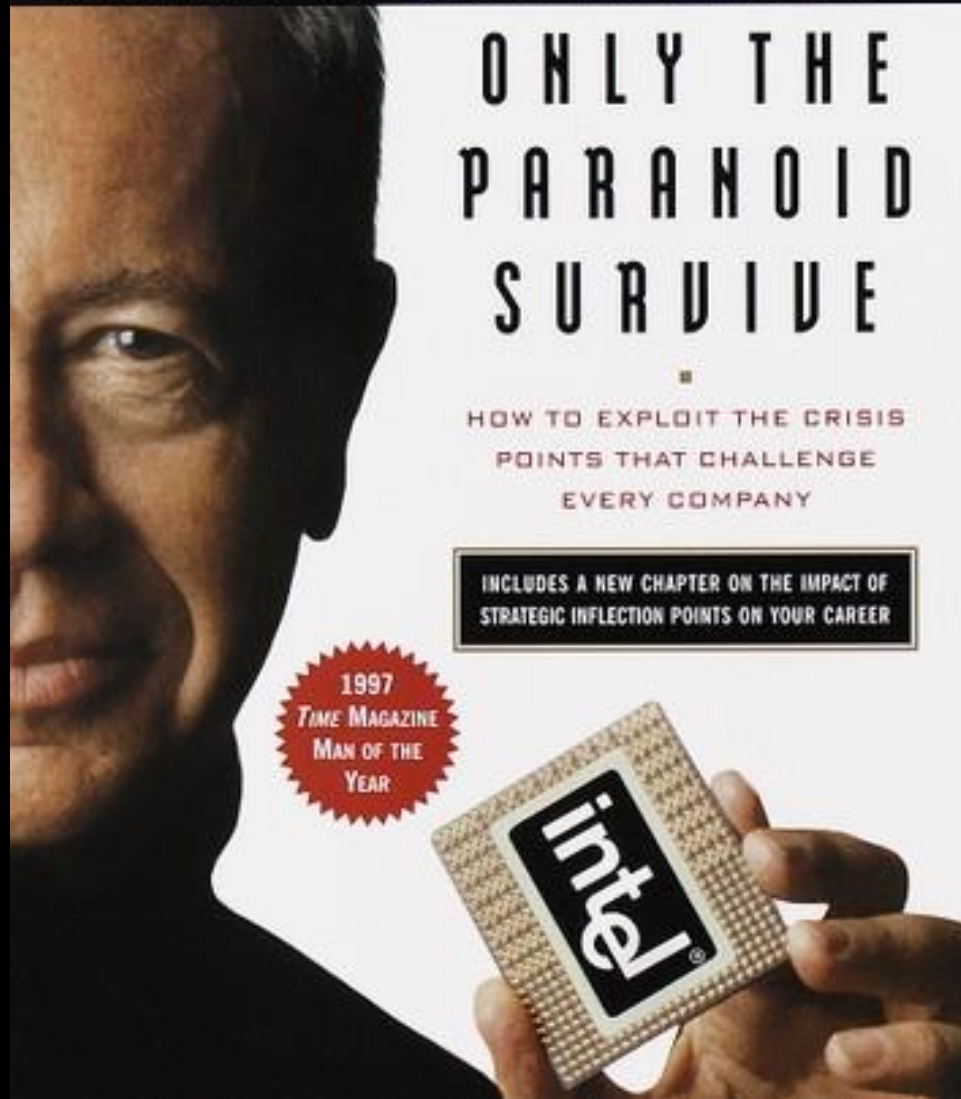


ANDREW S.

GROVE

CHAIRMAN OF THE BOARD OF INTEL CORPORATION



ONLY THE
PARANOID
SURVIVE

■
HOW TO EXPLOIT THE CRISIS
POINTS THAT CHALLENGE
EVERY COMPANY

INCLUDES A NEW CHAPTER ON THE IMPACT OF
STRATEGIC INFLECTION POINTS ON YOUR CAREER

1997
TIME MAGAZINE
MAN OF THE
YEAR



Agenda

External Forces Can and Will Impact the Business Model (SP2)

TOPICS

- **Nature of external forces**
- **Introduction of the “value chain”**
- **A business “macro-environment”**
- **Watson PESTEL results**

Learning Objectives

1. Business Models are designed and function in specific environments
2. Continuous environmental scanning is essential and is a best practice of strategically managed organizations
3. A PESTEL ANALYSIS begins to identify the opportunities and threats facing the organization
4. Opportunities and threats emanating from the external environment are *often the cause for disruptive, business model innovations*

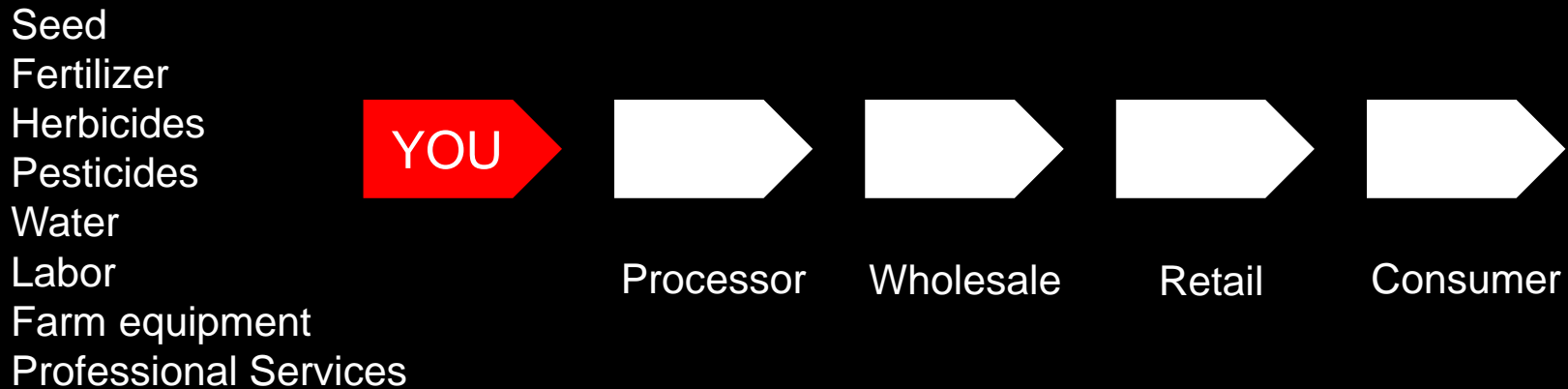
Questions to ask

What trends affect the present?

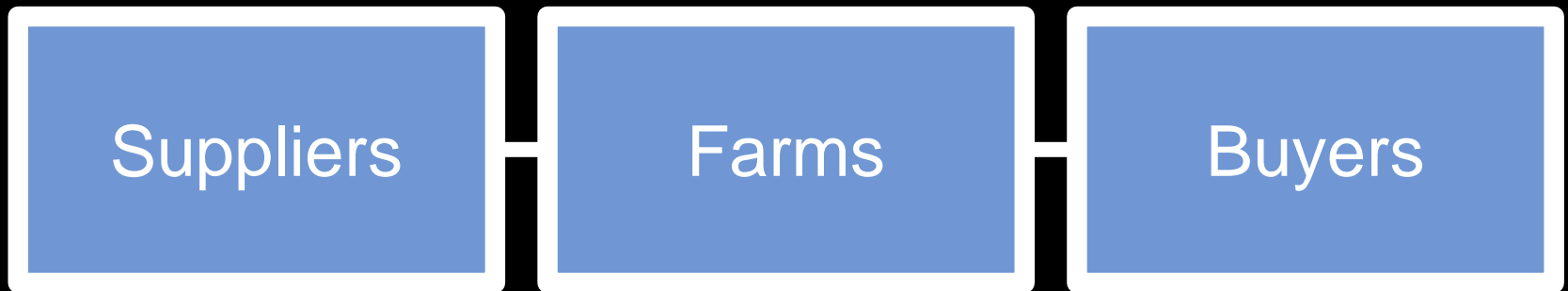
How will “possible futures” look?

How will we create and capture value
in those futures?

Value Chain (example)



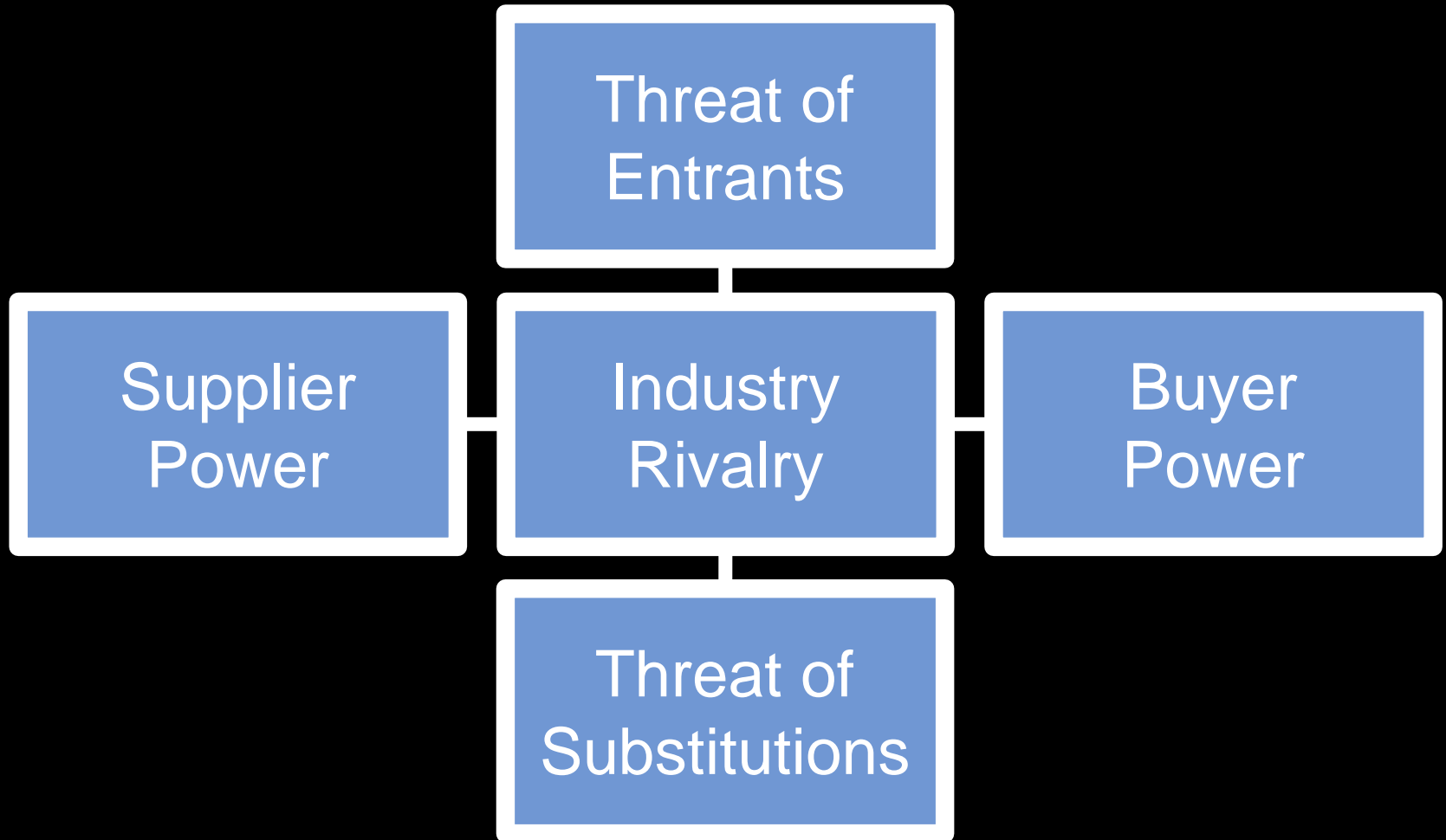
Simplified



Reframed as “forces”

