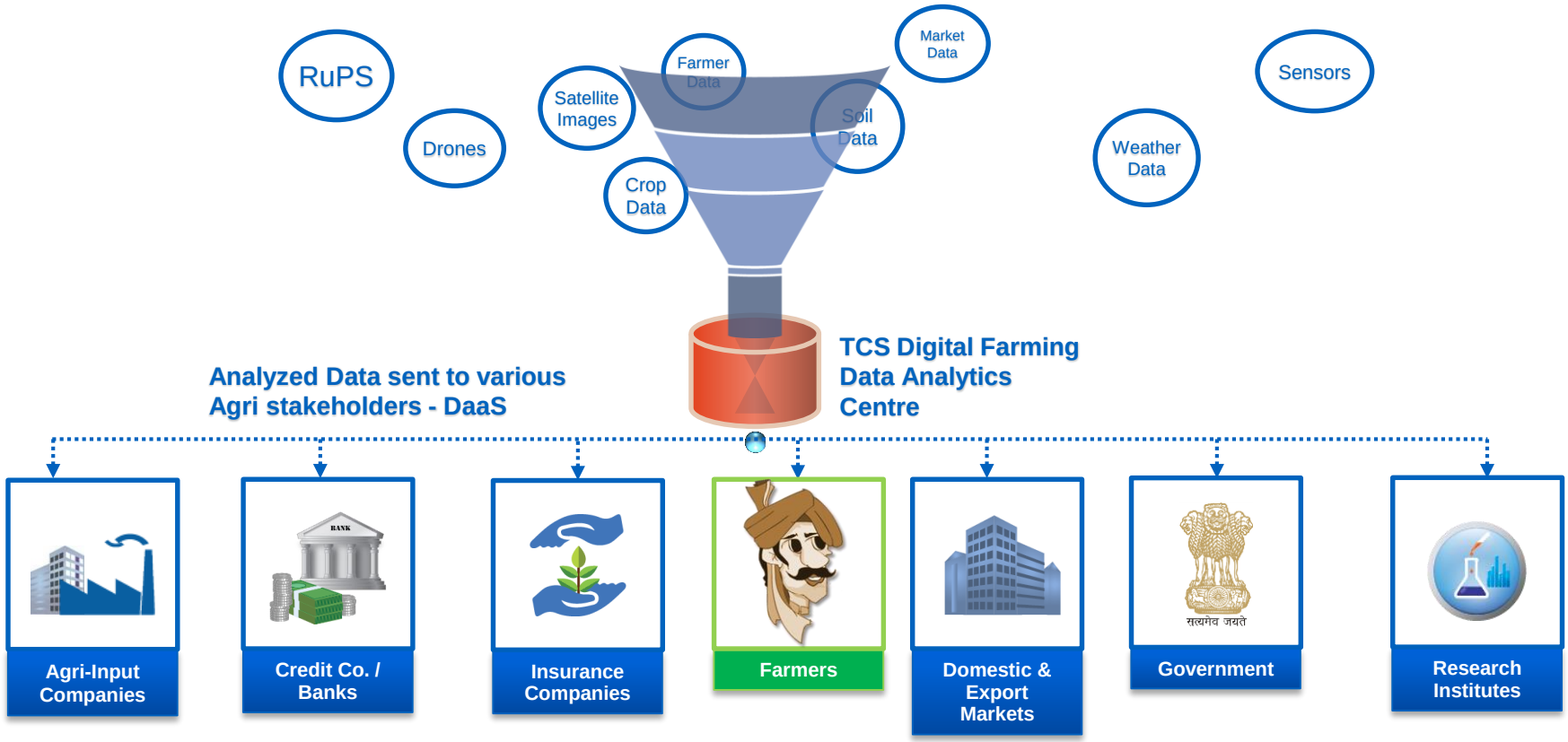


Nutrient Models

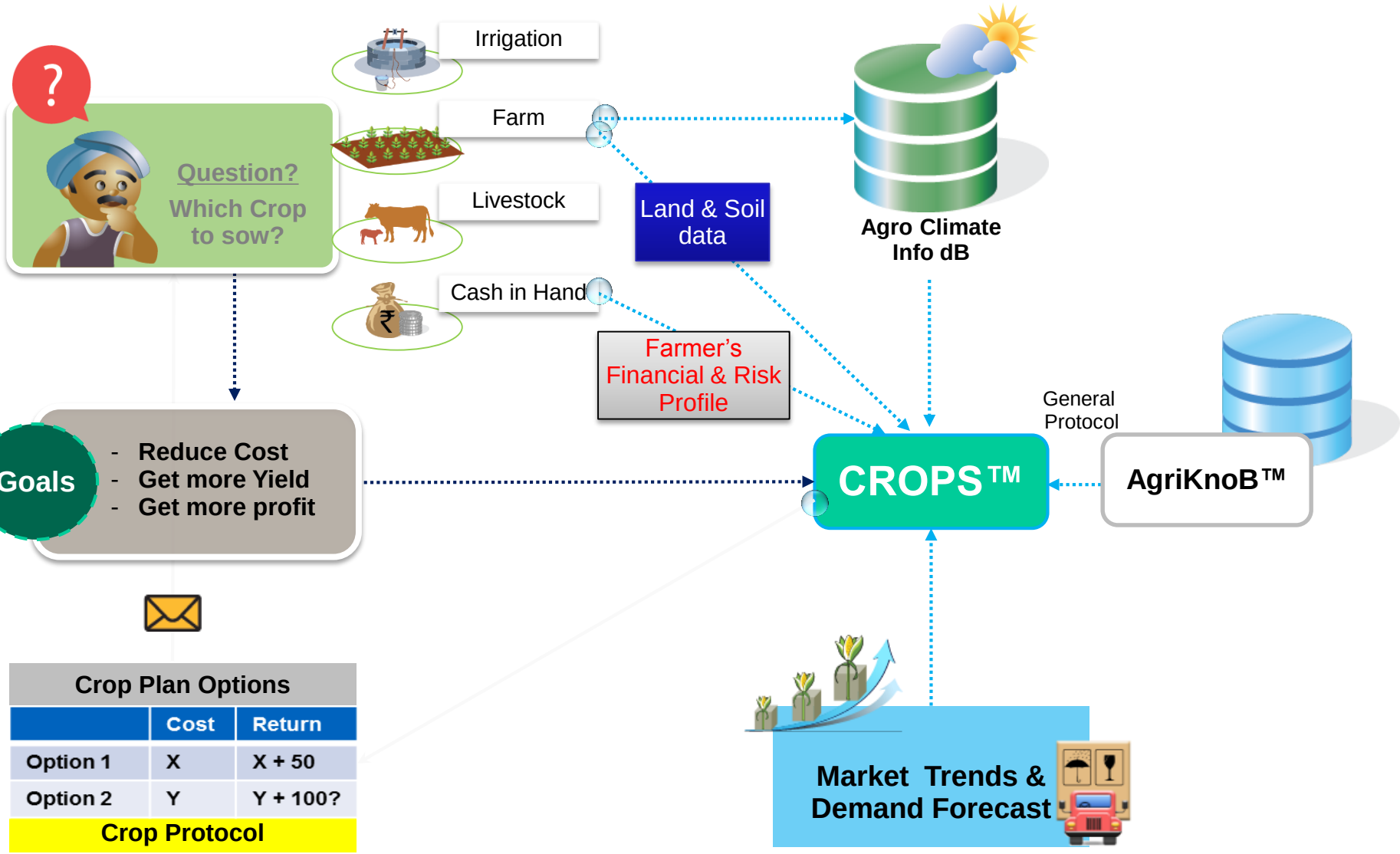
Pest Models | Irrigation Models

Disease Models | User Experience | Big Data & Analytics

Towards Smart Farming



Phase 1: Crop Planning

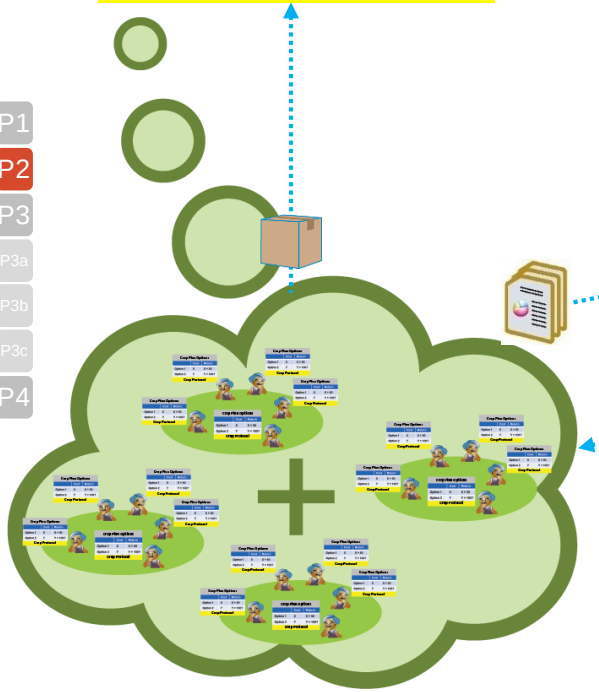


P1
P2
P3
P3a
P3b
P3c
P4

Phase 2: Aggregation & Ordering

Crop Plan Options		
	Cost	Return
Option 1	X	X + 50
Option 2	Y	Y + 100?
Crop Protocol		

P1
P2
P3
P3a
P3b
P3c
P4



Consolidated Agro Input Demand for Seeds, Fertilizer, Pesticide, Irrigation, Labor, etc.

