

# Artificial Intelligence for Cashew

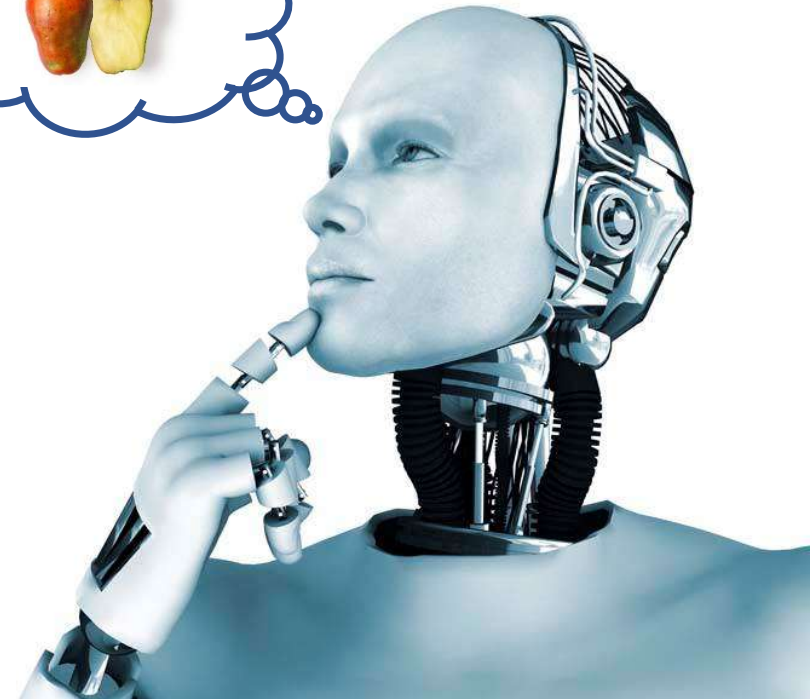
A Realistic Outlook

Sasisekar K

CEO, nanoPix



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# nanoPix - Introduction

- 14 Years of Cashew Grading Technology Development
- Single Pass Size, Colour, Shape, Defect Grading
- 1300+ installations in 10 Countries
- Pan India, Africa, VN Service
- Lowest Broken Generation
- Highest Value Grading
- Approx 5L/m Savings
- 40 Patents



# Mapping AI-Tech with Cashew Segments



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## • AI Technology Space

- IoT – Data Collectors
- Machine Intelligence
- Vision Intelligence
- Data Intelligence

## • Cashew Segments

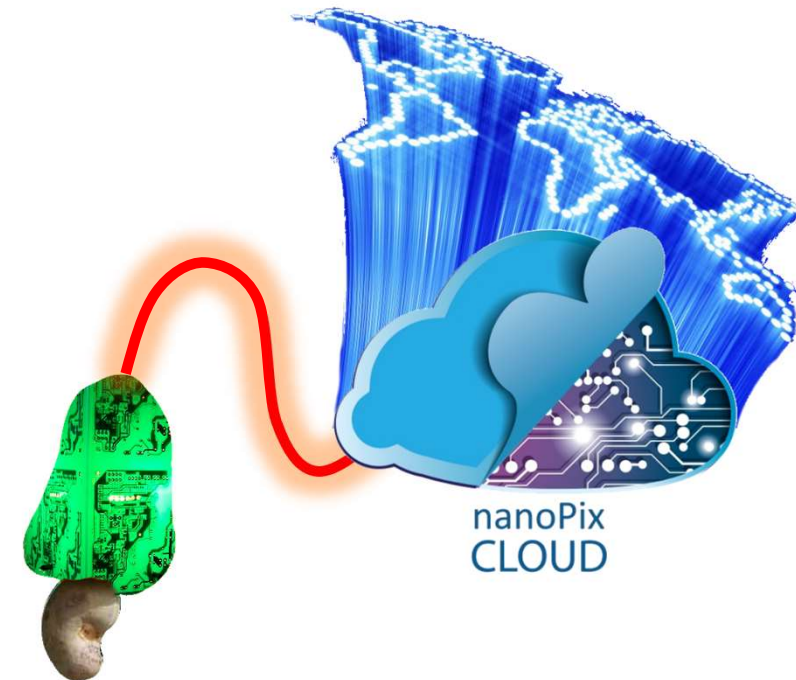
- Growing & Yield
- Processing
- Quality vs. Pricing