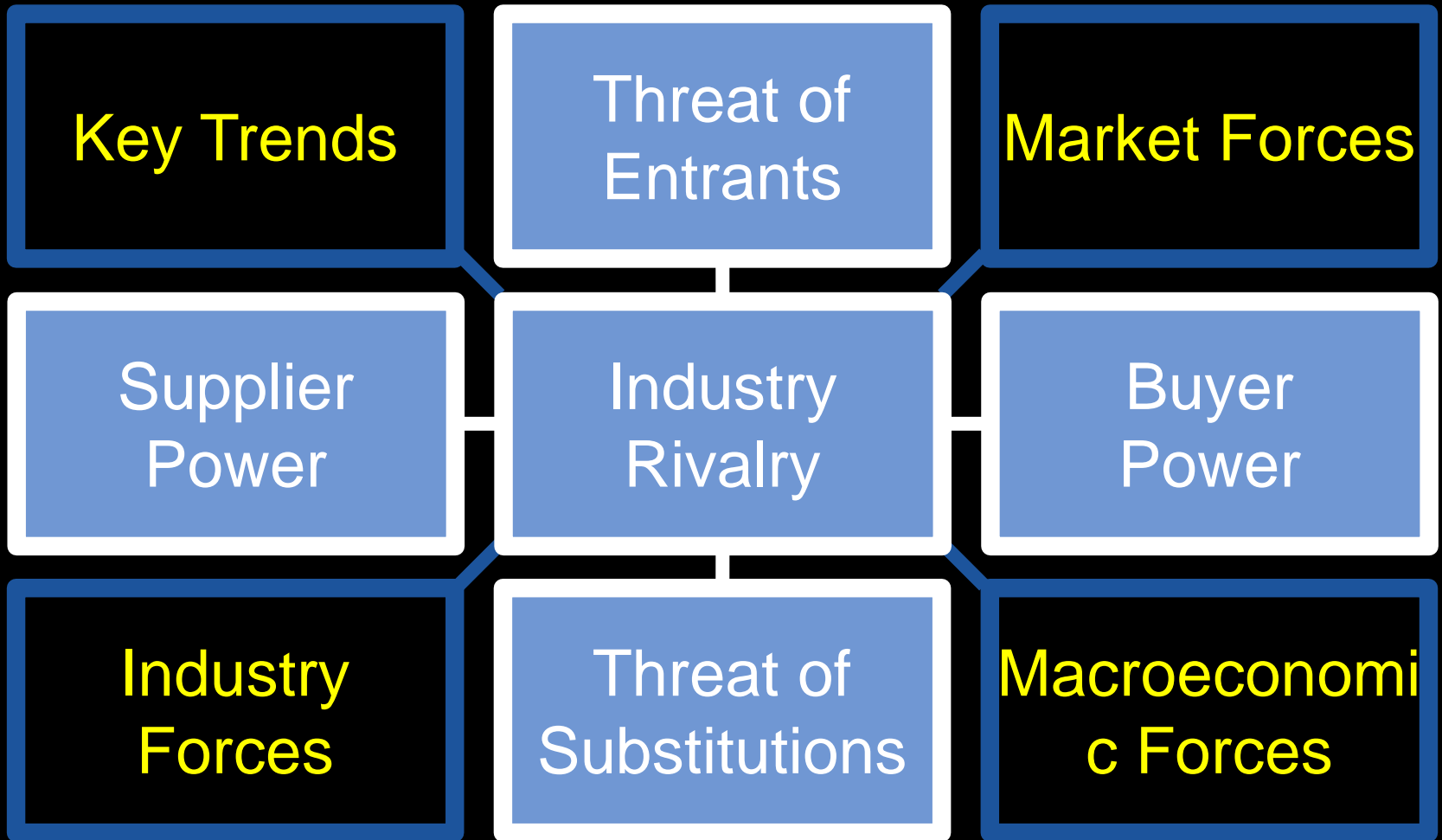


Forces are **limits to success**

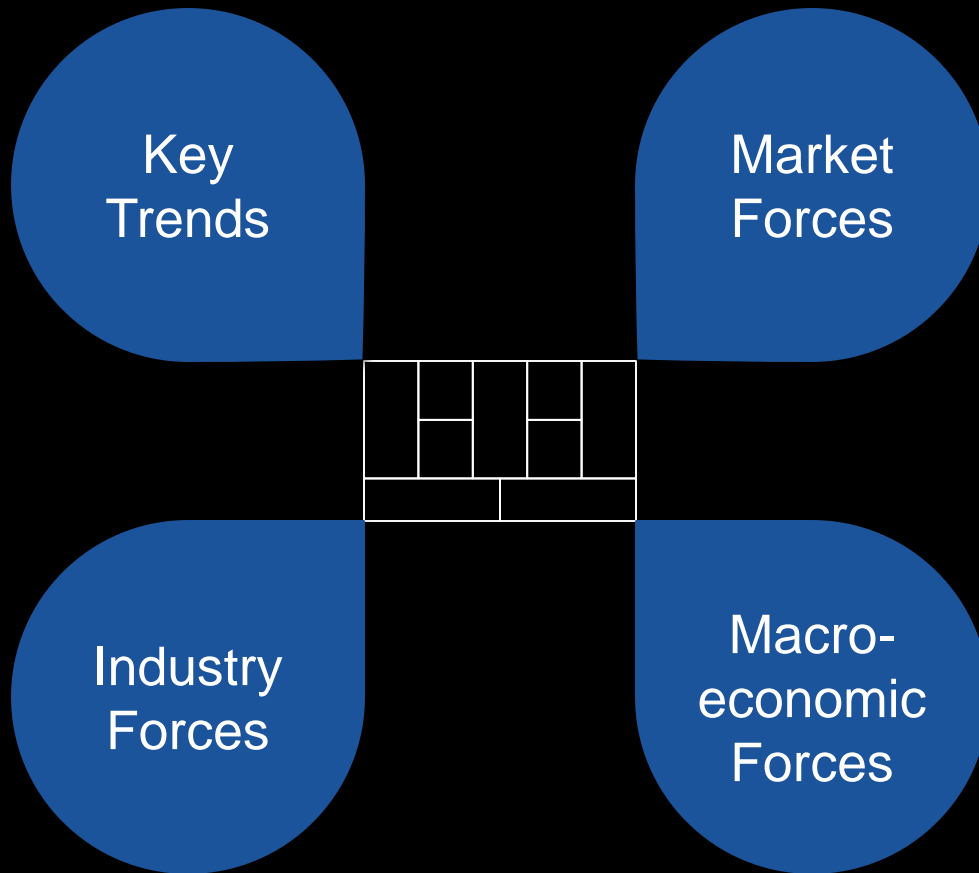




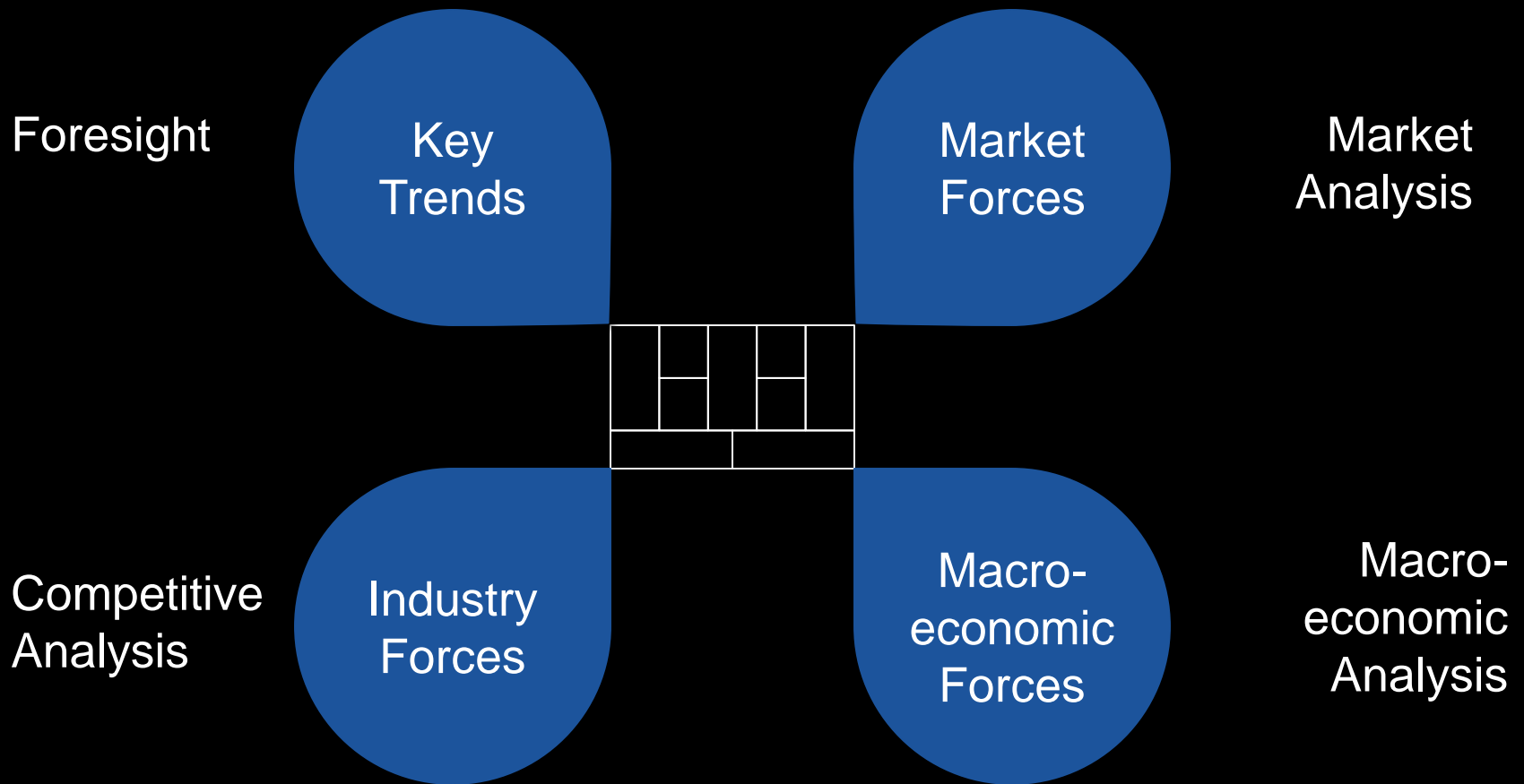
But wait! There's more!



Business Model Environment

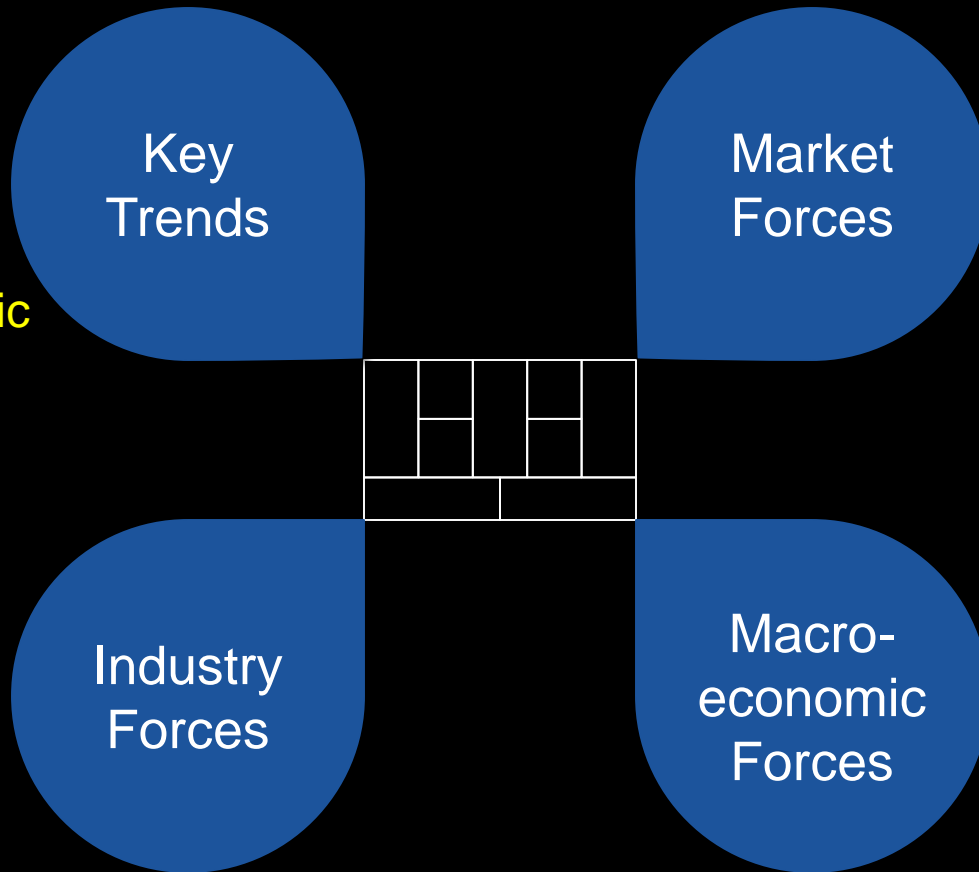


Business Model Environment



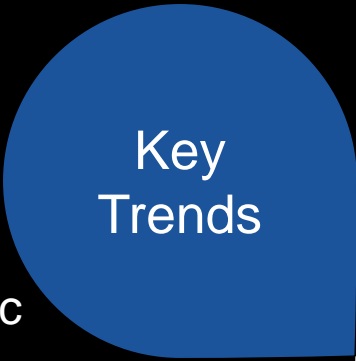
Key Trends

- Technology
- Regulatory
- Social
- Cultural
- Socioeconomic

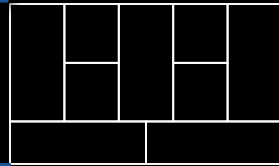


Market Forces

- Technology
- Regulatory
- Social
- Cultural
- Socioeconomic



- Segments
- Needs and demands
- Market issues
- Switching costs
- Revenue attractiveness



Macroeconomic Forces

- Technology
- Regulatory
- Social
- Cultural
- Socioeconomic

Key
Trends

Market
Forces

- Segments
- Needs and demands
- Market issues
- Switching costs
- Revenue attractiveness

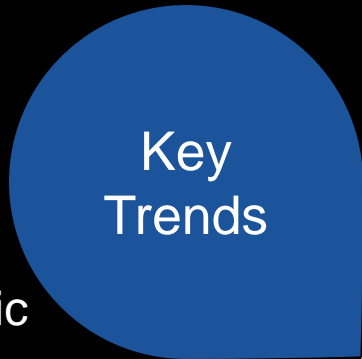
Industry
Forces

Macro-
economic
Forces

- Global market conditions
- Capital markets
- Economic infrastructure
- Commodities and other resources

Industry Forces

- Technology
- Regulatory
- Social
- Cultural
- Socioeconomic

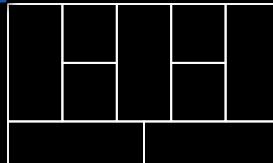


Key Trends

- Suppliers & other value chain players
- Stakeholders
- Incumbents
- Insurgents
- Substitutes



