



# 2009 & Beyond: Thriving in the Midst of Evolving Chaos To Build Innovative, Competitive Regions

Presentation  
Oklahoma Economic Development Council Annual Meeting

The State Chamber of Oklahoma  
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**Wes Jurey**  
•President & CEO, Arlington Chamber of Commerce



“If the pace of change inside the organization is slower than the pace of change outside the organization... the end is near.”

Jack Welch  
Retired CEO  
General Electric

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# The Pace of Change

Since the presidential election...

- ★ 4.5 million jobs lost
  - ★ Automakers from ill to near death to bankruptcy with government ownership
  - ★ 12 major newspaper closings
  - ★ 49 bank closings nationwide
  - ★ Market up by 467, Now 2.95%
  - ★ GDP growth – 6.3% since Q4 2008
  - ★ \$780 billion stimulus injected
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# The World Has Changed... It's

“Unequal, Unstable, and Unsustainable”

Bill Clinton, Former President

“Hot, Flat, and Crowded”

Thomas Friedman, Author

“Globally Integrated, Innovation Driven, and Knowledge Based”

Wes Jurey, Chamber President

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# Premise

- ★ Unprecedented pace of change, driven by globalization
  - ★ We're not in a recession – the economy is re-setting
  - ★ Economies are regional – success demands strategic partnerships and systematic change
  - ★ Attracting, developing, and retaining knowledge workers will define our competitiveness
  - ★ Building the “commercialization infrastructure” and “entrepreneurial ecosystems” that drive innovation is the new economic model
  - ★ It's not about competition – it's about sustainability
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# What are we going to talk about?

- ★ Economic development
  - ★ The forces driving change
    - Global integration
    - Innovation driven
    - Knowledge based
  - ★ Defining our challenge: Shaping our response
  - ★ Future face of economic development
    - Innovative, Competitive Regions
    - The Innovation Economy
  - ★ Selling the change
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# Economic Development

Based on cluster theory since mid '80s

- ★ Wealth generating cluster
  - ★ Aligned with integrated suppliers & service providers (wealth recirculation)
  - ★ Supported by economic foundations:
    - Public & regulatory policy
    - Access to capital
    - Access to Infrastructure
    - Access to Technology
    - Trained, Educated, Competitive Workforce
  - ★ Dependent upon
    - Mobility
    - Logistics & Distribution
-



# Economic Development

## Role of Public Policy

- ★ Government establishes the regulatory playing field
  - ★ Markets compete within the playing field
  - ★ In a global marketplace, the U.S. regulatory environment must integrate into and be competitive with the international regulatory arena
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# Economic Development

## New Economy Paradigm

- ★ Global markets are integrated
  - ★ U.S. getting \$60 billion net annually on outsourcing
  - ★ We have moved from product integration to job integration
  - ★ It's built on cyberspace
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# The Forces Driving Change

## Three Key Factors

- Globally integrated
  - Innovation driven
  - Knowledge based
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# Globally Integrated

## Historical Perspective

- ★ Three power shifts in modern history
  - Western World (15<sup>th</sup> century)
  - United States (19<sup>th</sup> century)
  - Rest of the World (today)
- ★ BRIC Countries – leading development
  - Brazil, Russia, India, China

Fareed Zakaria

“The Post American World”

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# Globally Integrated

## Reality of the Marketplace

- ★ We won the cold war – capitalism prevailed; and in the process we created 3 billion new competitors for the world's markets and resources.
  - ★ The U.S. is 4% of the world's market, consuming 26% of the world's resources.
  - ★ Most of the world's natural resources, people and capital are somewhere else.
  - ★ Half the world's population lives on < \$2/day
  - ★ 1 billion people live on < \$1/day
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# Globally Integrated

## Case Study

Q: Which Pennsylvania city has a trade surplus with China, Mexico and Brazil?

A: Erie

Q: How?

A: GE Transportation

Q: What does it export?

