Plugged In, Tuned out?

The Future of the Utility-Customer Experience

Presented by: **Garry Golden**

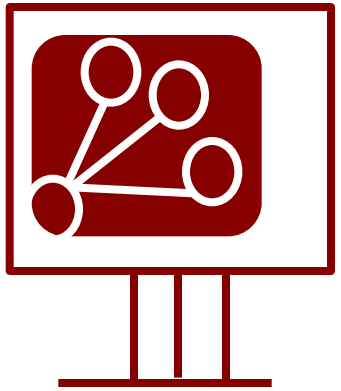
Designed for: IEPEC

Drivers of Change

Start

End

Foresight 101



Culture of Foresight

Q&A - Discussion

20th Century Dynamics of Central Grid

Power Production

21st Century Dynamics of 'Smart' & Distributed

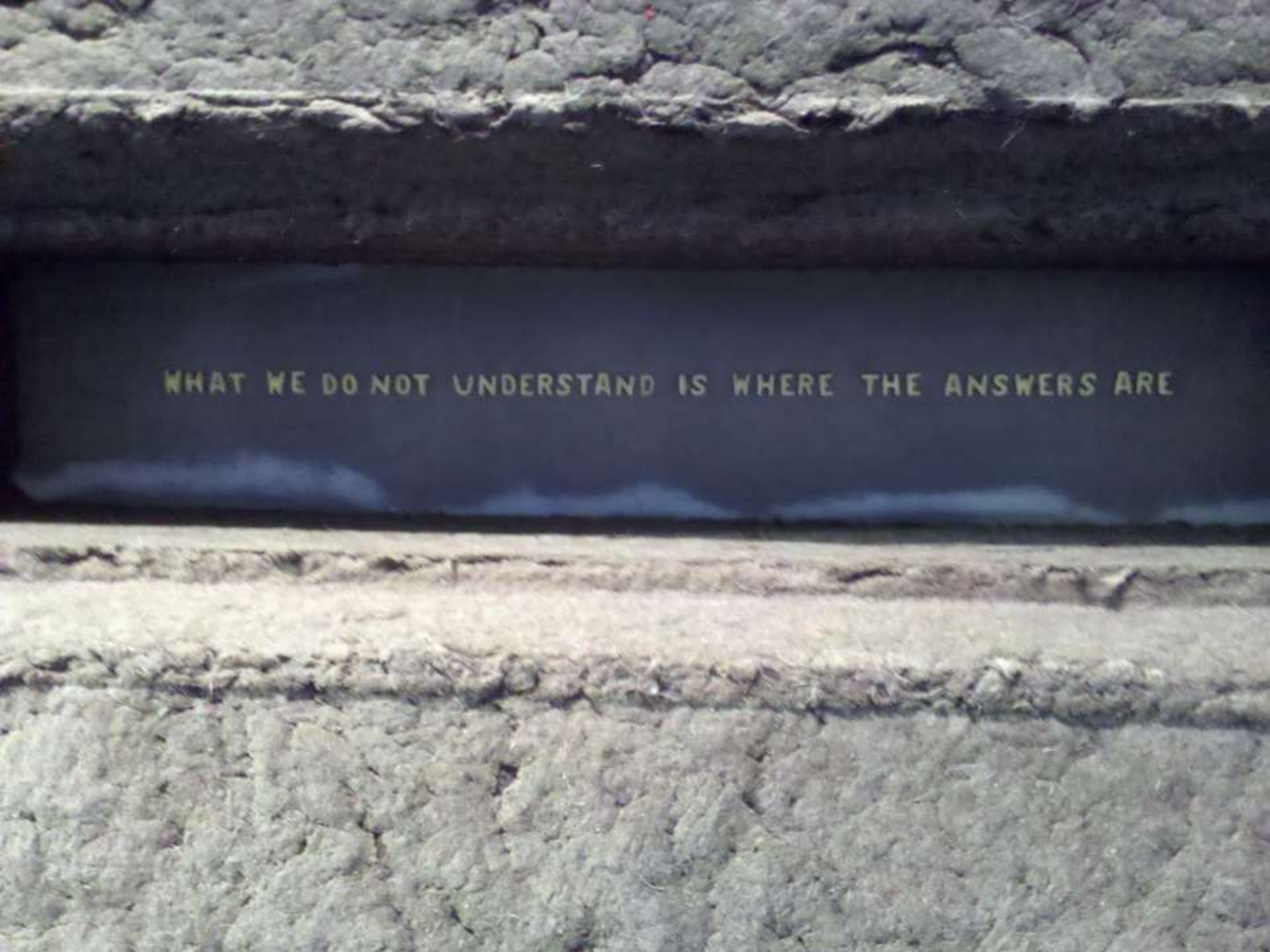
Networked Energy Systems


You will inherit a large sum of money.