Industry Forces



Market Forces

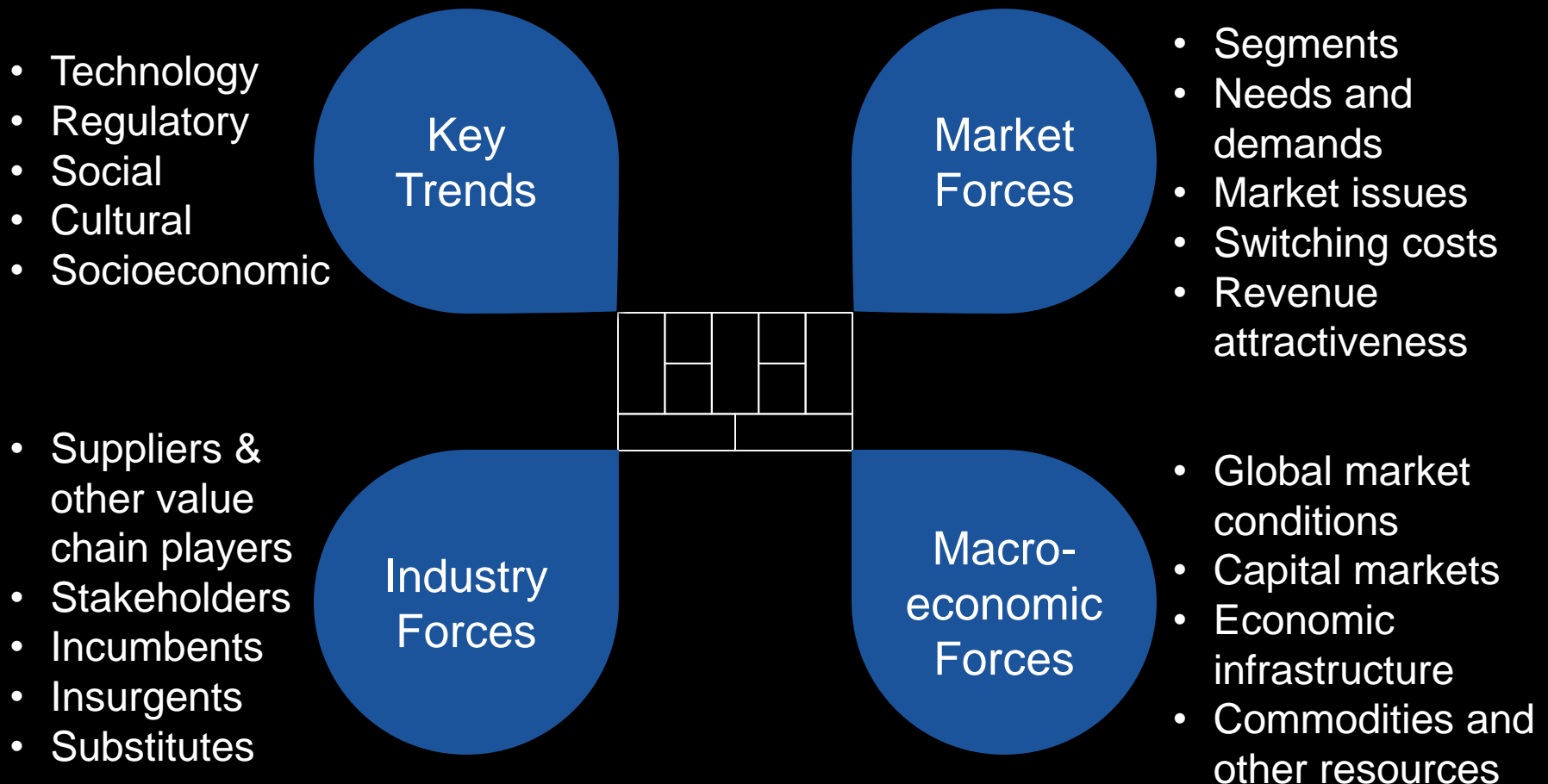
- Segments
- Needs and demands
- Market issues
- Switching costs
- Revenue attractiveness

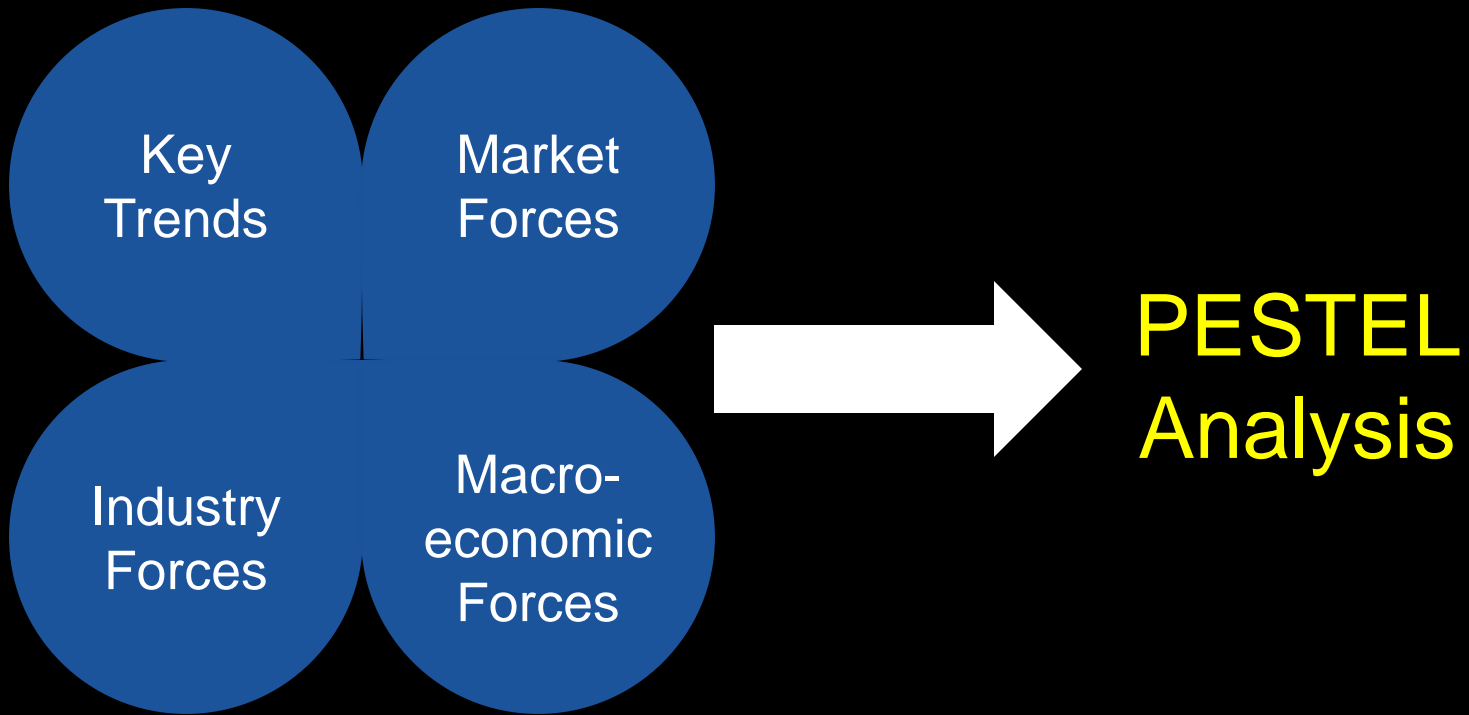


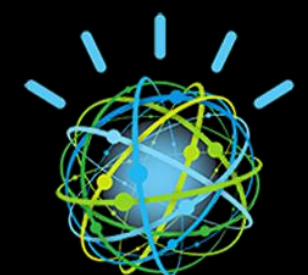
Macro-economic Forces

- Global market conditions
- Capital markets
- Economic infrastructure
- Commodities and other resources

Industry Forces







IBM Watson

Introduction to Big Data

What Happens in an Internet Minute?



A lot!...and you need to know how to harness it!

And Future Growth is Staggering



Introduction to Big Data

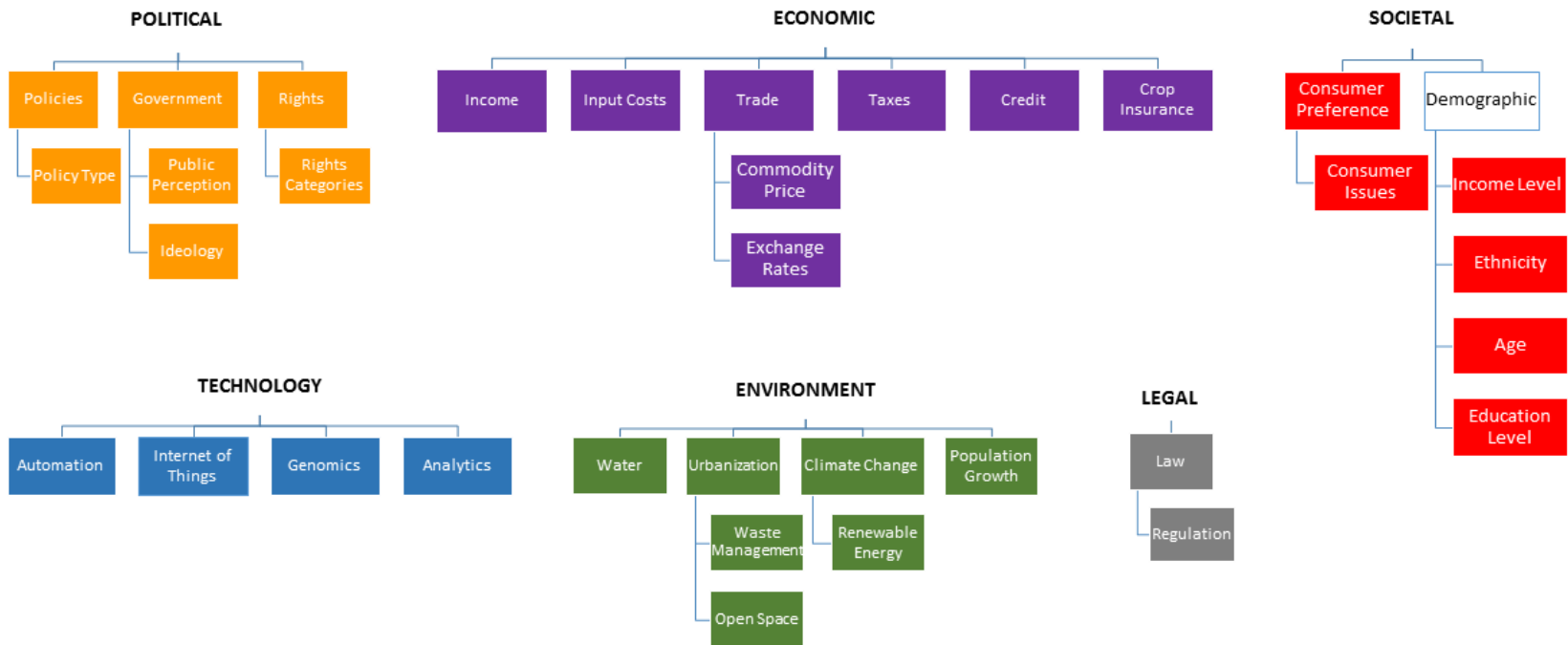


- Watson needs to learn the language of Politics, Economics, Societal Issues, etc.
- **“Dictionaries”** containing keywords and phrases relevant to these topics help filter and isolate the desired information
- **“Seed Sources (URL’s)”** are selected that likely contain this information
- **Search algorithms (“Rules”)** are developed to automate the analysis

Introduction to Big Data

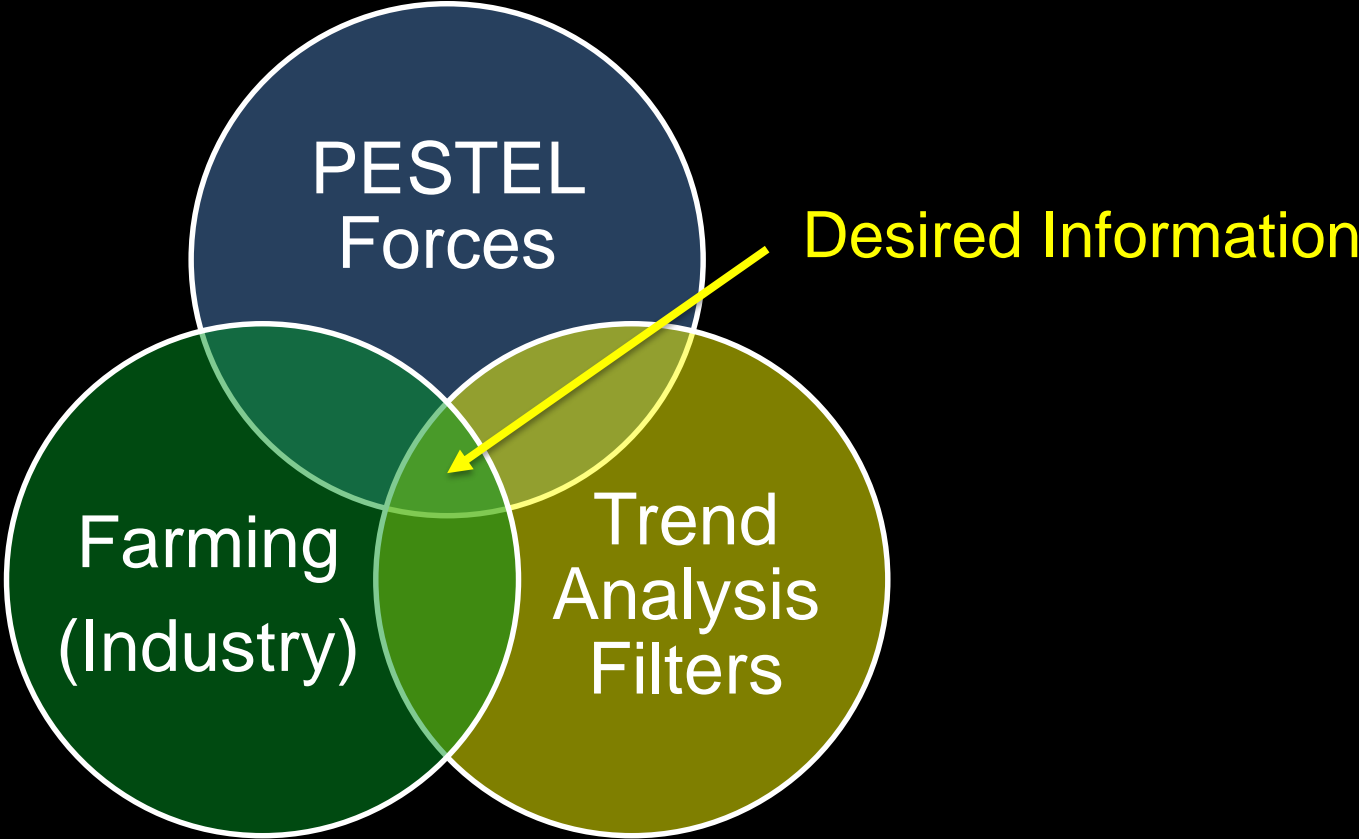


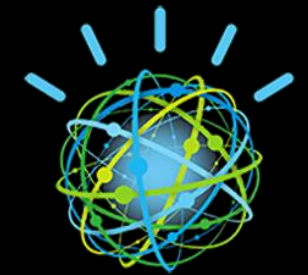
I. PESTEL ONTOLOGY (along with IBM Watson facets)