AgriComms™

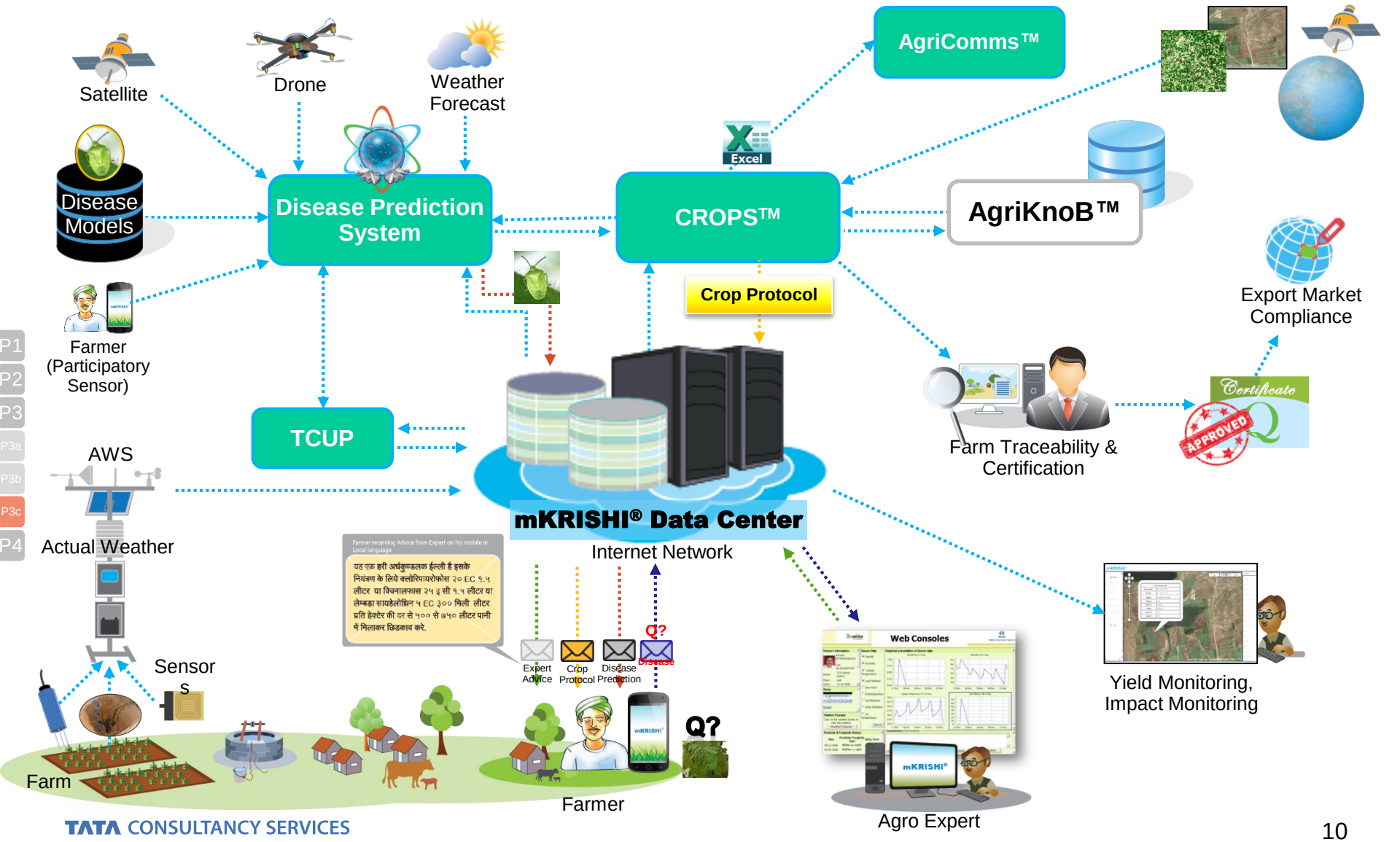
Agri-Input Companies

Credit Co. / Banks

Insurance Companies

Markets

Phase 3: Crop cycle management

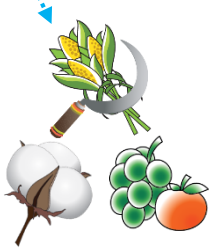


Phase 4: Harvest Planning

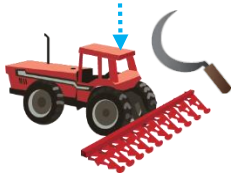
Logistics Manager

Crop Protocol

CROPS™



AgriComms™



Local (PRIDE / Village) Storage

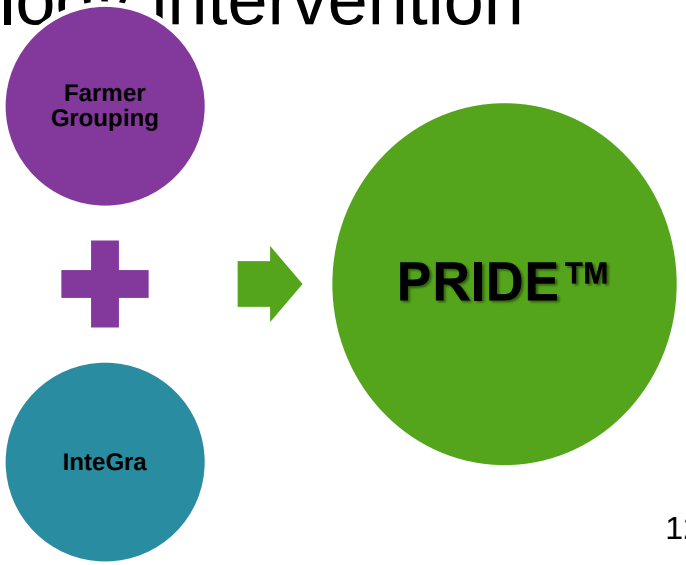
Processing Center

P1
P2
P3
P3a
P3b
P3c
P4

What is a PRIDE™?

Progressive Rural Integrated Digital Enterprise

- Intersection of Technology, Agriculture and Business Management
- Self-sustaining, economically viable entity
  - Made possible through technology intervention
    - Standardized processes
    - Improved data visibility
    - Enabling data analytics
    - Demand-driven production



Objectives of PRIDE™s

Leverage ICT to **transform** the19th Century Agricultural practices into 21st Century by **connecting farmers with partners and experts** of agriculture eco system and promoting scientific **farming**.

Leverage ICT to achieve **economies of scale** through aggregation of land-holdings, supply of market produce and demand for agri-inputs.

Provide personalized, farmer specific bouquet of services like Agro Advisory, Best Practices, Crop Rotation and Planning, Alert Services, Procurement etc. on mobile in local language for Value Creation.

PRIDE™ – Bridging the Gap

Fragmented landholdings

Aggregated landholdings

Traditional farming

Scientific farming practices

PRIDE™

Powered by mKRISHI®

Poor access to markets & agri-inputs

Better bargaining power

Lack of relevant agri-info

Right info at the right time

PRIDE™ – Interacting with stakeholders

RALLIS · TATA CHEMICALS LIMITED · JOHN DEERE · NEW HOLLAND · NABARD · भारतीय स्टेट बैंक State Bank of India · TATA CAPITAL LIMITED