A: Locomotives

Q: How?

A: Engineering, high government standards

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# Innovation Driven

## What is the Innovation Economy?

- ★ Historically, research and technology have been the primary drivers of economic growth and development
  - ★ Technology-led economic development has “clustered” around and been driven by major research universities
  - ★ Research that supports and/or has commercial application is the basic cornerstone in the creation of technology start-ups supporting the growth of industry clusters
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# Innovation Driven

## Global Perspective

- ★ Ten years ago, China's output of scientific white papers was 10% of America's – today its equal
- ★ Today our challenge is managing nano – bio – info – cogno technology convergence

Dr. Mihail Roco

National Science Foundation

Author, the National Nanotechnology Institute

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# Innovation Driven

Innovation is changing the landscape

The National Nanotechnology Initiative...

- ★ Nano energy technologies
  - ★ Nano fabricated medical devices
  - ★ Nano carbon tubes
  - ★ Cell engineering/re-engineering
-





# Knowledge Based

“All human affairs – political, social, economic, cultural, and business – are conducted by human beings; people’s motivations, ingenuity, and creativity ultimately determine success or failure in all these human affairs.”

Dr. George Kozmetsky

Embracing the Global Demographics Transformation

C2 Institute, University of Texas at Austin

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# Knowledge Based

Our educational institutions were built in 1900...they haven't changed since...

★ Reach students where they reside

–Affinity.org

- Smithsonian, Kennedy Center
- Lesson plans/support materials

–“The Race Between Education & Technology” - Claudia Goldin & Lawrence F. Katz

(When does education move from analog to digital?)

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# Knowledge Based

## Global Perspective

- ★ 3 billion people in China, India, Russia – 10% highly educated = 300 million
- ★ 300 million people in U.S. – 10% highly educated = 30 million

(And that doesn't count the rest of the world!)

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# Knowledge Based

We're projected to lose population to 2050

- ★ 50% of the students in U.S. graduate and post graduate programs are foreign students and immigrants
- ★ In 2006 they received 40% of all PHDs
- ★ By 2010 75% of all PHDs will be awarded to foreign students

(Is it time to resolve immigration?)

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# Defining the Challenge: Educational Attainment Levels

- ★ Percent of high school graduates ages 25-29
  - Anglo – 93%      Black 87%      Hispanic 53%
- ★ Drop outs in the U.S.
  - 1 every 29 seconds, 6000 each school day
- ★ For every 100 9<sup>th</sup> graders today...
  - 60 will graduate high school
  - 40 will enroll in higher education
  - 28 will be there one year later
  - 18 will receive a 2 or 4 year degree

(It hasn't changed in 30 years!)

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# Defining the Challenge: Tech training isn't cool

- ★ Manufacturing was 49% of U.S. GDP after WWII – today it is 6-8%
- ★ We still lead the world – 24%
- ★ Lack of qualified technically trained workers is driving jobs offshore
- ★ Scientists are critical – but so are machinists and welders

(Remember wealth generation?)

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# ★ Defining the Challenge: Early childhood needs attention

- ★ The high school graduating class of 2022 entered kindergarten last month
- ★ It's a 13 year production cycle
- ★ Kids are born prepared to learn
- ★ 3<sup>rd</sup> graders who can't read seldom catch up (and generally drop out)

(Remember the 40% who don't graduate?)

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# Shaping Our Response

Is it a Recession or Global Restructure?

During the last decade...

