



Building a Digital Business

Jim Swanson, Chief Information Officer
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Monsanto: A Sustainable Agriculture Company

- Bringing a broad range of solutions to help nourish our growing world
- Collaborating to help tackle some of the world's biggest challenges
- >20,000 employees in 66 countries
- >50% employees based outside of the United States
- One of the 25 World's Best Multinational Workplaces by Great Place to Work Institute



FORTUNE
WORLD'S MOST
ADMIRED
COMPANIES 2014

DiversityInc
2015
TOP 50
COMPANIES FOR
DIVERSITY

Science
2015
TOP EMPLOYER

CR's
100 Best
Corporate
Citizens
2015

DIGITAL
EDGE25
AWARDS
<2016>

MIT
Technology
Review

50 SMARTEST
COMPANIES

BEST
PLACES TO WORK
2015 for LGBT Equality
100% CORPORATE EQUALITY INDEX

MONSANTO
INFORMATION TECHNOLOGY



Our systems approach integrates technology platforms to maximize farmer effectiveness.

Biologicals

- Weed Control
- Insect Control
- Virus Control
- Plant Health

Data Science

- Planting Script Creator
- Increased production
- Efficient water use
- Efficient nutrient use

Breeding

- Stress Tolerance
- Disease Control
- Yield
- Vegetables, corn, cotton, soybeans, wheat, canola

Biotechnology

- Weed Control
- Insect Control
- Stress Tolerance
- Yield / Yield Protection
- Nutrients

Crop Protection

- Weed Control (Roundup® Branded Agricultural Herbicides)
- Insect Control
- Disease Control



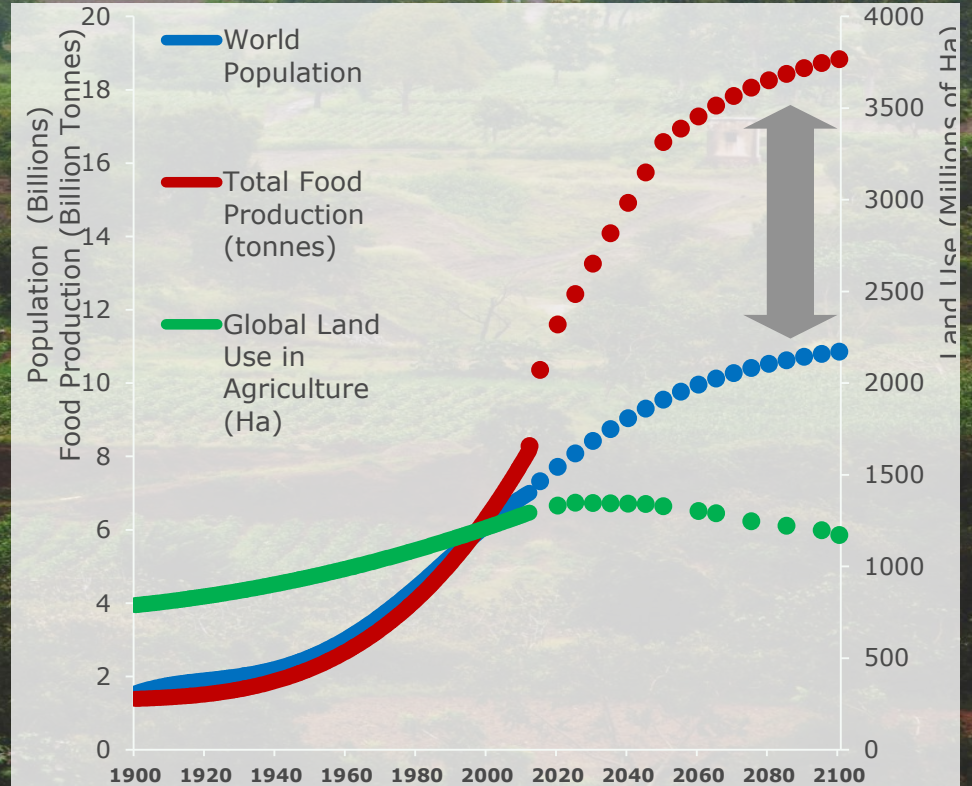
We can help meet the needs of the future.