Government / Research Organization

- Government Agencies
- NGOs / KVKs
- Agriculture universities
- Research institutes

PRIDE – For leveraging maximum offerings of mKRISHI® platform.

G2B

Agro Supply Companies

- Seed companies
- Fertilizer companies
- Pesticide companies
- Farm equipment companies
- Weather services
- Banks
- Insurance companies

B2B

Farmer Co-operatives /Farmer Services Company / Producer Organisation

Distribution & Collection

B2B

Agro Produce Market

- Export organisations
- Food processing industries (Contract Farming, Sugar, Dairy, Poultry, Animal Husbandry etc)
- Retailers/Caterers/Procurers

Farming Community

- Farmers (crops, cattle, poultry, fisheries etc) - (member of producer organizations)

Each of the government agro organisations, agro supply and agro produce companies are potential customers.

Best Price · Cargill · STAR Bazaar · METRO Cash & Carry · BIG BAZAAR

सत्यमेव जयते Government of India

Finally…

Need

=

Ecosystem

+

Platf

mKRISHI® is a Business solution involving

- **Numerous Technologies**
- **Consortium Ecosystem, and**
- **a sustainable Business Model**

Characteristics:

- **On Mobile,**
- **Farmer Specific and**
- **in Local language.**

- *Qualcomm's Wireless Reach Initiative Award (2007)
- *Wall Street Journal Global Innovation Technology Award (2008)
- *Golden Peacock Award for Innovation (2008)
- NASSCOM Top 50 Innovation Recognition (2009)
- India Innovation Initiative (i3) Award (2009)

- NASSCOM Social Innov
- Aegis Graham Bell Innov
- eINDIA Awards 2010
- Stockholm Challenge 2010 (Eco Honorable mentions
- Business World Infocomm 2012
- Best CIO 2012 IT for Social Cause Av
- Highly Commended Award - Big Tick Business in the Commu Excellence 2013