- ★ China, Middle East piled up wealth
  - ★ U.S., Europe, Japan piled up debt
  - ★ Europe to Asia largest trade growth
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# Shaping Our Response

## History Lessons

- ★ Rome went bankrupt trading gold and silver for silk and spice from Asia
  - ★ China was dominant when George Washington became President
  - ★ The British Empire was dominant when we fought the civil war
  - ★ It took the Industrial Revolution to establish U.S. dominance (it was driven by innovation)
  - ★ Chicago vs. St. Louis – the railroad was the difference (mobility)
  - ★ After WWII – age of oil (energy)
  - ★ 60s – age of the computer chip (information)
  - ★ Tomorrow – age of nanoscale, technology convergence
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# Shaping Our Response

## Defining Roles & Missions

Premise: Education is workforce development, which equals economic development/competitiveness

- ★ Business – industry defines both the challenge and need (demand) putting capital at risk to create wealth, resulting in jobs
  - ★ Education – provides the skills and knowledge (supply) required to succeed in marketplace
  - ★ Government – workforce system moving from talent placement to talent development. Determines public policy, establishes regulatory framework, funds infrastructure
  - ★ (It's the basis for Strategic Partnerships)
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# Shaping Our Response

## State & Regional

- ★ Moving from Hunting to Gardening (slowly)
  - ★ Still focusing on Industry Clusters
  - ★ Emerging Clusters of Knowledge & Competency
  - ★ Asset Mapping – linking assets
  - ★ Moving from taking the order to anticipating the order (Wayne Gretsky)
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# Shaping our Response

## Understanding the Innovation Economy

- ★ There is no more powerful economic driver than innovation and venture capital
  - ★ America's venture capital based companies employed 10.4 million workers (9.1%), generating \$2.3 trillion in revenue in 2006; (17.6% of GDP)
  - ★ These companies include Microsoft, Intel, Home Depot, PetSmart, Staples, Genentech, Medtronic, Starbucks, Whole Foods, and eBay
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# Future Face of Economic Development

The Innovation Economy has 3 primary drivers...

- ★ Deal Flow
- ★ Venture Capital
- ★ Talent & Know How

(It's How Northern California Became Silicon Valley")

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# Future Face of Economic Development

Deal Flow - “Discoveries that can move from the lab to the marketplace.”

3 primary sources:

- ★ Universities
  - ★ Industry
  - ★ Federal Labs
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# Future Face of Economic Development

Venture Capital – “pre-revenue funds in exchange for equity”

★ Proof of Concept

–FFF, Angels, Pre-Seed, SBIR/STTR

★ Proof of Product

–Seed, Early Stage, SBIR/STTR

★ Proof of Market

–Later Stage

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# Future Face of Economic Development

Talent & Know How – “the people who know how to do this”

- ★ Market research & analysis
  - ★ Licensing, patenting, IPOs
  - ★ Entrepreneurial talent development & recruitment
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# Future Face of Economic Development

## Building Innovative, Competitive Regions

**“The successful organizations of the next decade will be those who learn to collaborate and build partnerships.”**

Tom Peters

Author

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# Building Innovative, Competitive Regions

## Critical Success Factors

- ★ Relationship Building – must take place at all levels
  - ★ Engagement – integration of boards, staffs, goals, visions
  - ★ Importance of Systemic Change (not MOU's)
  - ★ Incentivize each partner
  - ★ Open discussion of the "M" word
  - ★ Foundation for partnership based on Trust
  - ★ Full disclosure (open kimono)
- (No one said it would be easy)
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# Building Innovative, Competitive Regions

## Defining the region

- ★ It's not about geographic or political boundaries – it's defined by economic activity and connectivity
  - ★ It's about linking hubs and nodes – and understanding the value chain
    - Hubs – sufficient critical mass to drive development
    - Nodes – support development with complimentary process
  - ★ It's about understanding the resources of the region, the barriers to investment, (i.e. regulation, financial, physical, market, organizational, cultural, etc.) and the valued assets of the community and surrounding regions.
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# Building Innovative, Competitive Regions

## Defining our approach

- ★ A critical distinction in defining our approach is the formation of a strategy rather than a study
  - ★ A strategy provides a thorough understanding of:
    - The environment within which capital development occurs
    - Strategies for venture formation and the attraction of venture funds
    - Factors necessary for success
    - A platform for action
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# Building Innovative, Competitive Regions