# IoT – Data Collectors



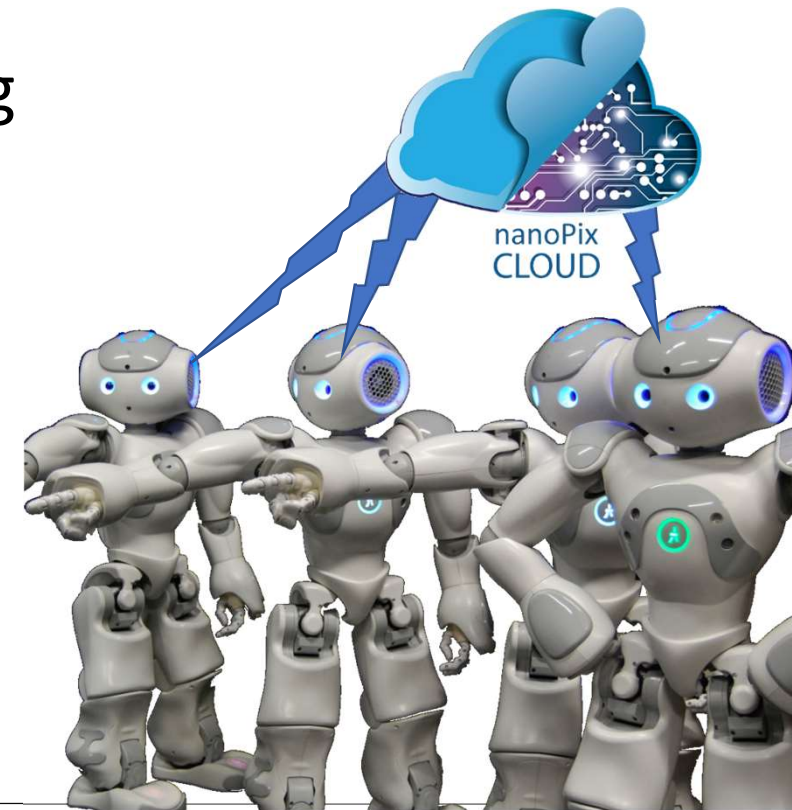
- Data from Machines & Inputs in the Cloud
- Secure Cloud storage for Analysis
- **nanoPix Contribution**
  - nanoSorter Online Health Diagnostics
  - Collaborative Research on AI Platform
  - <http://nanopix.cloud> secure database



# Machine Intelligence



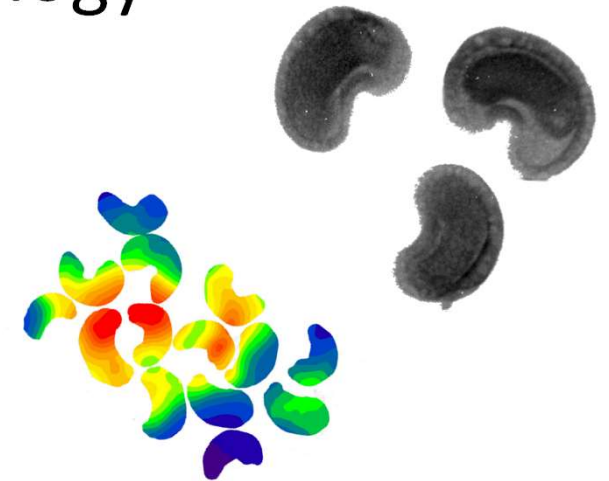
- Self Learning & Peer to Peer Learning
- Machines perform tasks after thinking
  - Able and Informed Decision Making
  - Act as Proxy and Answer questions
- Scope in Cashew Industry
  - Boilers and Cookers
  - Cutting Machines, Separators
  - Peeling Machines
  - Grading Machines, Colour Sorters
  - Packing Machines