TCS' award winning Agri-Solution Platform

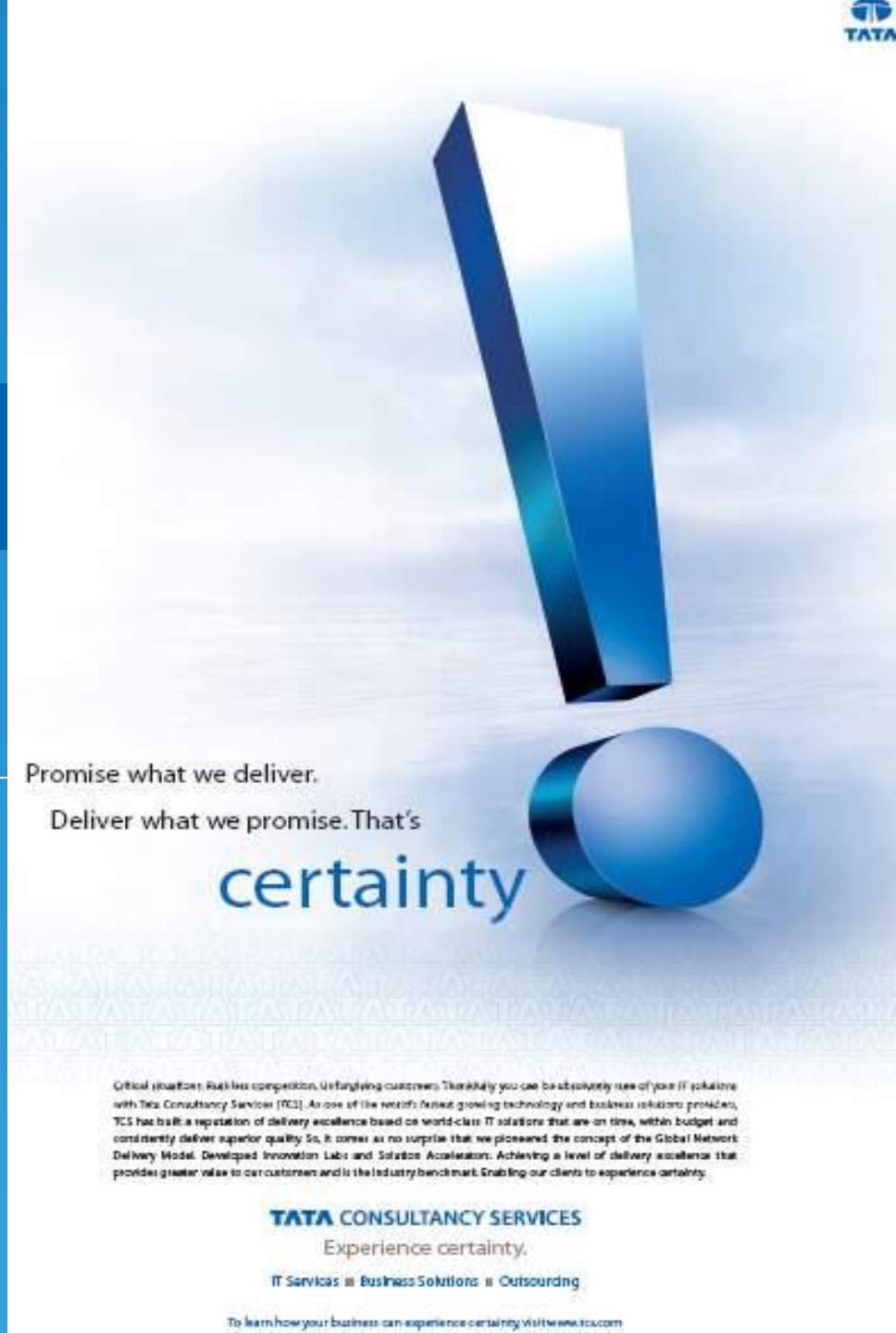
TATA CONSULTANCY SERVICES
Experience certainty.

Questions?

Srinivasu.p@tcs.com

Thank You

Copyright © 2011 Tata Consultancy Services Limited



Backup

Digital Farming – Case Study

Project Objective

Objective

- Visualize risks associated in Agriculture
- Due to Pest, Disease, other factors
- Based on predefined rules

Actions

- Intimate farmers/producers with appropriate actions
- Trigger sales of required agri inputs based on risk level
- Trigger crop consultancy and auditing services
- Analyze the trend of risks and prediction