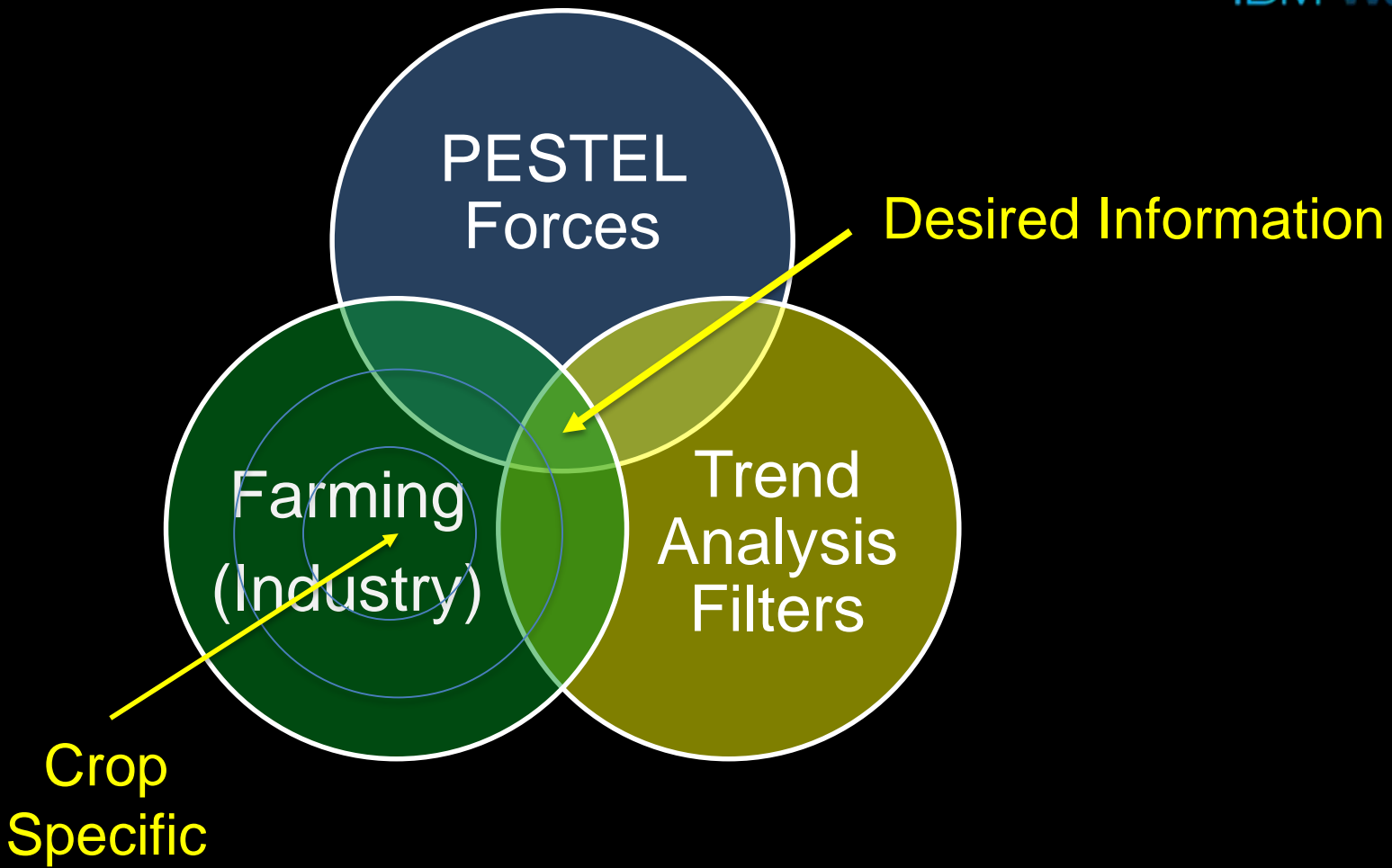
Search Logic





IBM Watson

Search Logic

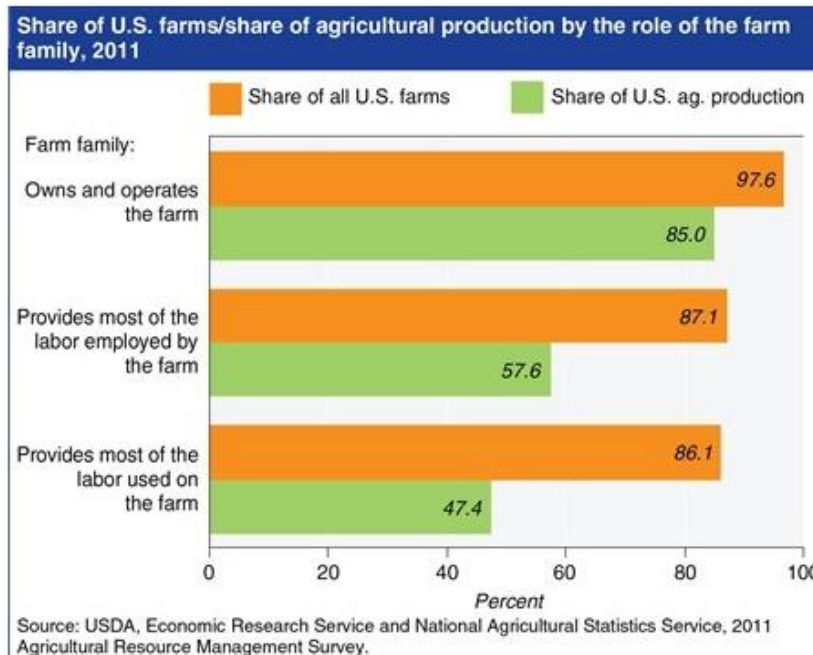


Big Picture

of the external forces impacting the
Brown's Family Farm Business

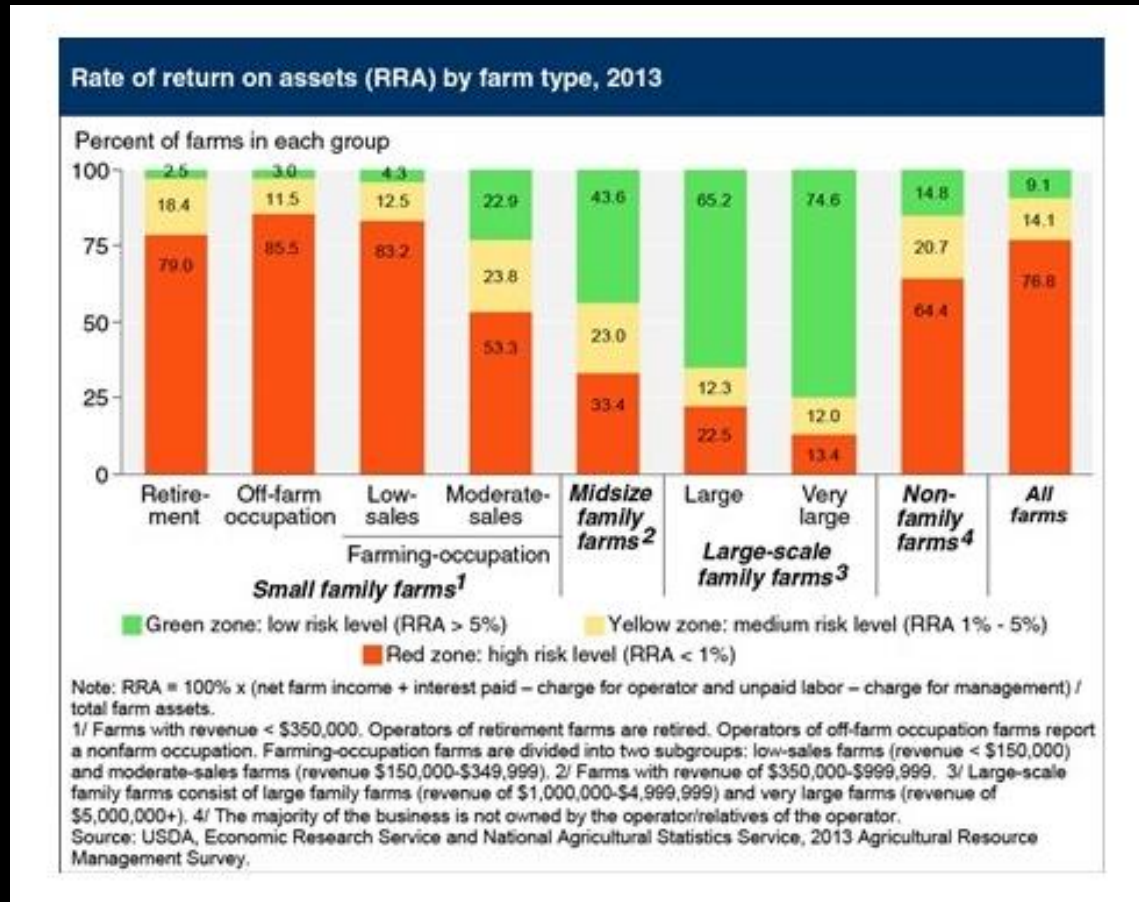
“Family farms represent 97.6 percent of all U.S. farms and are responsible for 85 percent of U.S. farm production”

Family farms dominate U.S. agriculture



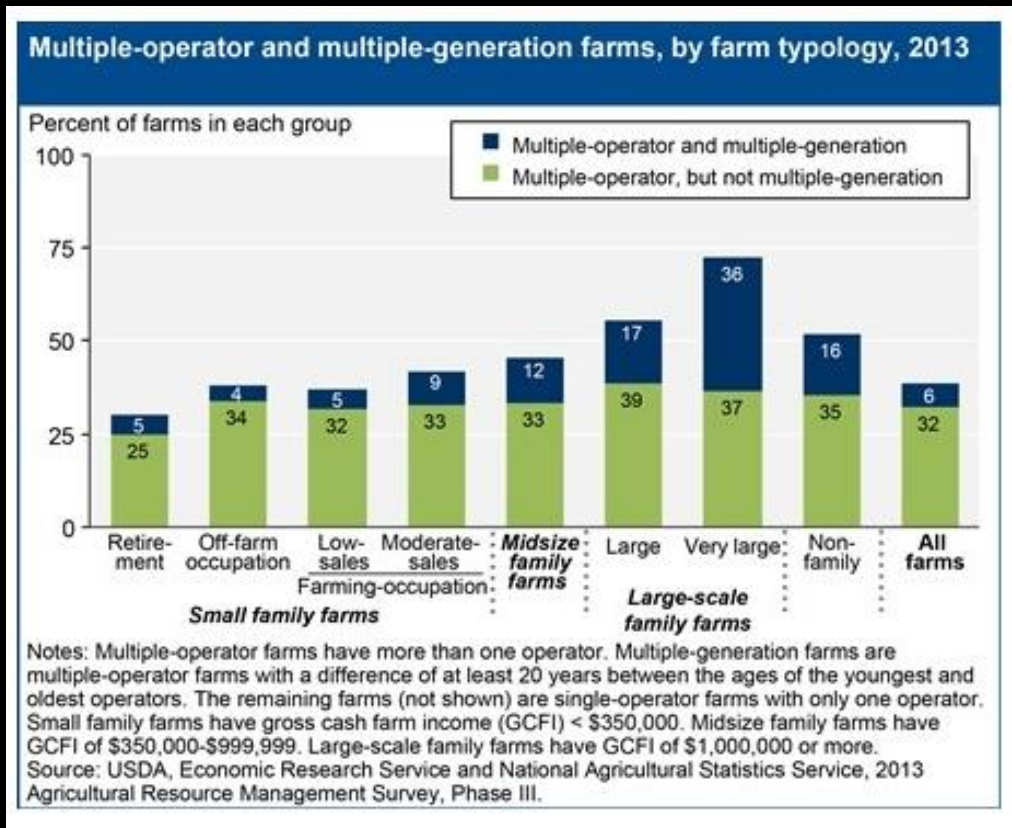
Economic Research Service (ERS) defines family farms as those whose principal operator, and people related to the principal operator by blood or marriage, own most of the farm business.

“Profitability and the risk on these returns varies by farm size”.



Economic Research Service (ERS) defines family farms as those whose principal operator, and people related to the principal operator by blood or marriage, own most of the farm business.

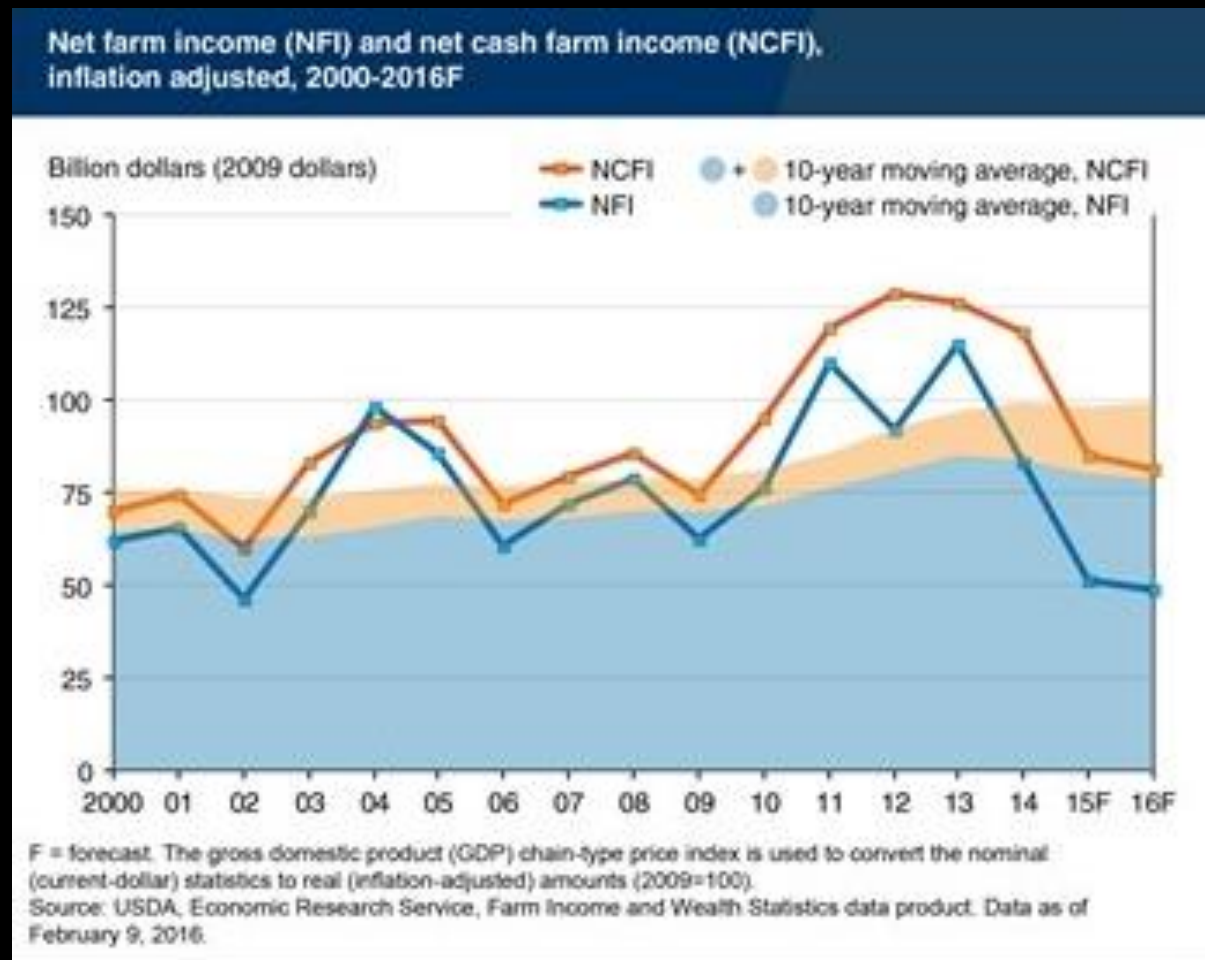
“Multiple-operator farms are prevalent among large family farms”