Sustainably Supporting Demand and Preserving Natural Landscapes

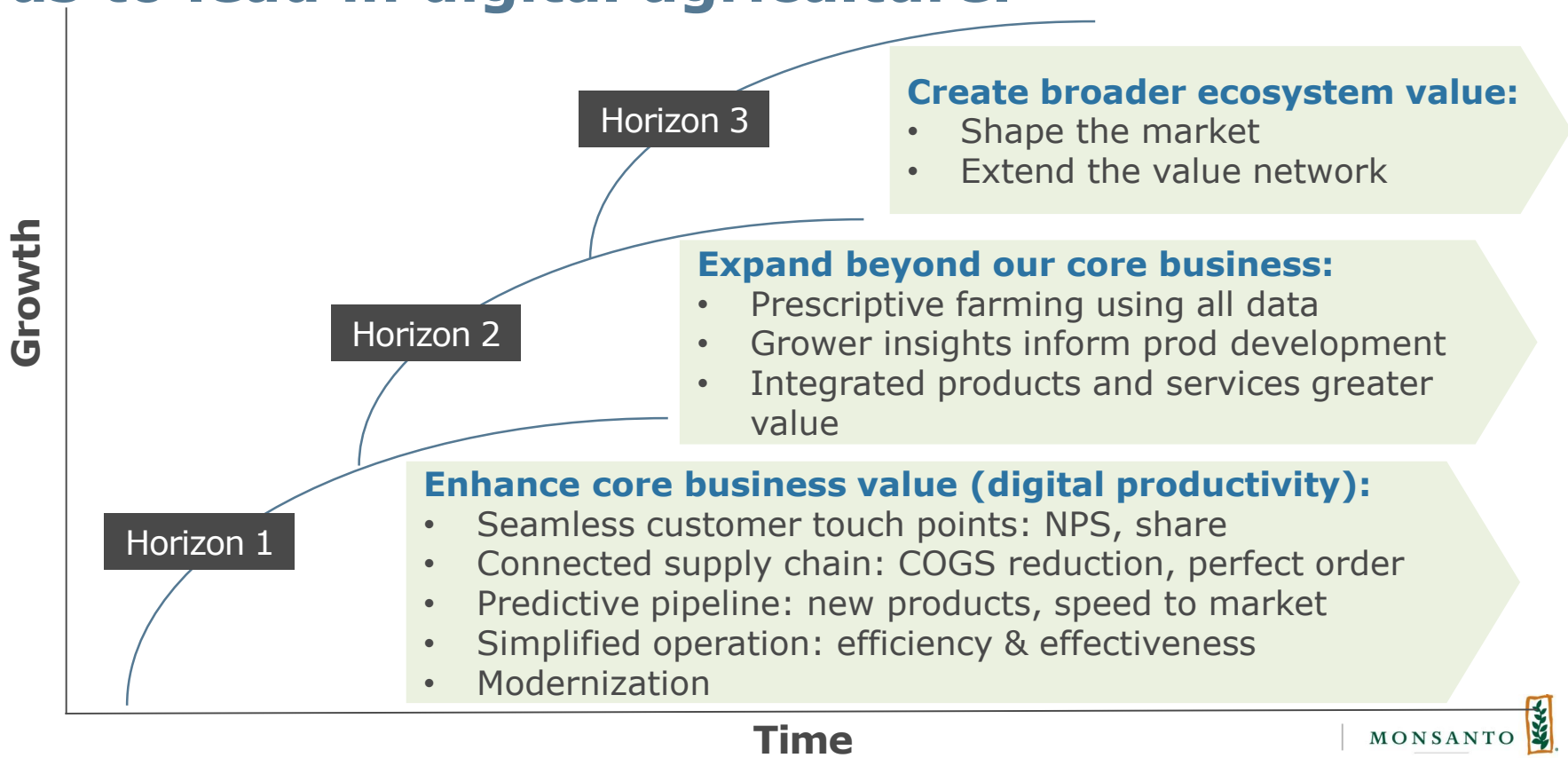
- ✓ Reduce the footprint of farming
- ✓ Increase crop yields
- ✓ Improve efficiency
- ✓ Reduce waste
- ✓ Improve diets