Project Description

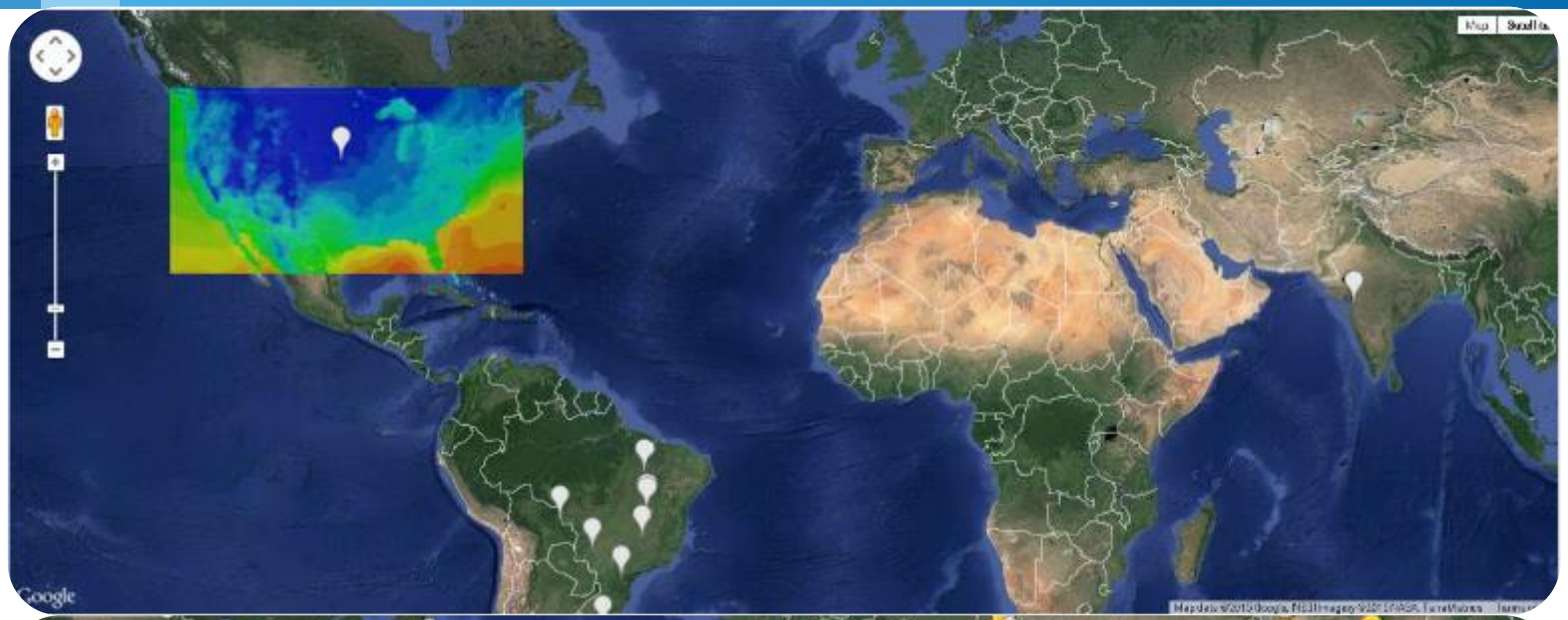
Framework

- Data pull service from file server
- Rule based modelling engine
- Automated Image generation using R
- Automated uploads of images to Google Maps Engine
- Creation of smart UI elements in the front end - pulling appropriate images from Google Maps Engine- Rendering on Google Maps