IF YOU HIT THIS SIGN
YOU WILL HIT THAT BRIDGE

WAIT FOR IT

.....Wait for it.....


WHAT WE DO NOT UNDERSTAND IS WHERE THE ANSWERS ARE

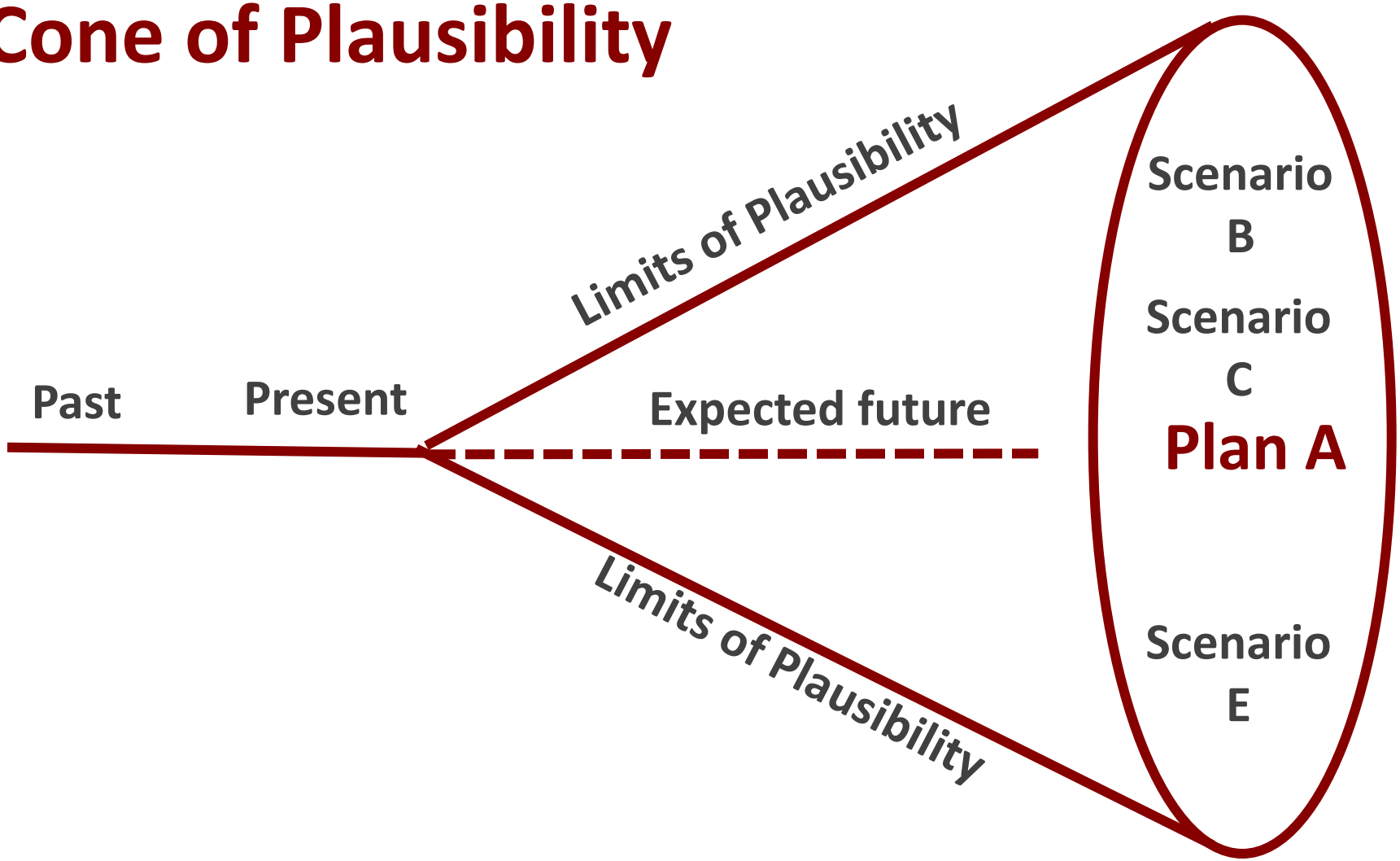
Fundamentals of Foresight

Step One	Step Two	Step Three
Identifying & Monitoring Change	**Exploring Implications**	**Communicating Change**
• Horizon Scanning • Issues Analysis	• Forecasts • Scenarios	• Visioning • Planning • Goals – Objectives - Actions • Metrics / Roadmaps • Evaluation • Iterative Planning

The Road Ahead: An Official Future?