# Image Intelligence



- Analysing Inputs through Vision Technology
- Infrared, UV, X-Ray Imaging
- **nanoPix Contribution**
  - Automatic Cashew Grade Setting
  - The Grade as per Market Need/Price
  - RCN: Predict Kernel Size and Quality
  - Years of Data for Correlation/Enhancement



# Data Intelligence



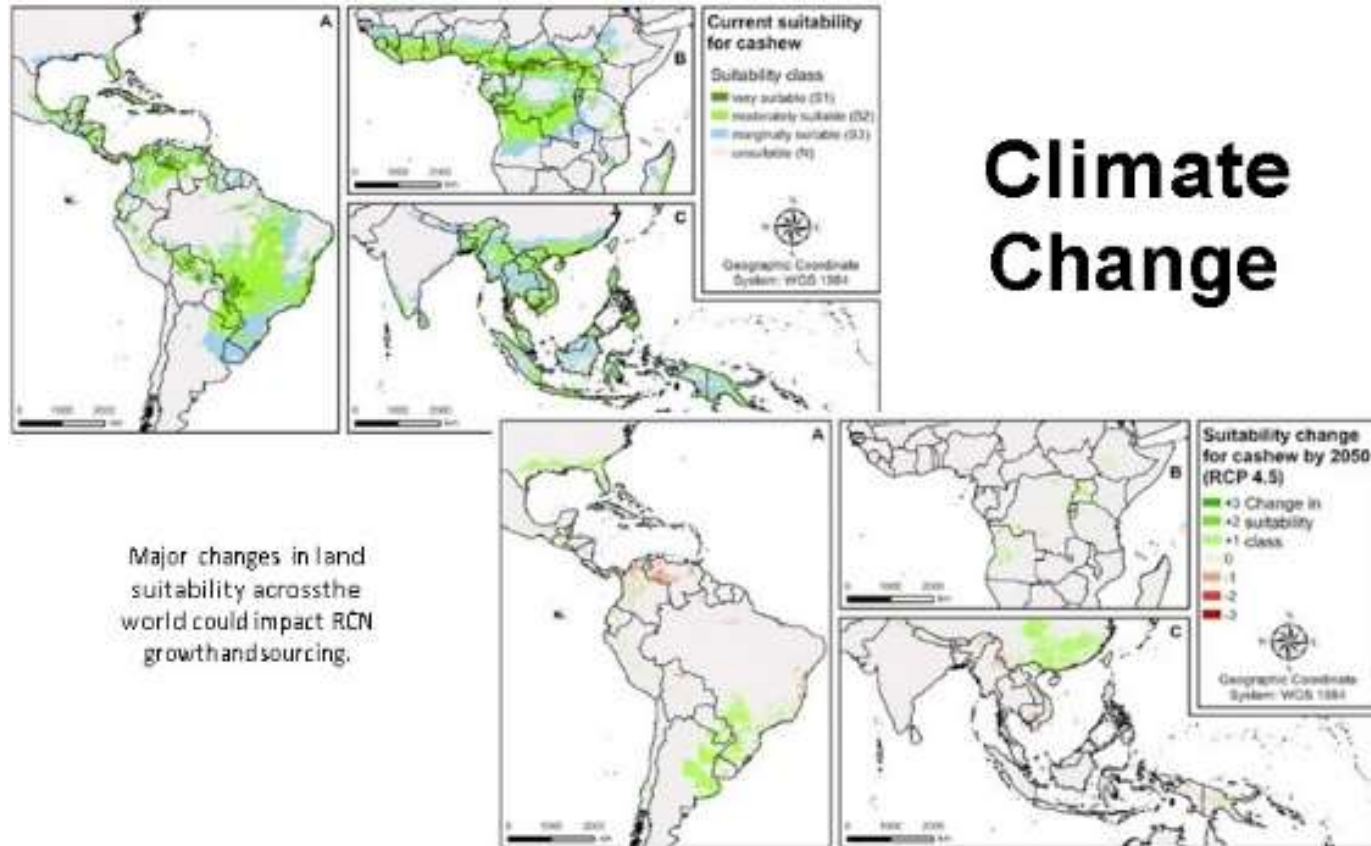
- Deep analysis of past data
- Future Prediction based on analysed results