By 2060: 160M hectares can be restored to nature

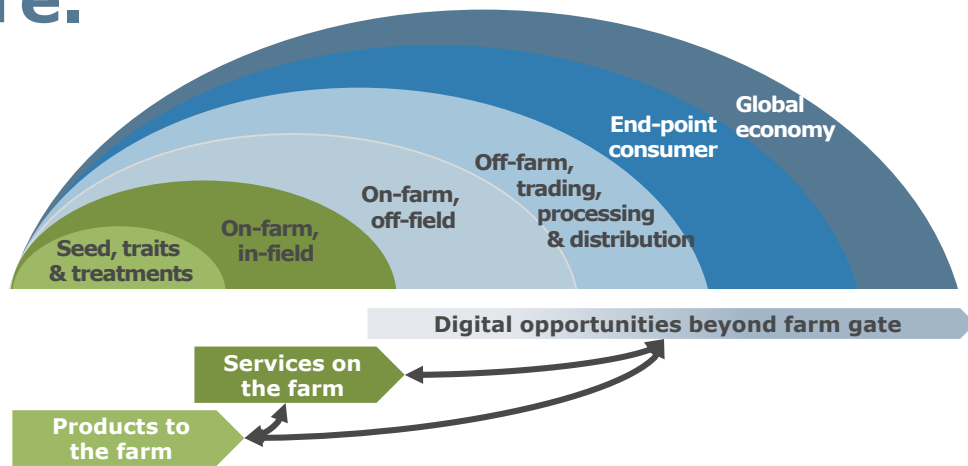
Source: National Geographic, "Feeding the World", 2014
Source: UN FAO, 2014, Monsanto internal calculations; Ausubel, et al., Peak Farmland and the Prospect for Land Sparing Population and Development Review Volume, 38: 221-242



Our strategy for unlocking digital yield enables us to lead in digital agriculture.



Digital capabilities can be leveraged to increase efficiency and improve outcomes across agriculture.



Key Insights:

Agriculture is a system of systems that will be activated by connectivity.

Optimizing an acre can translate to an optimized agriculture.

Value exchange and experiences create engagement.

Data has broader utility.

Analytics unlocks the value of data.

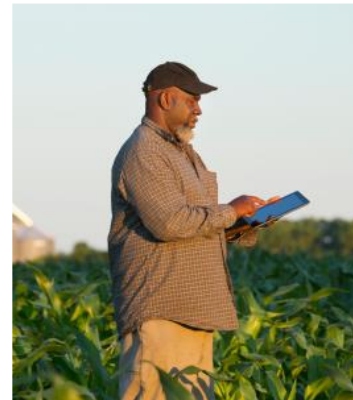
Products and services will become connected and smart.

Only digital companies can participate.



Our digital journey is driving corporate value in four key areas.

- ↑ Shareowner Value
- ↑ Employee Productivity
- ↑ Societal Impact
- ↑ Customer Value



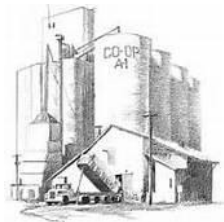
We are embracing the opportunity to deliver shareowner value.

Revenue Lift Across the Platform

Tailoring our products to Precision Ag and to fit our customers' fields

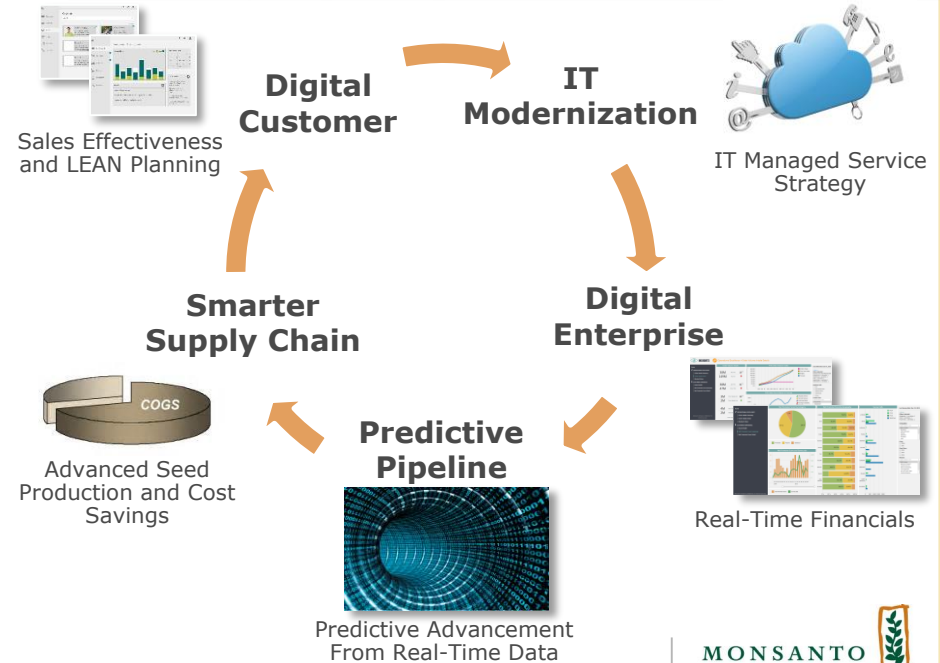


Best customer opportunities with right partners offered with the right pitch at the right price



POD enables technology introductions

Cost Efficiencies and Enhanced Productivity By Digitizing Business Processes



Adoption of modernization and digital tools enable employee productivity.

Employees work productively as our company scales in size and by geography.