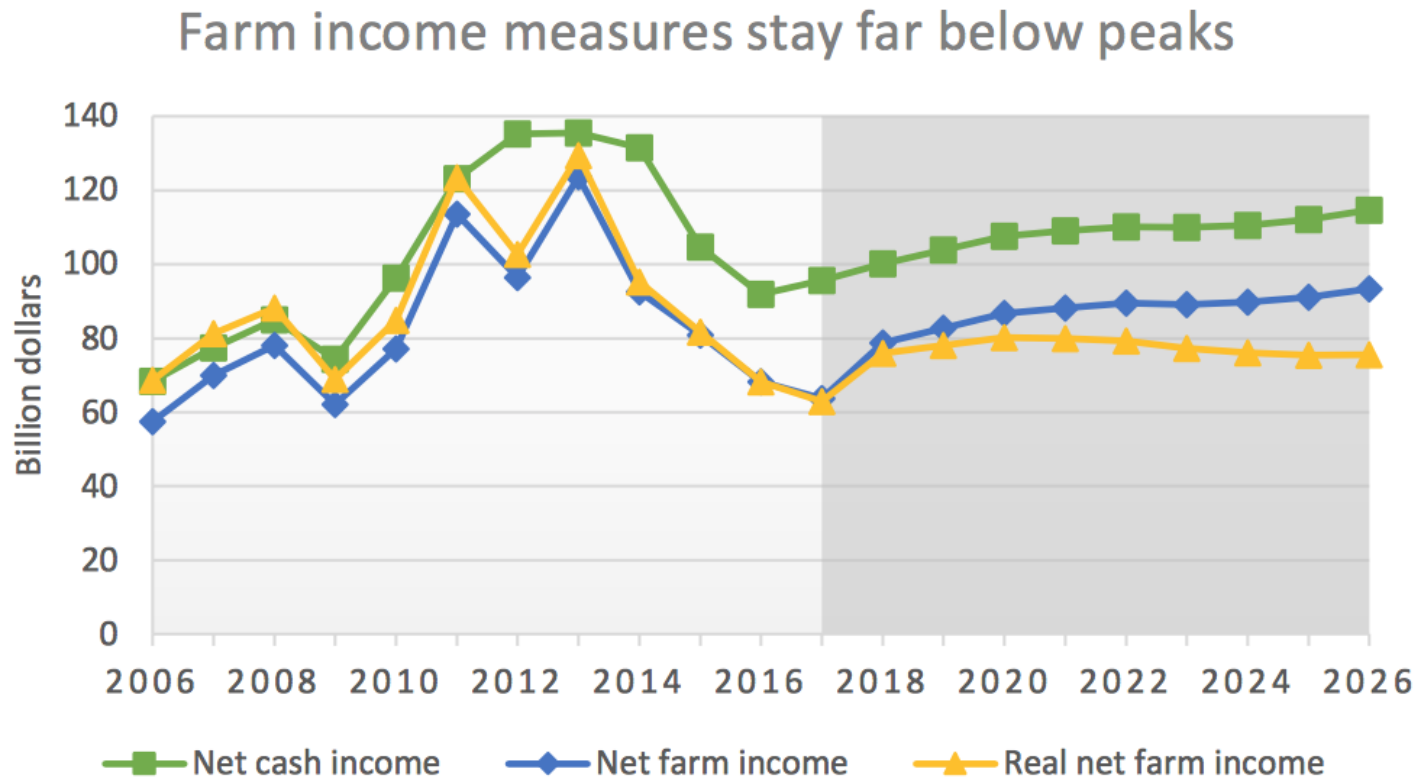
Economic

- Larger farms often require more management and labor than an individual can provide.
- Additional operators can provide the necessary labor, management, and possibly other resources such as capital or farmland.
- Having a secondary operator may also provide a successor when an older principal operator phases out of farming.

“U.S. farm income expected to fall for third straight year”

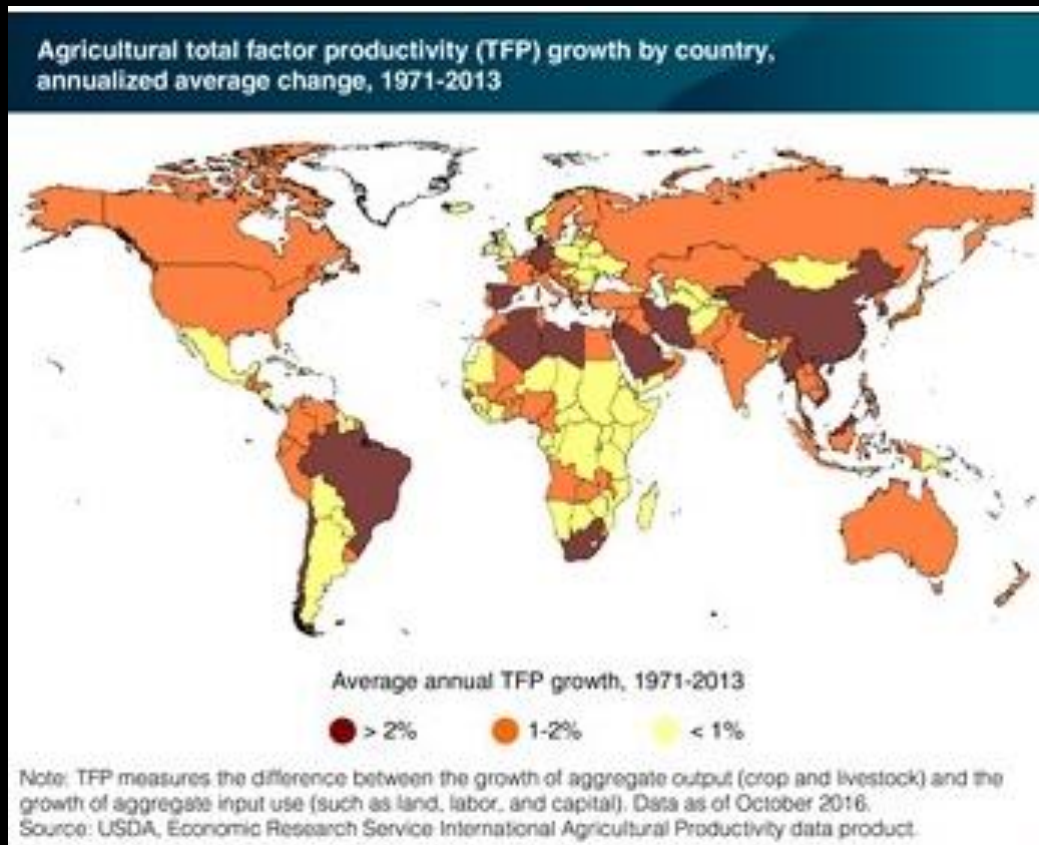


What about today



FAPRI Baseline: Financial Pressure on Farms Likely to Continue

“Raising **productivity**, rather than expanding resources, **has become the major source of growth** in global agriculture”



- Large differences exist in productivity performance between countries.
- Between 1971 and 2013, U.S. agricultural productivity growth averaged about 1.5 percent a year.
- China and Brazil have emerged among the world leaders in agricultural productivity growth.
- According to ERS research, strengthening the capacity of national agricultural research and extension systems has been a key factor in improving productivity growth.
- Long-term investments in agricultural research were especially important to sustaining higher growth rates in large, rapidly developing countries like Brazil and India

“USA holds a 70% market share in the supply of sweet potatoes”

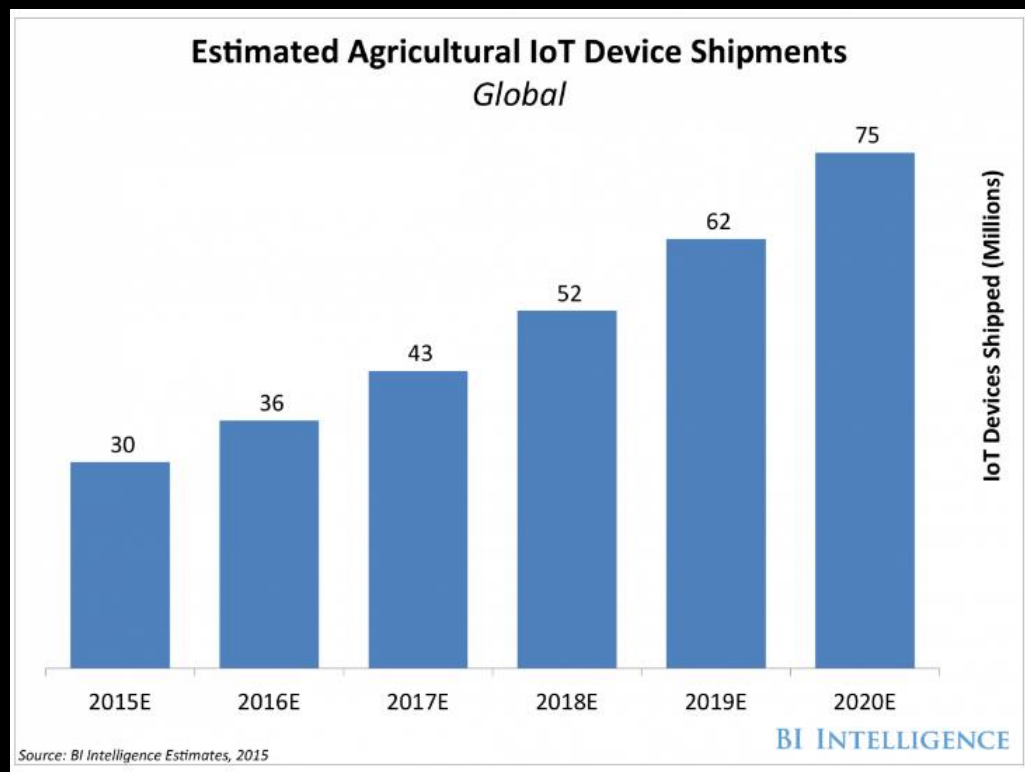


The screenshot shows a webpage with a yellow navigation bar containing links: Home, Export to Europe, Import from a developing country, Collaborate with us, and Market. Below the navigation bar, there is a breadcrumb trail: Home > Market Information > Fresh Fruit and Vegetables > Fresh Sweet Potatoes in Europe. The main heading is 'Exporting fresh sweet potatoes to Europe'. Below the heading is a green box with a clock icon and the text 'Takes 17 minutes to read'. The main text of the article reads: 'The European market for sweet potato is relatively small but growing considerably. The import and consumption are rapidly expanding, increasing by over 100% over the last five years. European supermarkets are catering to a growing demand of exotic and ethnic food. Important destinations in Europe are the United Kingdom and the Netherlands; the latter being the main hub for the rest of Europe. The USA withholds a 70% market share in the supply of sweet potatoes. Opportunities are there for suppliers from developing countries with differentiated or competitive products.'

Economic/ Societal

- Imports and consumption are rapidly expanding
- Increased by over 100% over the last five years
- European supermarkets are catering to a growing demand of exotic and ethnic food
- Important export destinations are the Netherlands and UK.


“IoT is set to push the future of farming to the next level”



Technological

- IoT device installations in the agriculture world will increase from 30 million in 2015 to 75 million in 2020
- US leads the world in smart agriculture
- OnFarm, which makes a connected farm IoT platform, expects the average farm to generate an average of 4.1 million data points per day in 2050, up from 190,000 in 2014.

Blockchain at Walmart: Tracking Food from Farm to Fork



Spinach Outbreak (2006)

1 supplier, 1 lot, 1 day

199 Cases, 31 HUS, 3 Deaths, 26 States

E. coli

DUE TO THE SPINACH RECALL. WE ARE OUT OF ALL SPINACH UNTIL FURTHER


SOURCE: Frank Yiannas and Walmart are the source for this slide content!

© 2017 IBM Corporation






The slide features a map of the United States with states shaded in different colors representing the number of cases. A legend indicates: 1-4 (light blue), 5-9 (medium blue), 10-14 (dark blue), and ≥15 (black). A blue banner across the map reads '1 supplier, 1 lot, 1 day'. To the left is a photo of a spinach bag with an 'E. coli' label. To the right is a photo of a grocery store sign that says 'DUE TO THE SPINACH RECALL. WE ARE OUT OF ALL SPINACH UNTIL FURTHER'. At the bottom are photos of a spinach field and a grocery store aisle.

- Food safety has always been a global concern. According to the World Health Organization, about 420,000 people die each year due to food poisoning.
- In the U.S. alone, the total cost caused by food-related concerns—spanning from medical costs to economic loss due to halted productivity—range from \$55.5 billion to \$93.2 billion a year. This cost has increased by 20% in the last four years according to IBM.

“Genome editing set to revolutionize agriculture

REVIEW ARTICLE
Front. Plant Sci., 19 April 2016 | <https://doi.org/10.3389/fpls.2016.00506> 

The CRISPR/Cas Genome-Editing Tool: Application in Improvement of Crops

 **Surender Khatodia¹**,  **Kirti Bhatotia¹**,  **Nishat Passricha²**,
 **S. M. P. Khurana¹** and  **Narendra Tuteja^{2,3*}**

¹Amity Institute of Biotechnology, Amity University Haryana, Gurgaon, India
²Plant Molecular Biology Group, International Centre for Genetic Engineering and Biotechnology, New Delhi, India
³Amity Institute of Microbial Technology, Amity University, Noida, India

The Clustered Regularly Interspaced Short Palindromic Repeats associated Cas9/sgRNA system is a novel targeted genome-editing technique derived from bacterial immune system. It is an inexpensive, easy, most user friendly and

6/11/25/second-annual-frontiers-spotlight-award-announced-for-2018/

Technological

- Development of genetically edited (GE) crops similar to those developed by conventional or mutation breeding using this potential technique makes it a promising and extremely versatile tool for providing sustainable productive agriculture for better feeding of rapidly growing population in a changing climate.
- **Note: This paper is from India. Message the world's scientific community is engaged in the development of GE applications.**

Other factors for consideration in a
farm business strategy

“Consumer demand for cosmetically perfect produce has real consequences”



Economic / Societal

- 40% of all food produced goes uneaten
- 6B pounds of fresh produce goes unharvested or unsold
- Losses in packing range from 14 – 60%
- Product specifications are set by major retail chains with enormous market power.