Foresight Planning for Multiple Outcomes & Multiple Horizons

Cone of Plausibility



Our Focus on Alternative Futures

Forecast Thinking:

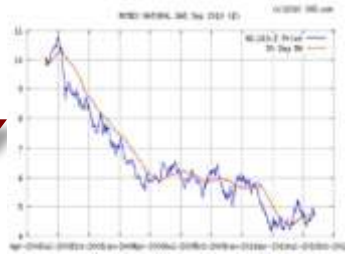
- Confidence in assumptions
- *Stable marketplace/culture*
- *Focus on 'Prediction' (What should happen)*

Scenario Thinking:

- Unsure of right assumptions
- Markets shaped by uncertainty
- Focus on 'Anticipation' ('could happen')
- Manage uncertainty using a range of plausible outcomes
- Focus on continual monitoring of change

Three Mechanisms of Change

Trends
(Continuities)



Plausible Futures

Forecasts

Events
(Discontinuities)

Possible Futures

Scenarios

Choices
(Discontinuities)

Preferred Futures

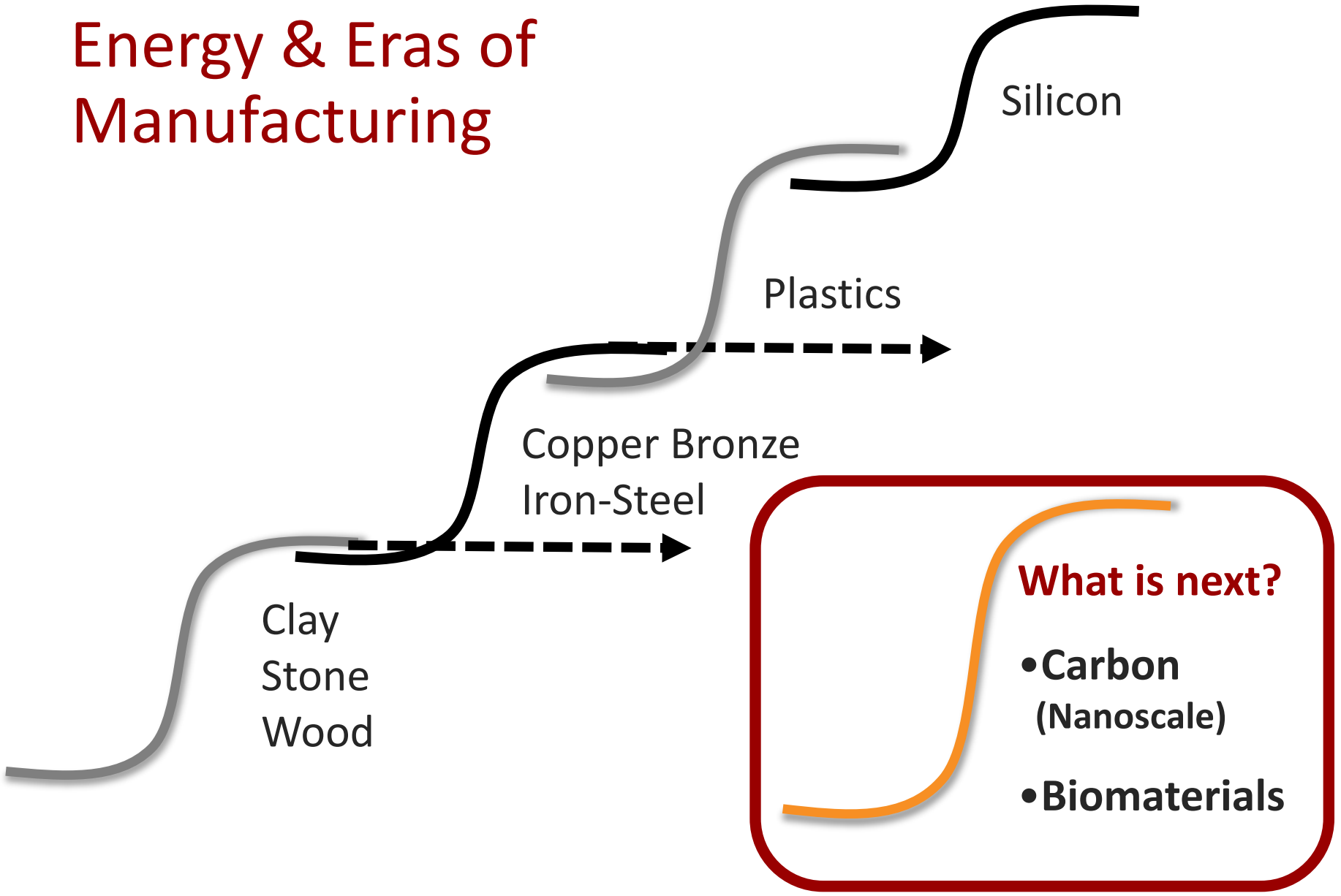
Visions

Compelling Vision?