Updated device strategy delivers great experiences and access to apps on the go or in the office.



Network transformation keeps our employees connected enabling our Hub and COE strategies.



Video conferencing supports anytime F2F interactions while saving travel costs.



Mobilization enables anywhere productivity and flexible collaboration.

Advanced analytics and data enhances the value of our employees.



Big data shifts to analysis and insight by eliminating repetitive and manual data management.



Prescriptive analytics automates routine decisions, for example reducing product advancement time.



Simulation ensures our employees carry out optimum processes.



Digital can quantify sustainability efforts and build societal value.

- **22% reduction** in greenhouse gas emissions from operations (2020)
- **25% increase** in efficiency of irrigation water application across seed production operations (2020)
- **Double yields** in corn cotton, canola and soybeans (2030)
- Help farmers use **1/3 fewer key resources** per unit of output

Progress as of 2015

73%

35%

13-37%

18-67%

Digital also opens up new ways for our employees to connect with society through programs like Hackathons, Open Source, STEM and LaunchCode.

Source: Monsanto 2015 Sustainability Report

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INFORMATION TECHNOLOGY



We are already creating unique and valuable experiences for our customers.



Farmers make decisions throughout the production cycle:

- Planning
- Pre-planting
- Planting
- In-season
- Harvest

The “Farmers First” platform provides agronomy advice, commodity pricing and access to credit providers.

Smallholder farmers own small plots of land on which they grow subsistence crops and one or two cash crops, relying almost exclusively on family labor.



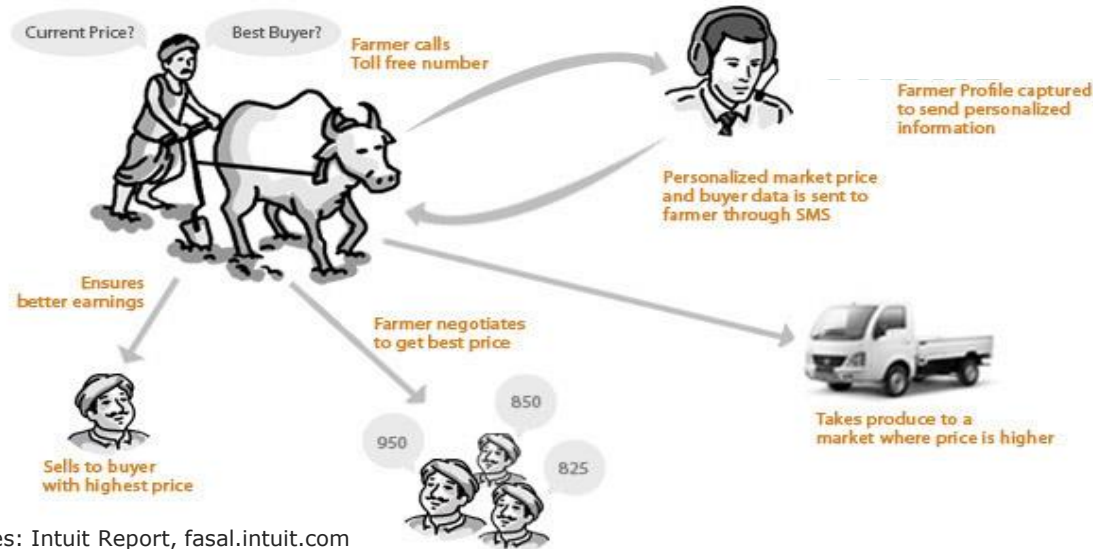
NEED	SOLUTION	SUCCESS
500M small-holder farmers globally	Agronomy advice in native language on Mobile Platform	Launched in India, Burkina Faso and Philippines
100M in India	Customized data using analytics for weather, agronomic practices, commodity pricing	4M subscribers since 2014
70% dependent on ag for livelihood	Cloud-base, social components	Positive changes in farming practices attributed to the service
78% with phone access		

Sources: United Nation Environment Programme, “Smallholder Farmers Key to Lifting Over One Billion People Out of Poverty”, *UNEP (2013)*. AC Nielsen field research in Maharashtra and Karnataka, completed Oct. 2015

The platform supports our customers throughout the growing season.



How Does it Work?



Creating wealth for farmers: Registered users make **upwards of Rs 15000** selling their produce, **20% more** than what they were earning prior to registering for the service.

Through science and digital solutions, we can help feed a growing planet.

- Grow the right amount of food on less land
- Use resources efficiently to preserve natural ecosystems, address water scarcity & climate change
- Improve farmer livelihoods
- Benefit society





Thank You
Visit us at
engineering.monsanto.com