## Environment within which Venture Capital occurs

- ★ Knowledge – of seed and venture investing – among policy makers, individual investors and entrepreneurs
  - ★ Visibility – of entrepreneurs to investors, and investors to entrepreneurs
  - ★ Profit Motive – initiatives and programs must be designed to make money
  - ★ Long Term Perspective – expectations are critical - expect no measurable impact for at least 5 years.
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# Building Innovative, Competitive Regions

Strategies for Venture Formation and the attraction of venture funds

- ★ Deal flow attracts venture capital
  - ★ Quantities and qualities are critical
  - ★ The vast majority of Venture capital investment occurs within a 300 mile radius (Development Capital Networks)
  - Within the circle, it's not an intra-mural competition – it's a collaborative effort to attract and create "critical mass"
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# Building Innovative, Competitive Regions

“Capital mobility occurs, not through the operation of a free-flow market, but through the network structure of the venture capital industry, which is strongly rooted in geography.”

-Richard Florida  
Author

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# Building Innovative, Competitive Regions

## Factors necessary for success

- ★ Deal Flow attracts VC's, VC's attract entrepreneurs
  - ★ Critical elements includes
    - Research Universities – linked to industries and each other
    - Management talent & entrepreneurial activity
    - Integration with financial markets
  - ★ Establishing Access to Early Stage Venture Capital
    - Proof of concept
    - Angel Investors
    - Early Stage (Pre-seed/seed) Venture Funds
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# Building Innovative, Competitive Regions

## A Platform for Action: The WBTshowcase

- ★ Established in 2002 by Federal Lab Consortium, National Association of Seed & Venture Funds, supported by White House Office of Science & Technology Policy
  - ★ Premise – move patents from federal labs to market place
  - ★ Southeastern Universities Research Association joined in 2007
  - ★ National Nanotechnology Initiative joined for 2010
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# Building Innovative, Competitive Regions

## A Platform For Action: The WBTshowcase

March 15-17, 2010

- ★ NSF Pre-event symposium
- ★ Technology Showcase – 5 tracks
  - Life Science
  - Energy
  - Materials Science
  - Information Technology
  - Nanotechnology
- ★ University Poster Event
- ★ Business Plan Competition
- ★ IEEE Engineering in Medicine & Biology Society Technical Workshop



# Building Innovative, Competitive Regions

## The WBTshowcase

- ★ Deal Flow
    - Technology Presentation
    - Federal labs
    - Universities
  - ★ Venture Funds
    - Angels
    - Pre-seed & Seed
  - ★ Talent & Know How
    - Serial Entrepreneurs
    - Corporate Licensors
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# Building Innovative, Competitive Regions

## The National Nanotechnology Initiative

- ★ U.S. Department of Homeland Security
  - ★ U.S. Department of Defense
  - ★ U.S. Department of Energy
  - ★ U.S. Department of Agriculture, Forest Service
  - ★ National Institute of Standards and Technology (NIST)
  - ★ National Aeronautics and Space Administration (NASA)
  - ★ National Science Foundation (NSF)
  - ★ Cancer Institute, NIH
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# Building Innovative, Competitive Regions

“Our Challenge is to understand the difference between accomplishment and impact”

Dr. Michael Postek

National Institute of Standards and Technology

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# Selling the Change

“Without changing our pattern of thought, we will not be able to solve the problems we created with our current pattern of thought”

-Einstein

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# Selling the Change

## Ten Commandments

- ★ Simplicity
  - ★ Brevity
  - ★ Credibility
  - ★ Consistency
  - ★ Novelty
  - ★ Sound & Texture Matter
  - ★ Speak Aspirationally
  - ★ Visualize
  - ★ Ask a Question
  - ★ Provide Context/Explain Relevance
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# Selling the Change

Change is debilitating when done to you...

but exhilarating when led by you...

To succeed, we must effect a cultural change.

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