Other factors contribute to high waste rates as well. Contracting practices that are common in the produce industry, as well as the threat of bad weather, pests and price volatility, encourage growers to overplant. Labor shortages that are exacerbated by the sorry state of U.S. immigration policy are a factor too.

“Banks cite fluctuating commodity process as top challenge”

Economic

Loan Risks

- Commodity price (69%)
- Input costs (10%)
- Adverse weather
- Credit availability



AGWIRED
NEWS FROM THE WORLD OF AGRIBUSINESS

Ag Lender Poll Shows Commodity Prices as Top Challenge

KELLY MARSHALL / JULY 26, 2016

[Facebook](#) [Twitter](#) [Email](#) [Print](#)

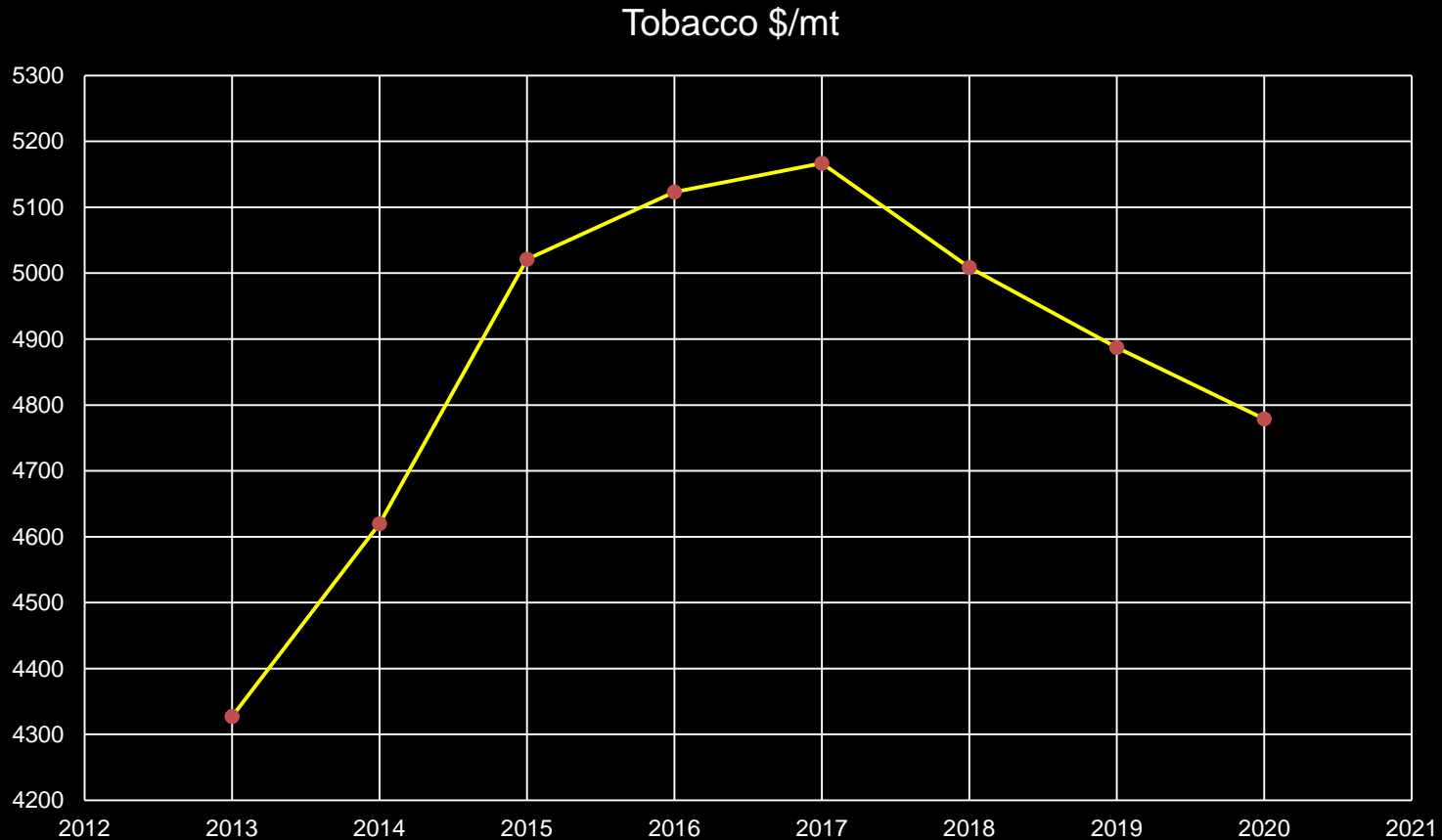
Midwest Farm Credit lenders reported in a recent poll that commodity prices were the greatest challenge currently facing customers. Senior lenders from 17 Farm Credit Associations said they are responding to this difficulty by offering services that restructure the financial situations of their customers. A new AgriThought report also examines the farm economy and offers lenders support in helping farmers navigate the challenges.

AgriBank
FARM CREDIT BA

Results showed 69.1 percent chose commodity prices as the top challenge. Approximately 10 percent selected input costs, followed by credit availability and adverse weather effects.

“Tobacco may have seen its top”

Economic



World Bank Commodities Price Forecast (constant US dollars)

What is happening today?

A Long Drag

Impending FDA action hangs over U.S., European tobacco indexes

■ FTSE 350 Tobacco Index (R1) ■ S&P 500 Tobacco Industry GICS Level 3 Index (L1)



Source: Bloomberg

Bloomberg

“In 2015, an estimated 15.1% (36.5 million) U.S. adults were current cigarette smokers. Of these, 75.7% (27.6 million) smoked every day”

Current Cigarette Smoking Among U.S. Adults Aged 18 Years and Older

[By Race/Ethnicity](#) | [By Sex](#) | [By Age](#) | [By Education](#) | [By Poverty Status](#)

Tobacco use remains the single largest preventable cause of death and disease in the United States. Cigarette smoking kills more than 480,000 Americans each year, with more than 41,000 of these deaths from exposure to secondhand smoke.¹ In addition, smoking-related illness in the United States costs more than \$300 billion a year, including nearly \$170 billion in direct medical care for adults and \$156 billion in lost productivity.^{1,2}

In 2015, an estimated 15.1% (36.5 million) U.S. adults were current* cigarette smokers. Of these, 75.7% (27.6 million) smoked every day, and 24.3% (8.9 million) smoked some days.³

By Race/Ethnicity³

Race/Ethnicity	Prevalence
American Indian/Alaska Natives (non-Hispanic)	21.9%
Asians (non-Hispanic)	7.0%
Blacks (non-Hispanic)	16.7%
Hispanics	10.1%
Multiple Races (non-Hispanic)	20.2%
Whites (non-Hispanic)	16.6%

On this Page

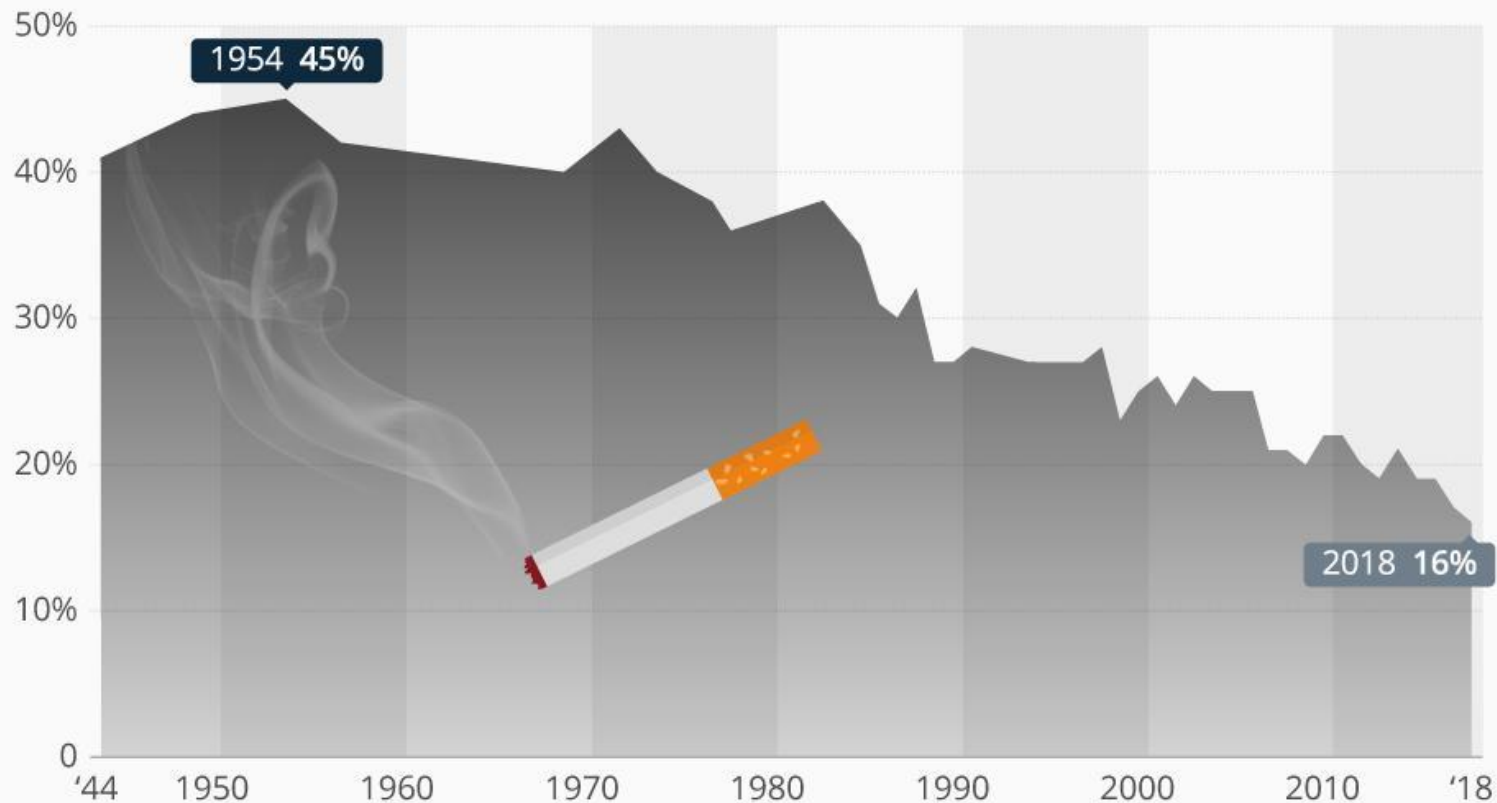
- [Current Cigarette Smoking Among U.S. Adults Aged 18 Years and Older](#)
- [Current Cigarette Smoking Among Specific Populations—United States](#)
- [References](#)

- Data is segmented by race, sex, age, income level, education level, etc.
- In the US, smoking is most popular among people in the lower income and education segments.

What about today?