Transforming Energy Systems

Culture of Advanced Users

Energy & Eras of Manufacturing



Functionalization:
Active
Nanostructures

2050

2030

Characterization:
Passive
Nanostructures

Functionalization:
Passive
Nanostructures

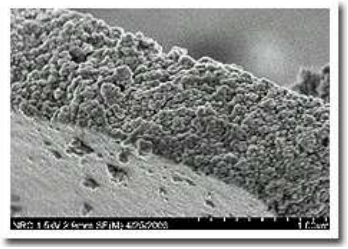
2025

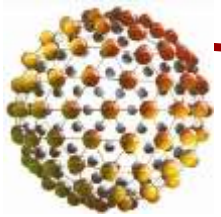
1990

2009

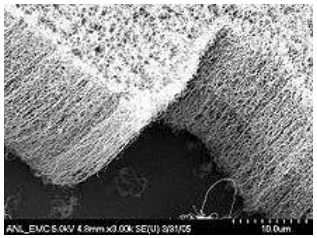
2010

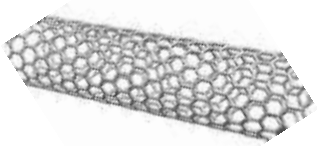
Nano-Materials for Energy: Coatings & Additives





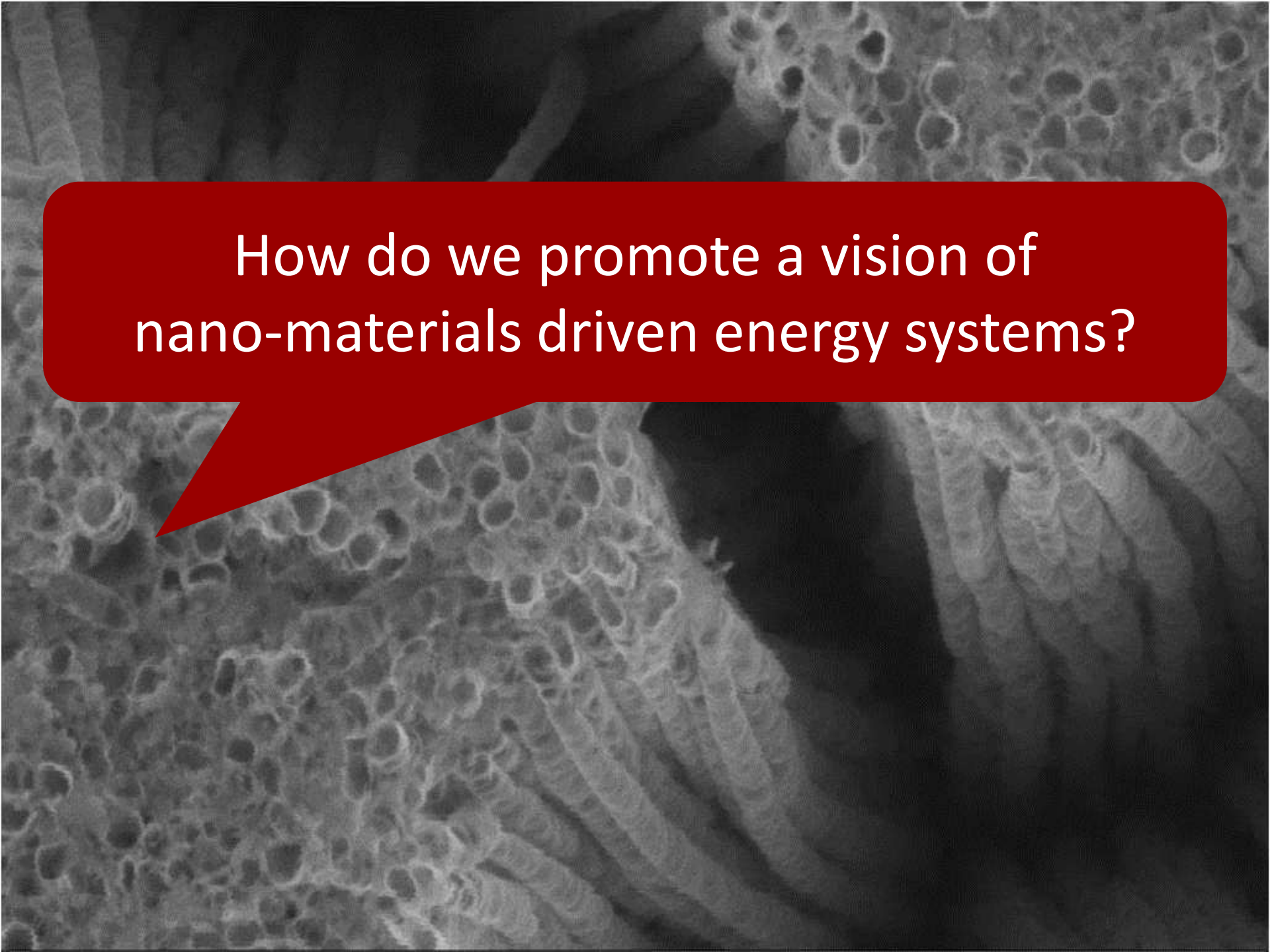
Nano**particles**





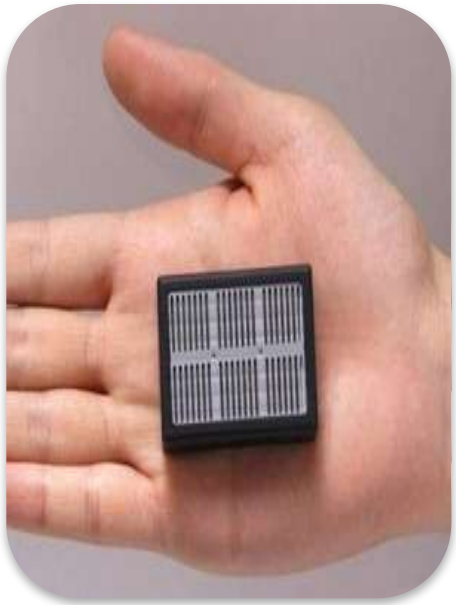
Nano**tubes**

Nano**sheets**
(Graphene)


How do we promote a vision of nano-materials driven energy systems?