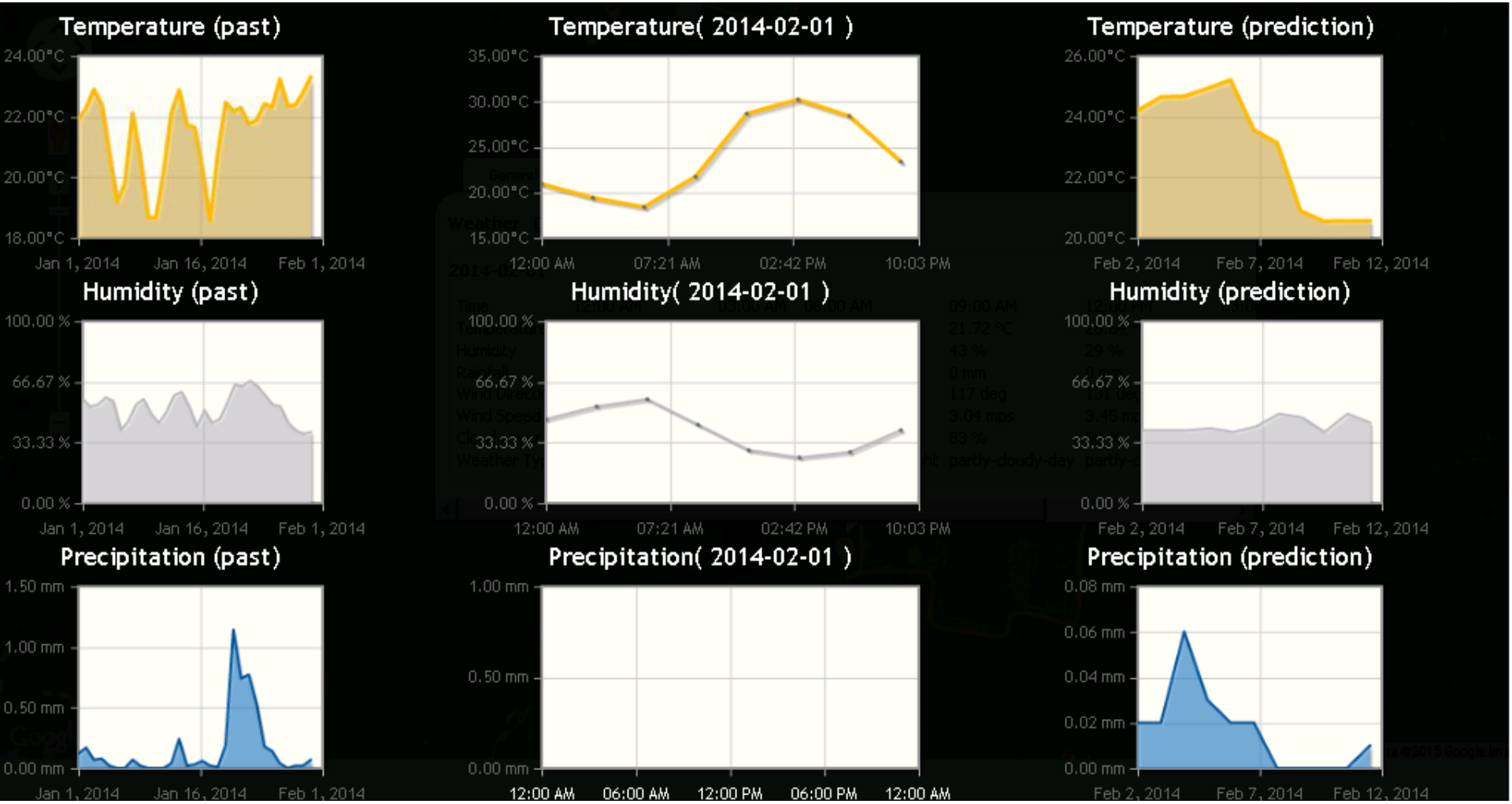
Features Built

- Plot registration and Search
- Plot Visualization
  - Weather Layer with graph
  - Cloud Layer
  - Incident Layer
  - Fusion Layer
  - Risk Layer

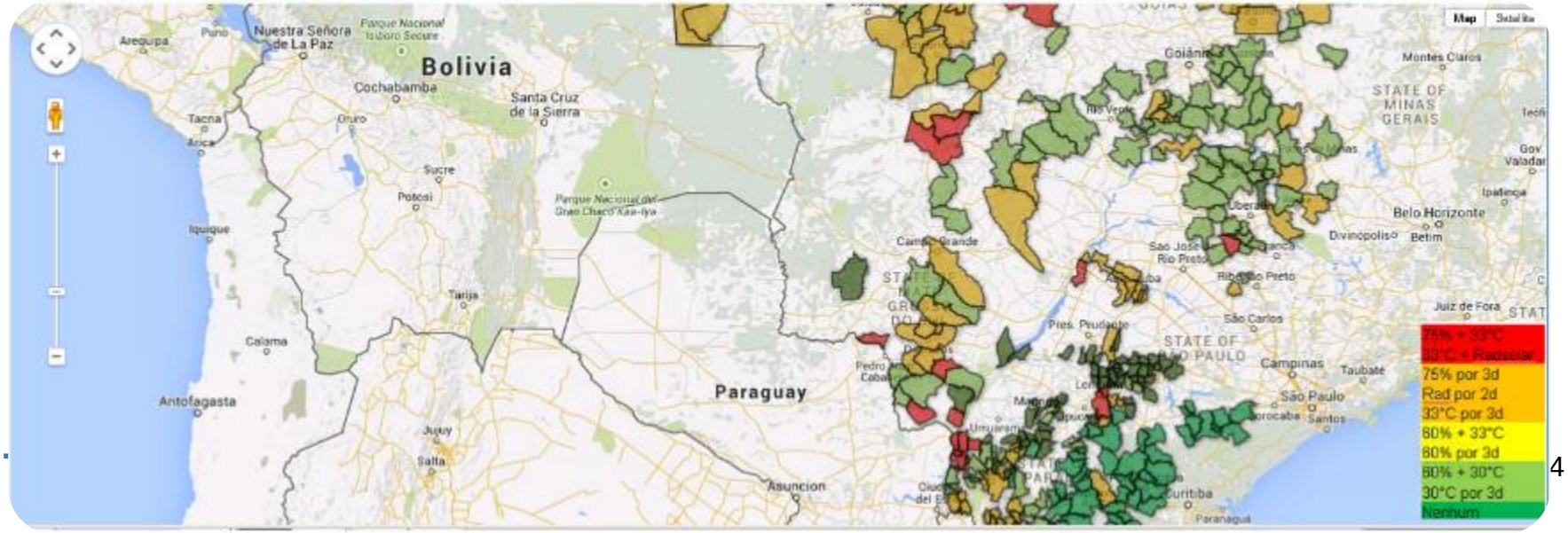
Plot Visualization (Temperature & Weather Layer)