U.S. Smoking Rate Falls To Record Low

Share of Americans who have smoked a cigarette in the last week

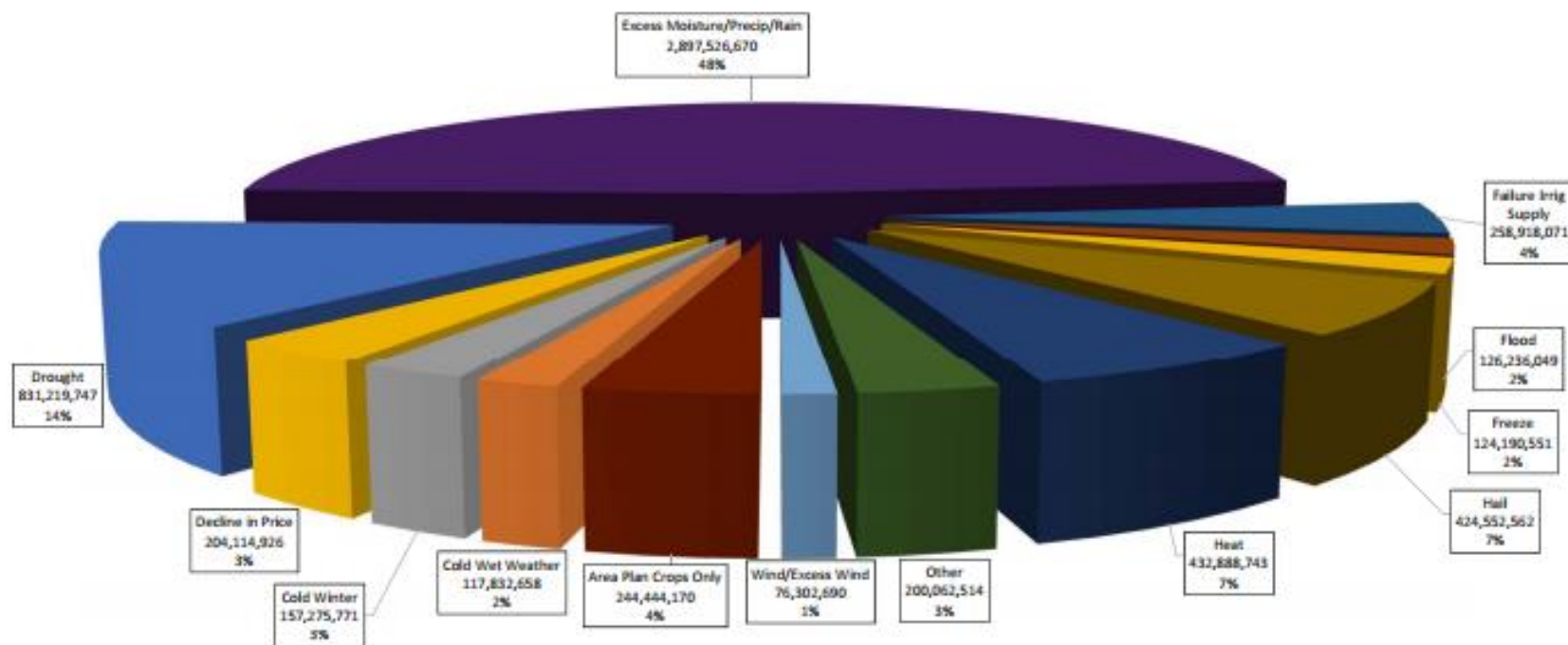


@StatistaCharts Source: Gallup

Why U.S. Crops Fail - 2015

As of April 25, 2016

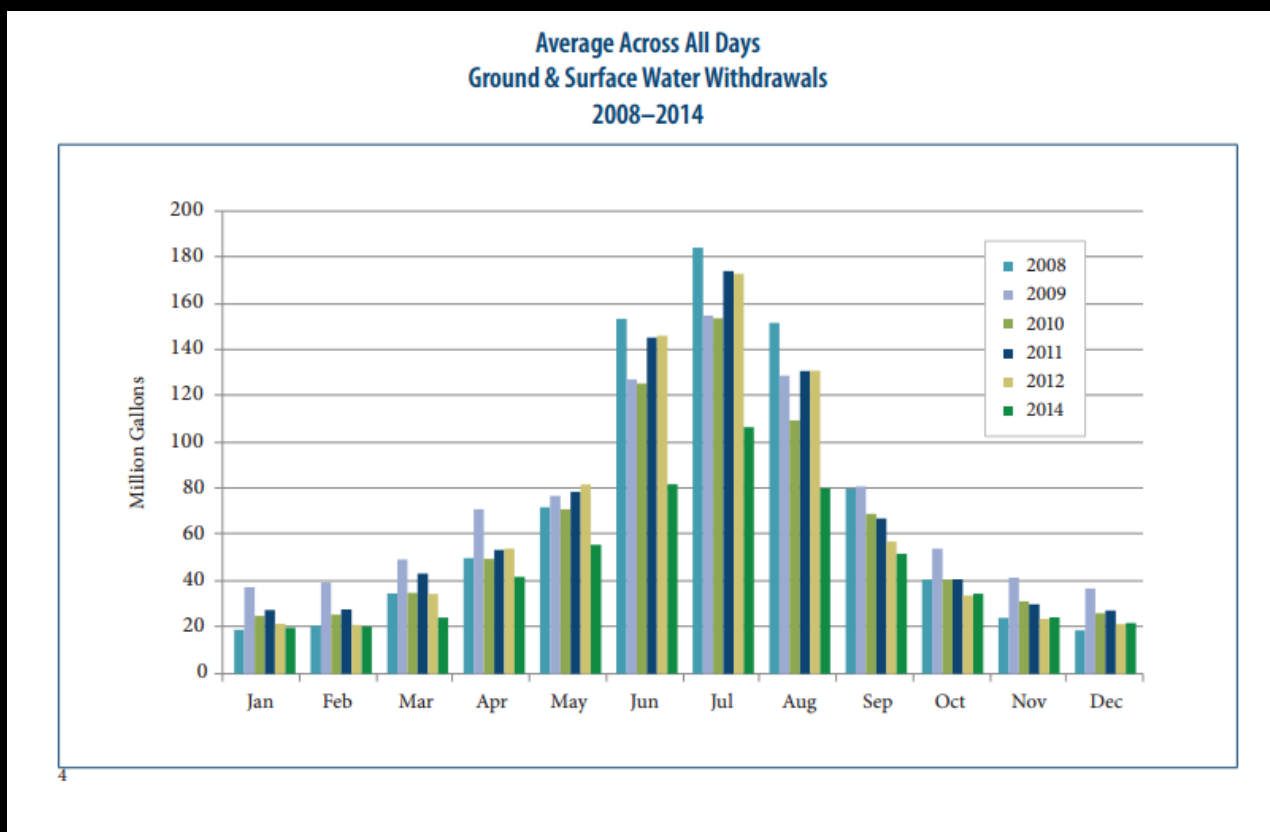
Crops in the U.S. fail for a number of reasons. Some of the largest causes of crop failure are excess moisture and drought. Excess moisture can severely damage a crop, significantly reduce quality and cause other problems like prevented planting.



Environmental / Economic

“Agricultural water usage tracks the growing season creating a huge spike of consumption”

Environmental



4

Niche Markets

“A high percentage of consumers are requesting a more natural vegetable”

The natural way

editor | April 1, 2012

The organic approach to tobacco production continues to grow in the United States

By Chris Bickers



In an organic tobacco program, sunflowers serve as a trap crop for beneficial insects.

The future of organic tobacco looks bright to Aaron Sink of High Point, North Carolina, USA—so bright, in fact, that earlier this year he bought a farm specifically to grow organic tobacco. “We are getting a good vibe about growing this type of leaf,” he says. “The manufacturer, Santa Fe, is pushing to increase production of organic cigarettes, and that gives

us the chance to increase at our end.”

Sink has built a greenhouse on the new farm and was moving curing barns on it when *Tobacco Reporter* interviewed him in March. “I am definitely willing to make some capital expenditures to provide it.”

Economic/ Societal

- Organics are a growing niche market
- More attractive to some landlords

Negatives:

- Very difficult way to grow tobacco
- No weed-control chemicals
- Ditto for disease and insect control



Organic Tobacco on Social Media

organic tobacco Cancel

Top People Tags Places

- #organictobacco 556 posts
- organictobacco Organic Tobacco
- Village of Tobaccoville
- CDC Tobacco Free Centers for Disease Control an...
- Campaign for Tobacco-Free... 1400 I St NW, Washington, Dist...
- swissorganicnews Swiss Organic Tobacco Compa...
- #organictobacco2016 8 public posts
- The South Carolina Tobacco F... 144 S Acline St, Lake City, Sout...

organic tobacco Cancel

Top People Tags Places

- Organic Room Artigos Alterna... Rua Comandante Paulo Varela...
- Pakistan Tobacco Company G.T. Road
- Vapers In Paradise Natu... 1481 S King St, Ste 107, h...
- Town of Fairmont 205 Tobacco St
- MassChallenge 21 Drydock Avenue Suite
- #organictobaccoleaf 2 public posts
- #organictobaccosnobbe 1 public post
- #organictobaccoandlav 1 public post

organic tobacco Cancel

Top People Tags Places

- #organictobaccoamericanspirit 1 public post
- #organictobaccoplantation 1 public post
- #organictobaccoflavor 1 public post

#organictobacco

TOP POSTS

MOST RECENT 556 posts

Home Search Add Like Profile

#organictobacco

Home Search Add Like Profile

#organictobacco

Home Search Add Like Profile

#organictobacco

MOST RECENT 556 posts

Home Search Add Like Profile

#organictobacco

Home Search Add Like Profile

Home Search Add Like Profile

In Search of the Low-Nicotine Tobacco Plant

- Another step to reduced-risk tobacco products
- The overall goal of 22nd Century is to help people quit smoking
- Its path to market will most likely involve doctors prescribing smokers low-nicotine cigarettes as one way to kick the habit

While the industry is focused on electronic cigarettes and “heat-not-burn” devices as go-to reduced-risk tobacco products, a plant-based biotech company suggests looking inward—inside the tobacco plant, that is.



Clarence, N.Y.-based 22nd Century Group Inc. is genetically manipulating tobacco plants to grow with lower-than-typical levels of nicotine, according to Dr. Paul

Purple Sweet Potatoes On Social Media



Search: purple sweet potato

Top People Tags Places

- #puplesweetpotato 17,518 posts
- #puplesweetpotatoes 2,886 posts
- purple.sweetpotato ash's spam
- #puplesweetpotatoe 226 posts
- purple_sweet_potato
- puplesweetpotatouw Febs!
- #puplesweetpotato 119 posts
- #puplesweetpotatoicecream 110 posts

Search: purple sweet potato

Top People Tags Places

- #puplesweetpotatolatte 231 posts
- #puplesweetpotatopie 207 posts
- #puplesweetpotatobread 149 posts
- #puplesweetpotatochips 117 posts
- #puplesweetpotatocake
- #puplesweetpotatocremefra...
- puplesweetpotato
- puplesweetpotato

Search: purple sweet potato

Top People Tags Places

- puplesweetpotato
- purple_sweetpotato
- sweetpurplepotato
- ing_no_puplesweetpotatoes
- puplesweetpotato
- AmandasChickles
- puplesweetpotato
- puplesweetpotato
- puplesweetpotato

Search: purple sweet potato

Top People Tags Places

- puplesweetpotato_sunshine... Promised Land
- #puplesweetpotatopancake 7 public posts
- #puplesweetpotatocremefra... 29 public posts
- #puplesweetpotatotart 9 public posts
- #puplesweetpotatow 11 public posts
- #puplesweetpotato

Search: purple sweet potato

Top People Tags Places

- #puplesweetpotatoflavor 7 public posts
- #puplesweetpotatosoup 24 public posts
- #puplesweetpotatomash 24 public posts
- #puplesweetpotatocheesec...
- potatobun
- potatocookies
- potatochip
- potatopuree

Search: purple sweet potato

TOP POSTS

- #puplesweetpotatoepie 9 public posts
- #puplesweetpotatopowder 11 public posts
- #puplesweetpotatomuffin 9 public posts
- #puplesweetpotatosalad 9 public posts
- #puplesweetpotatocreamfra... 3 public posts
- #puplesweetpotatolover 23 public posts
- #puplesweetpotatonoodles 12 public posts
- #puplesweetpotatoesarethe... 7 public posts

Search: purple sweet potato

TOP POSTS

MOST RECENT 17,518 posts

Search: purple sweet potato

MOST RECENT 17,518 posts

Search: purple sweet potatoes

Search: purple sweet potato

TOP POSTS

- #puplesweetpotatonoodles 12 public posts
- #puplesweetpotatoesarethe... 7 public posts
- #puplesweetpotatodoughnut 8 public posts
- #puplesweetpotatoporrige 6 public posts
- #puplesweetpotatocheeseb... 9 public posts
- #puplesweetpotatojuice 5 public posts
- #puplesweetpotatochiffonca... 10 public posts
- #puplesweetpotatocream 6 public posts

“Stokes Purple sweet potatoes are gaining popularity...particularly with millennials”

Economic/ Societal




Photo by Frieda's Inc.

Stokes Purple sweet potatoes are gaining popularity.

“Shoppers, especially millennials, are discovering these special tubers through social media like Instagram, where the vibrant purple hue makes for beautiful food photography, attracting more shoppers,” Karen Caplan, president and

“Renewable Energy and Agriculture: A Natural Fit”



Union of Concerned Scientists


FACT SHEET

Renewable Energy and Agriculture: A Natural Fit

Many farmers already produce renewable energy by growing corn to make ethanol. An increasing number of farmers and ranchers are now adding to their incomes by harvesting the wind that blows across their land to make electricity. And new options are becoming available.

Renewable energy and farming are a winning combination. Wind, solar, and biomass energy can be harvested forever, providing farmers with a long-term source of income. Renewable energy can be used on the farm to replace other fuels or sold as a “cash crop.”

Wind energy alone could provide 80,000 new jobs and \$1.2 billion in new income for farmers and ranchers by 2020.



Wind power is at home in farm country.
Photo: Warren Getz, NREL

Wind Power


Farms have long used wind power to pump water and generate electricity. Recently, wind developers have installed large wind turbines on farms and ranches in a number of states to provide power to electric companies and consumers. Where there are strong winds, developers may pay as much as \$2,000 to \$5,000 per year for each turbine installed. Each turbine uses less than half an acre, so

Environmental / Technological

- Wind Power
- Solar
- Biomass

Renewable energy can be used on the farm to replace other fuels or sold as a “cash crop”.

“The southeastern United States has warmed less than most of the nation.



United States
Environmental Protection
Agency

August 2016
EPA 430-F-16-035

What Climate Change Means for North Carolina

North Carolina's climate is changing. Most of the state has warmed one-half to one degree (F) in the last century, and the sea is rising about one inch every decade. Higher water levels are eroding beaches, submerging low lands, exacerbating coastal flooding, and increasing the salinity of estuaries and aquifers. The southeastern United States has warmed less than most of the nation. But in the coming decades, the region's changing climate is likely to reduce crop yields, harm livestock, increase the number of unpleasantly hot days, and increase the risk of heat stroke and other heat-related illnesses.

Our climate is changing because the earth is warming. People have increased the amount of carbon dioxide in the air by 40 percent since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These gases have warmed the surface and lower atmosphere of our planet about one degree during the last 50 years. Evaporation increases as the atmosphere warms, which increases humidity, average rainfall, and the frequency of heavy rainstorms in many places—but contributes to drought in others.

Greenhouse gases are also changing the world's oceans and ice cover. Carbon dioxide reacts with water to form carbonic acid, so the oceans are becoming more acidic. The surface of the ocean has warmed about one degree during the last 80 years. Warming is causing snow to melt earlier in spring, and mountain glaciers are retreating. Even the great ice sheets on Greenland and Antarctica are shrinking. Thus the sea is rising at an increasing rate.

Rising Seas and Retreating Shores

As the oceans warm, seawater expands and raises sea level. Melting ice adds more water to the ocean, further raising sea level. Along much of the Atlantic Coast, including parts of North Carolina, the land surface is sinking, so the observed rate of sea level rise relative to the land is greater than the global average rise. Sea level is likely to rise one to four feet in the next century along the coast of North Carolina.

As sea level rises, the lowest dry lands are submerged and become either tidal wetland or open water. Most existing wetlands can create their own land and keep pace with a slowly rising sea. But if sea level rises three feet in the next century, most of the wetlands on the Albemarle-Pamlico peninsula are likely to be submerged by the higher water level.

Beaches also erode as sea level rises. A higher water level makes it more likely that storm waters will wash over a barrier island or open new inlets. The United States Geological Survey estimates that the lightly developed Outer Banks between Nags Head and Ocracoke could be broken up by new inlets or lost to erosion if sea level rises two feet by the year 2100. Eroding shores will threaten most coastal towns unless people take measures to halt the erosion.





Climate Change

- Changing the climate will have both harmful and beneficial effects on farming. During the next few decades, hotter summers are likely to reduce yields of corn. But higher concentrations of atmospheric carbon dioxide increase crop yields, and that fertilizing effect is likely to offset the harmful effects of heat on cotton, soybeans, wheat, and peanuts—*if enough water is available.*

“Experts predict that if present growth and water use trends continue, North Carolinians will find it increasingly difficult to satisfy their water needs.”

The graphic is titled "North Carolina Water Fact Sheet" and features the EPA WaterSense logo in the top left corner. The background of the title bar is purple with a white flower on the right. The main text is in blue and black, with a circular map of North Carolina in the center. The text discusses water resources, population growth, and drought conditions.