Rise (and Return) of Distributed Power Generation

Bloomenergy



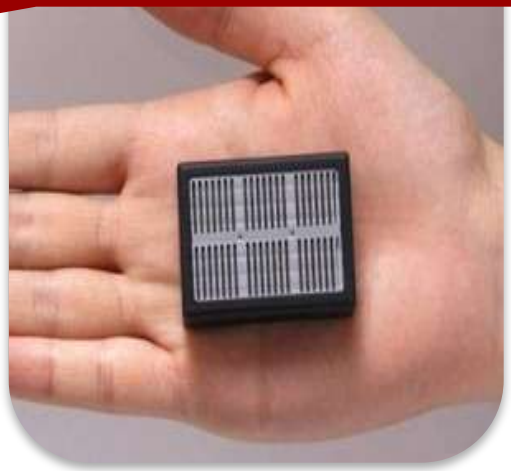
Distributed Power Generation

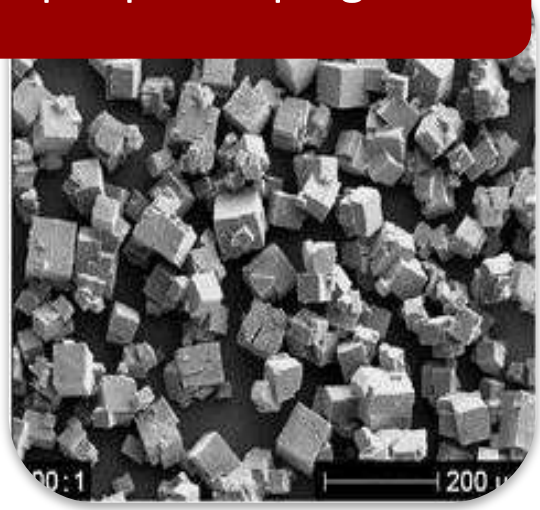
Portable Fuels & Micro Energy

Possible Future:

Consumers start to 'unplug' as devices and appliances contain their own embedded power systems?

How do we thrive in a *Personal Power* scenario where people 'unplug'?





'Unplugging'
Beyond the Grid

Power Plants
$1 $10
$100 $1000

'Retail Packets'
Solid Hydrogen / Liquid Fuels

Plausible Future:

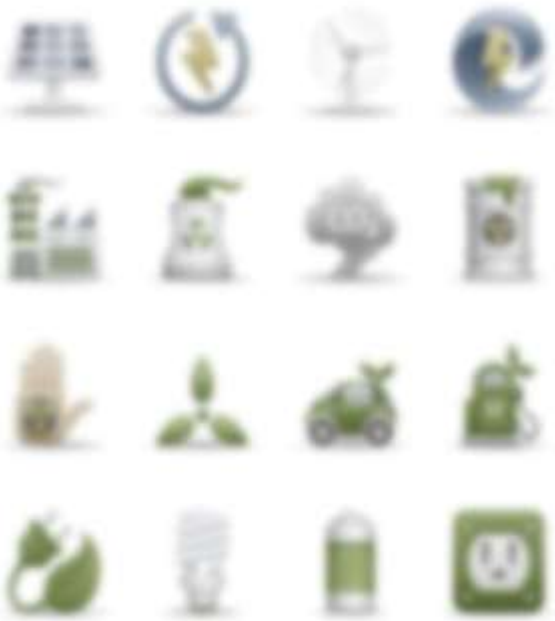
Communities demand Micro-Grids as framework for Era of Distributed Energy Systems?

