From Dreams to Reality: Partnerships for the Future

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www.hpcdan.org
The war on poverty and inequality
50th anniversary retrospective

“Very often a lack of jobs and money is not the cause of poverty, but the symptom. “

“The cause may lie deeper – in our failure to give our fellow citizens a fair chance to develop their own capacities.”

Lyndon Johnson, State of the Union address, January 8, 1964
Looking back ~50 years ...

The Civil Rights Act of 1964 was still in the future
Ole Miss is integrated when James Meredith enrolls ...

90% of US households now own a television (almost all black and white)
First live transatlantic television broadcast via Telstar

Average household income: $5,556
Gasoline: 28 cents/gallon
First class stamp: 5 cents

Inflation: 1.2%
Unemployment: 5.7%

Dow Jones industrial average: 891 (high)
Today’s social, technical and economic issues

Wealth and income disparity
Economic and social mobility
Wealth creation without jobs

Four-year college education
• Promotes upward mobility
• Limits downward mobility

Economic mobility of Americans raised in the bottom quintile who stay put or move up

http://www.pewstates.org/research/reports/pursuing-the-american-dream-85899403228
Megatrends and Toffler’s three waves

Agrarian, post hunter-gather culture
Mass production society, after the industrial revolution
*Post-industrial society of mass customization and knowledge economies*
Multi-trillion dollar disruptions

Internet of Things
Automation of knowledge work
Renewable energy
Advanced robotics
Advanced oil and gas exploration and recovery

Mobile Internet
Energy storage
Post-genomic medicine
3-D printing
Autonomous and semi-autonomous vehicles

Cloud computing

Google, Council Bluffs

Windfarm

Makerbot Replicator2

Mobile Internet

Illumina Sequence Analyzer II
Iowa insights ...

I have been barnstorming the region and the state ...

Some clear messages and needs have emerged
- Discovery and innovation
- Engaged, collaborative partnerships
- Skills refresh and advanced training
- Talent recruiting and retention
State of the Iowa enterprise
Research and economic development

Over $400M in research funding
More than 6000 people employed
Industry funding up 7 percent in FY13
180 new funding sources
Over 100 invention disclosures/year

University of Iowa Research Park (UIRP)
• 33 companies and over 1700 employees
Road expansion to open 15 new lots
Kirkwood/Iowa STEM education center
**Staph vaccine research**

- Antibiotic-resistant strains kill thousands
- Traditional vaccines have failed
- New Iowa work targets staph *toxins*
- Animal tests are extremely promising
- FDA approval for clinical trials is next

**3-D organ printing**

- Goals
  - Glucose-sensitive pancreatic organ
  - Laboratory grown and transplantable

Professor Patrick Schlievert  
Microbiology, College of Medicine

Professor Ibrahim Ozbolat  
Mechanical & Industrial Engineering
From research to realization

Differing attributes
• Timescales
• Resource investments
• Translation mechanisms

Approach shaping
• Technology type
• Timescale and approvals
• Culture and uptake

Entrepreneurship
Partnership
IP Licensing

People and Ideas
The ecosystem really matters

Innovation and discovery
• Research and development

Vibrant talent base
• Technical, financial, management, ...

Liquid, mobile capital
• Venture and commercial

Diverse economic opportunities
• Multiple jobs, stability and change

Community
• Restaurants, stores, entertainment, ...

Culture
• Diversity, acceptance and critical mass

High quality education
• Universities, community colleges, K-12 schools
Technology transfer and value creation

8-10 year ROI from basic research

Multistage risk capital

Management and workforce needs

IP

Gap Funding

Startup Assistance

Equity Investment

Innovative Company

Venture Capital Investment by Metro (Millions of Dollars)
Iowa City area engagement center (first of several)
Collaboration and applied partnerships

- Technical assistance
- Business strategy
- **Business education**: Seminars in technology, innovation and business strategy
- **Entrepreneurship training**: Training and technical support for new products and applications
- **IT boot camps**: Hands-on, intensive training programs in software and IT tools to meet business needs
Public research universities: a new compact

Knowledge creation and global reach
Lifelong education and skills refresh
Economic development and innovation

Global and regional competitiveness
Complex problems collaboration & insights
New partnerships with communities
Building Iowa’s human capital in the 21st century
Talent is the raw material of the knowledge economy

Knowledge is our most important engine of production  - Alfred Marshall, 1890
Advice to an innovator (young or old)

Embrace people unlike you
• They will challenge your beliefs and assumptions
• You will learn from them and they from you

Take some risks – dare the difficult
• It will stretch your imagination and capabilities
• Even failing gloriously is a badge of honor

Identify what you do really well
• Partner with others who have done the same
• Together, you can do things you cannot do alone

Make new and original mistakes ...
• Life is more interesting that way
Notice:

Men wanted for hazardous journey.
Small wages. Bitter cold.
Long months of complete darkness.
Constant danger. Safe return doubtful.
Honour and recognition in case of success.

-Ernest Shackleton-