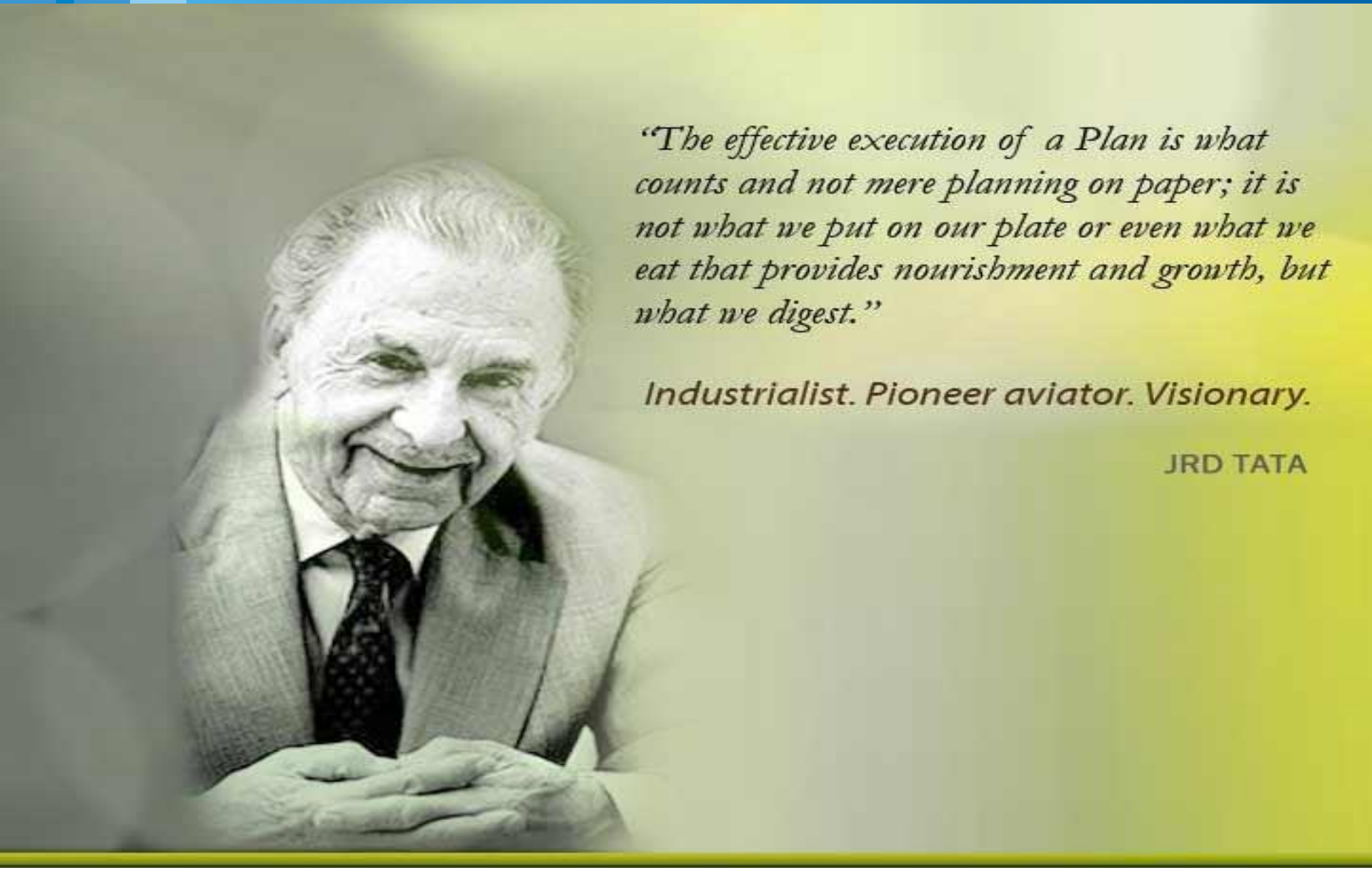
Plot Visualization: Weather Graphs



Plot Visualization: Incident Layer & Risk Layer



Finally…


"The effective execution of a Plan is what counts and not mere planning on paper; it is not what we put on our plate or even what we eat that provides nourishment and growth, but what we digest."
Industrialist. Pioneer aviator. Visionary.
JRD TATA