Fuels Market

Hardware & Service

How do we leverage the localization of energy systems?

Compelling Vision?



Transforming
Energy Systems

**Culture of
Advanced Users**

Technology leading Culture leading Technology…

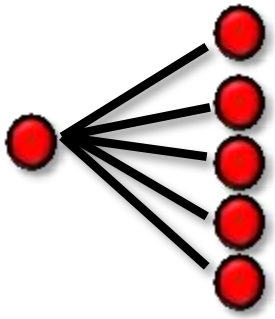
Anonymous Web
1998

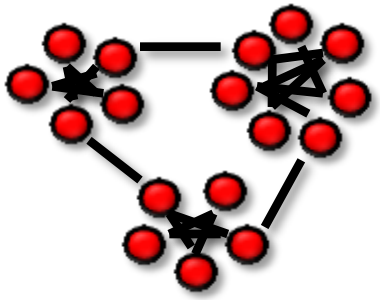
…. to a more

Social Web
2008


Most people know I am….

Eras of
Media / Communication





Era of
One-to-One

Era of
Broadcast

Era of
Social Media

How do we lead the M2M parade?
And avoid disintermediation?!!

Location-based Experiences

Experiences:
Lighting / Sound

OnStar

Smart Meter

Era of
Machine to Machine

Object to Object

Evolution of Web & Energy Services

How might we anticipate convergence of Energy Systems & *Experience Design*?

facebook

YouTube
Broadcast Yourself™

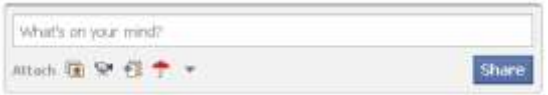
twitter

Cloud Computing

Learning Systems

Machine-to-Machine (M2M)

'Smart' Data



Web 1.0
Info Portal

Web 2.0
Participation

Web 3.0
Learning Systems, Data & Service Platforms

Era of Big Data
& Culture of ‘Quantified Self’

Personal Data Factories

Kids (and Adults) these Days!

Forces of Mainstreaming?

Data Visualization & Quantified Self

DAY TUM + facebook

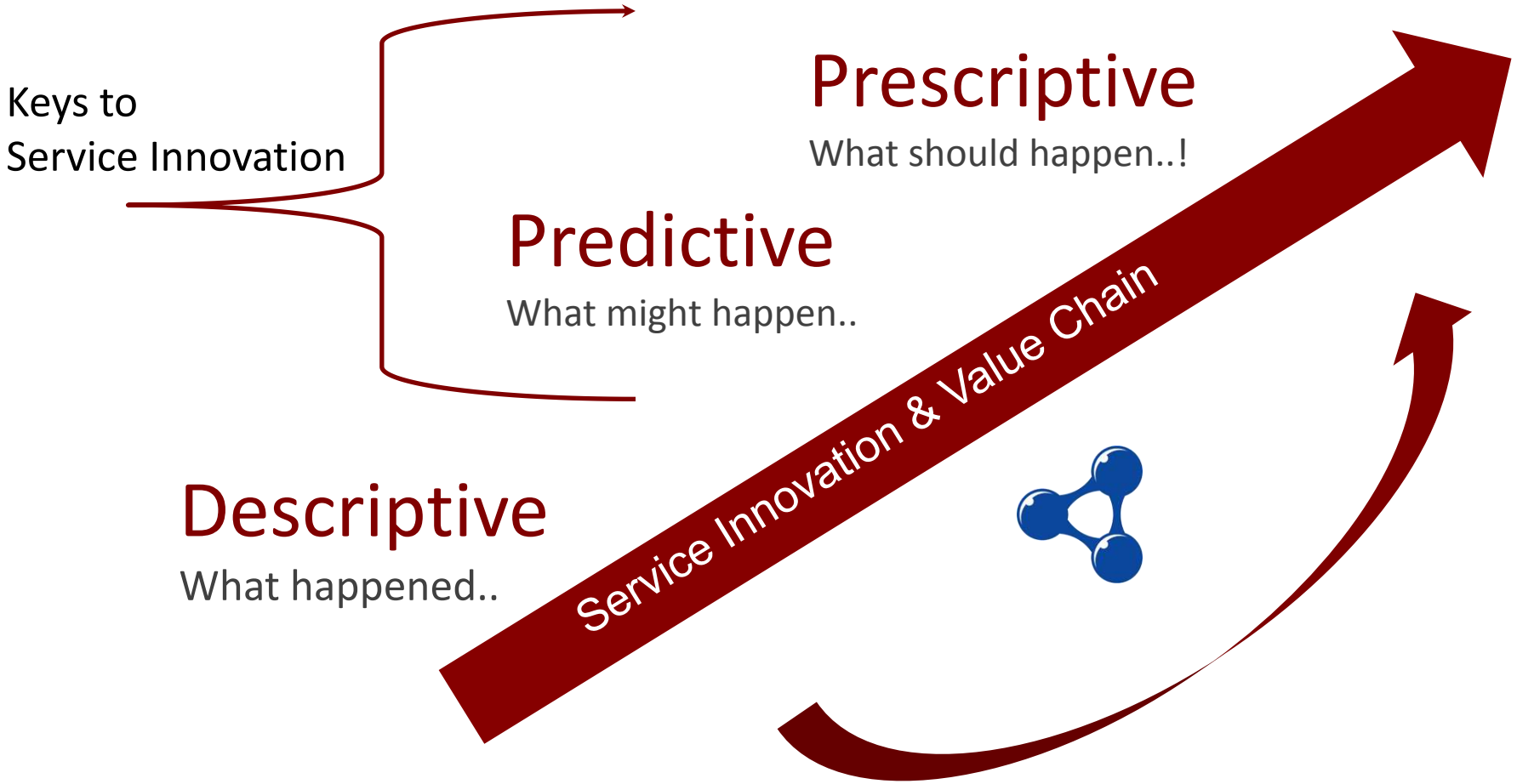
HELLO...