## nanoPix Contribution

- **nanoSparsh – Mobile app**  
Remote Monitoring and Control  
Reports on Performance  
Productivity
- <http://nanopix.cloud>



# Data Intelligence: Cashew Yield



## Climate Change

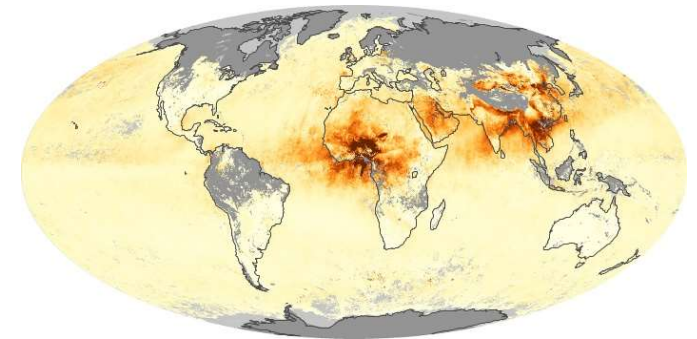
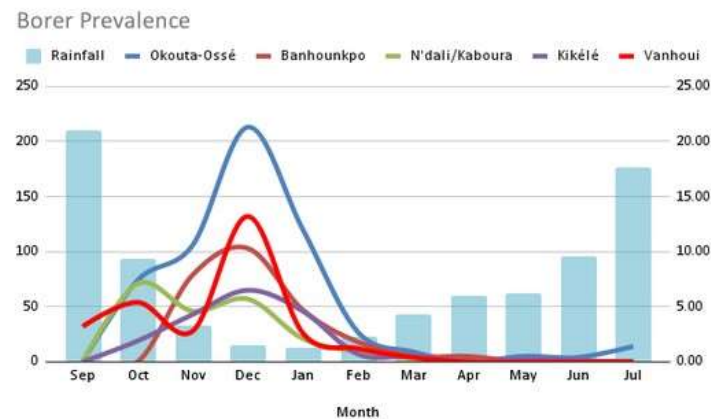
Major changes in land suitability across the world could impact RCN growth and sourcing.



# Data Intelligence: Cashew Plantation



- Apate Terebans (Borer) affects production of cashew
- Relationship between Climate Change/Aerosol and Borer Effect
- Timely intervention in farm can be enabled



- Credit: Tamo Manuele, International Institute of Tropical Agriculture, Benin
- Data Scientists, NPTEL, IIT Madras

# nanoPix & AI



- nanoPix has built robust AI model for Cashew Kernels
- 40 Patents in 80 Countries
- **nanoPix – NPTEL, IIT Madras Collaboration**
- **Cloud Database for Cashew AI Platform**
- **Local-AI Driven Algorithm for Cashew Grading**
- **Peer to Peer Machine Learning Enabled Systems**
- **Online Diagnostics, System Health Management**

# AI For Cashew – Next Few Steps

## nanoPix Contribution

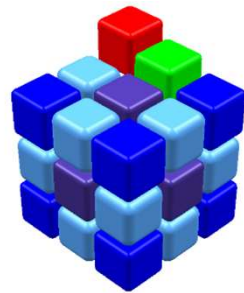


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| Cashew AI Tech              | Growing                               | Processing                           | Market                              |
|-----------------------------|---------------------------------------|--------------------------------------|-------------------------------------|
| <b>IoT</b>                  | RCN Quality during Shipping           | Connect all machines, Cloud database | RCN Quality in Godown, Samples      |
| <b>Machine Intelligence</b> | Automatic Sprayer, HarvesterRobotic   | Machine Coordination, Food Safety    | Recipe – Food Composing             |
| <b>Vision Intelligence</b>  | Crop Observation, Harvest Automation  | Accurate Kernel Grading, RCN Quality | Grade Mix to Market Price           |
| <b>Data Intelligence</b>    | Climate, Yield Zone, Export Stability | RCN, History, Weather, Diagnostics   | RCN-Kernel Pricing, Buying Guidance |

Thank You

Sasisekar, CEO, nanoPix



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