Benefiting from a humid climate and substantial underground water resources, North Carolina has historically been considered a water-rich state. In recent years, however, the state has faced water shortages due to a combination of rapid population growth, drought, and aquifer degradation. Experts predict that if present growth and water use trends continue, North Carolinians will find it increasingly difficult to satisfy their water needs in the coming decades.

North Carolina is one of the fastest-growing states in the nation, experiencing population growth of nearly 17 percent between 2000 and 2009. This growth shows no sign of slowing, and research indicates that by 2030 more than 12.2 million people will call North Carolina home.

North Carolina's population boom will not only increase demand for water, but will also result in new developments in currently undeveloped forest and wetland areas—environments crucial to ensuring the quantity and quality of the state's water supply.

Record-Setting Drought

North Carolina made national headlines in 2007 when all of the state's 100 counties experienced moderate to exceptional drought conditions. This

Though rains in 2008 helped ease the drought in some parts of the state, continued water shortages compelled Governor Mike Easley to sign legislation granting him and future governors greater authority to restrict water use during future droughts. North Carolina's water troubles are not over yet—many reservoirs are still at low levels and may not reach full capacity anytime soon.

Threats to Freshwater Resources

The ground water of the Coastal Plain aquifers is important to coastal North Carolinians, supplying the needs of more than half of the state's population. Today, unsustainable pumping rates threaten these aquifers. Historical records dating back to the early 1900s show that the aquifers' water levels have steadily dropped due to expres-

Water

- North Carolina's population boom will not only increase demand for water, but will also result in new developments in currently undeveloped forest and wetland areas—environments crucial to ensuring the quantity and quality of the state's water supply.

Hemp (A Super Food)

Hemp Is Set To Overtake The Production Of Tobacco In Kentucky

- Despite past negative stances, hemp has been found to have huge nutritional value, using the leaves to produce a safe liquid drink where all of its nutrients can be ingested.
 - Hemp seeds are also a superfood, containing 20 amino acids, nine of which are required for optimal metabolism, as well as containing a huge range of essential minerals and vitamins.
- <http://www.trueactivist.com/hemp-is-set-to-overtake-the-production-of-tobacco-in-kentucky>



Credit: Organic & Healthy

“Canadian farmers encouraged to become what’s called vertically integrated – i.e. take control of more steps in the value chain”

Use Your On-Farm Savvy to Start a Small Business

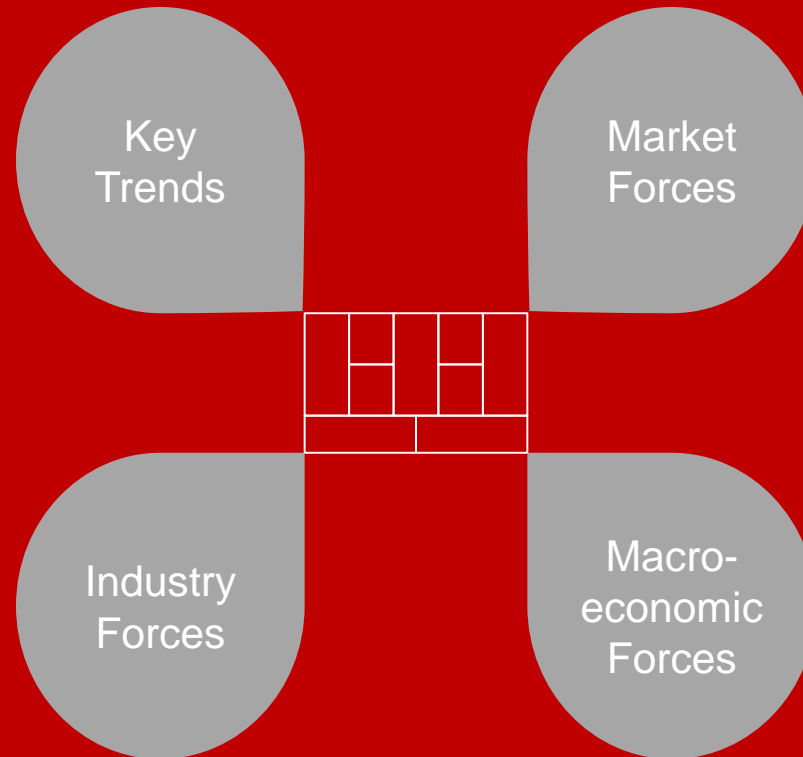


Politics/Economics

- Trump administration will bar access to top export market
- In US small food companies growing 11-15% per year
- Consumers prefer “mission-based” companies
- Plus, farmers are already businesspeople

Discussion

- **Political**
- **Economic**
- **Social**
- **Technological**
- **Environmental**
- **Legal**



Learning Objectives

1. Business Models are designed and function in specific environments
2. Continuous environmental scanning is essential and is a best practice of strategically managed organizations
3. A PESTEL ANALYSIS begins to identify the opportunities and threats facing the organization
4. Opportunities and threats emanating from the external environment are often the cause for disruptive, business model innovations

Agenda

Perform PESTEL Analysis (SP3)

TOPICS

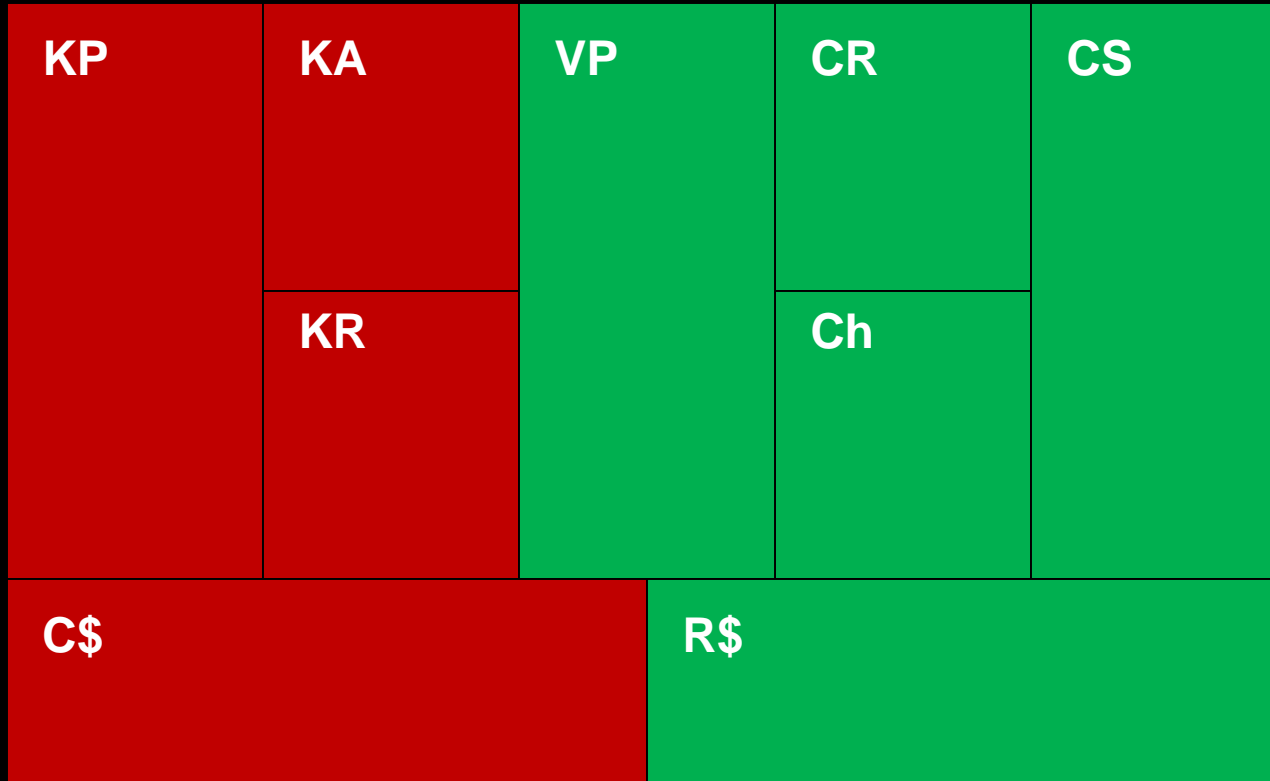
- **Team Exercise**
- **Assess the external forces that will and do impact an organization's business model**
- **Strategic thinking!**

Learning Objectives

1. Practice in applying the PESTEL ANALYSIS tool
2. Begin understanding how and why the Brown Family Farm's Business Model might change and how
3. Learn to work together as a team
4. Teamwork and diversity of thought are vital to strategic planning

EFFICIENCY

VALUE



Team Exercise

Using the PESTEL ANALYSIS WORKSHEET:

- Decide the **major** external forces impacting the Brown Family Farm?
- How will those forces impact the Brown Family Farm's business model?
- Are they threats or opportunities?
- Which are the most Important? ... Which are the most urgent?

**Be prepared to defend
your logic in class!**

PESTEL ANALYSIS WORKSHEET

Forces	Threat or Opportunity?	Importance	Urgency	Building Blocks Impacted
<i>Trend #1 (from list in SP2)</i>	<i>T or O</i>	<i>1 (Low) – 5 (High)</i>	<i>1 (Low) – 5 (High)</i>	<i>Building Block (KR, KP, KA, etc.)</i>
<i>Trend #2</i>				
<i>Trend #3</i>				
<i>Trend #n</i>				
<i>Others?</i>				

Agenda

Review PESTEL Analysis (SP4)

TOPICS

- **Team Reports**
- **Gaining a “market understanding” of the forces facing all farms (not just the Brown’s) operating in S.E. United States!**

Learning Objectives

1. START gaining a market understanding of your own businesses/industry
2. Identify and assess the external forces that are impacting/about to impact southeastern farms' business performance
3. Map these impacts (and resulting changes) to specific Building Blocks of the Business Model Canvas
4. Ensure everyone is together before proceeding with more strategic planning tools and team exercises

PESTEL ANALYSIS WORKSHEET

Forces	Threat or Opportunity?	Importance	Urgency	Building Blocks Impacted
<i>Trend #1 (from list in SP2)</i>	<i>T or O</i>	<i>1 (Low) – 5 (High)</i>	<i>1 (Low) – 5 (High)</i>	<i>Building Block (KR, KP, KA, etc.)</i>
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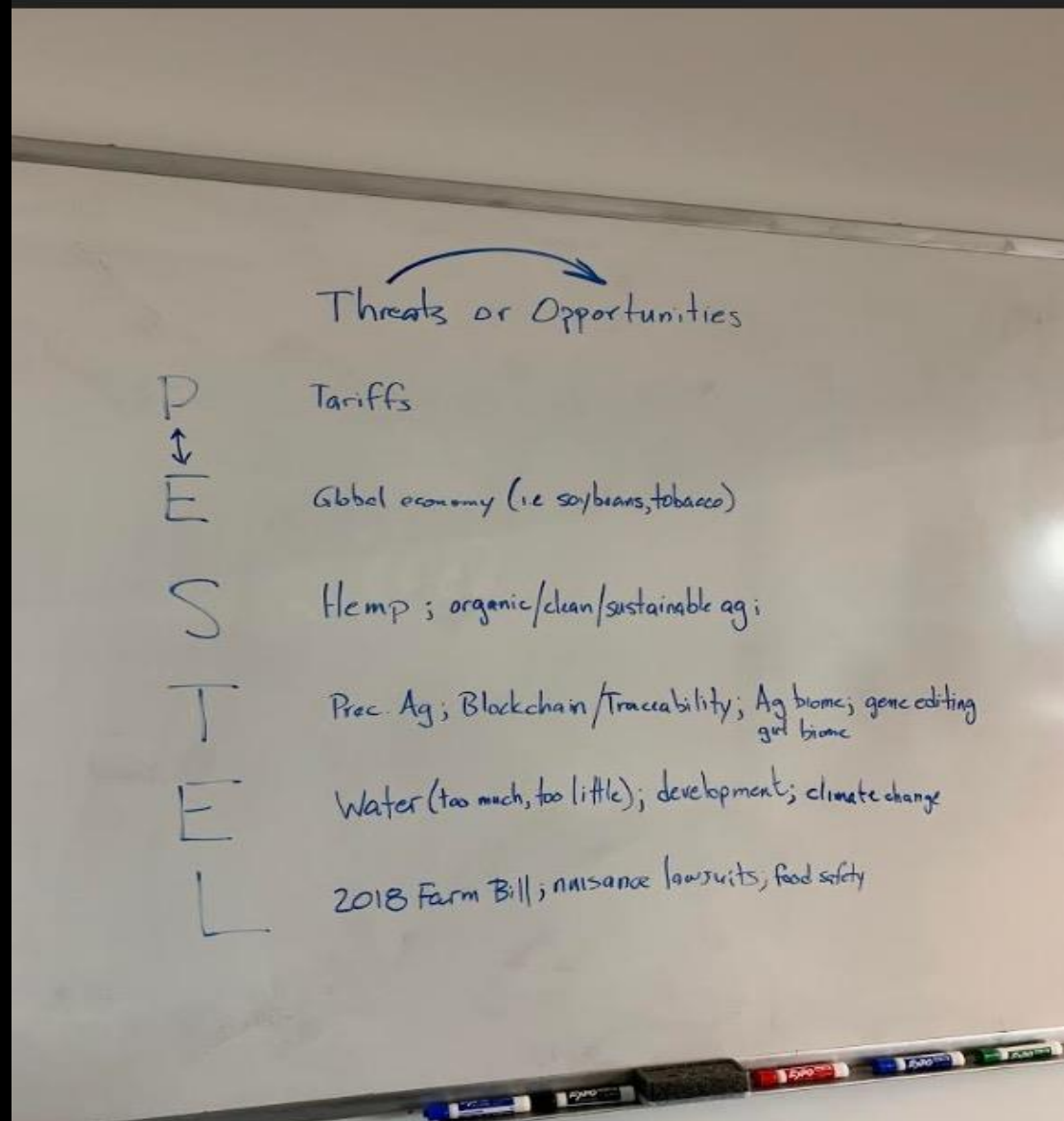
Exercise

Review your analysis with the class

Remember:

- There are no right or wrong answers
- A true PESTEL analysis is a lot of hard work (even with Watson)
- What's important is to achieve a common understanding of the market forces that can and do impact companies' business models

Greg and I read the case and did a PESTEL Analysis



Learning Objectives

1. START gaining a market understanding of your own businesses/industry
2. Identify and assess the external forces that are impacting/about to impact southeastern farms' business performance
3. Map these impacts (and resulting changes) to specific Building Blocks of the Business Model Canvas
4. **Ensure everyone is together before proceeding with more strategic planning tools and team exercises**