DAYTUM HELPS YOU COLLECT, CATEGORIZE AND COMMUNICATE YOUR EVERYDAY DATA.

(Nick) Feltron Annual Report

'Self-Tracking' Culture

Data-driven Experience Design / Service Innovation



Changing Behavior

Energy Programs & Gaming Mechanics

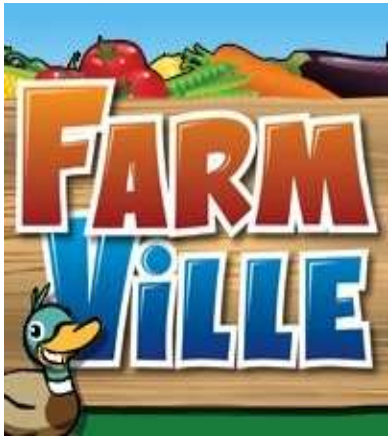
'Gaming' Design Principles:

- Rules & Rewards
- Challenges & Goals
- Badges & Recognition (Stages of Mastery)
- Reputation Management
- Teamwork & Strategy

Weight Watchers

Goal: Advance from Novice to Master Level Skills

Teaching Infrastructure Systems via Gaming Mechanics



User Base

- 80 million Monthly
- 30 million Daily

Demographic

- Female (35-50 years old)

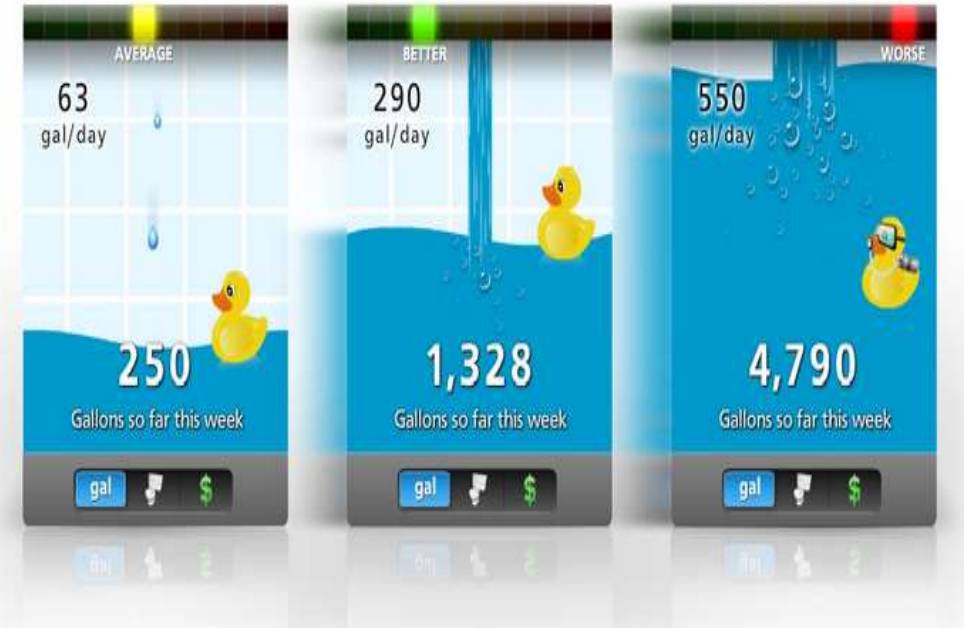
Auto Industry Gaming Mechanics

Make the Plant (Vine) ‘Grow’

Ford

HYBRID

Inspired Experience Design



luminant
CONSULTING GROUP

LucidDesignGroup

Beyond 2015….

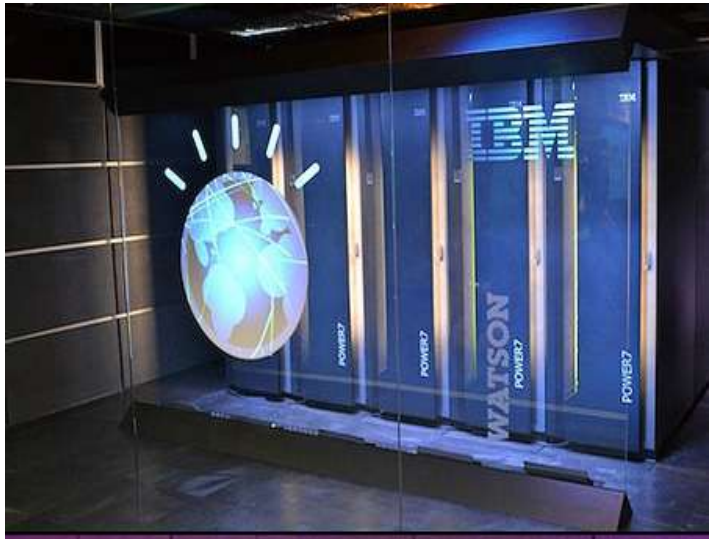
A Turbo Tax 'App' for Energy Program Evaluation?

Beyond 2015…

Smart Software: Augmented Learning

Watson On-Demand …!

- Natural Language Interface
- Conversation-based Interactions
- ‘Answer’ / Conversation Engine
- Continuity in Personalized Learning & Work-Life Experiences

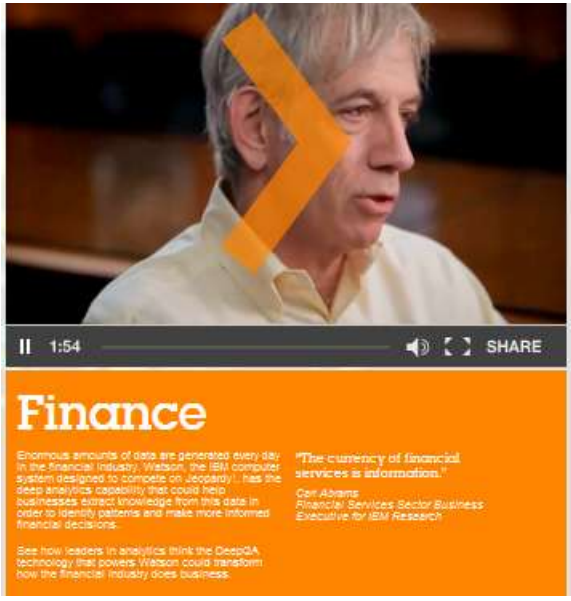


IBM Watson’s Next Stop:

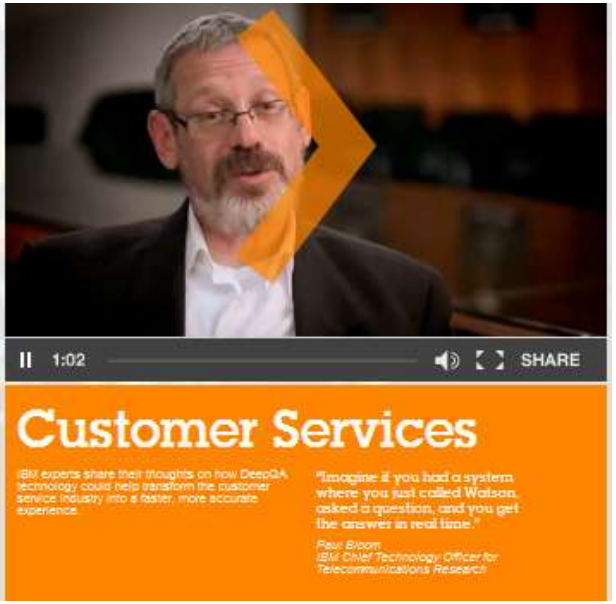
- Healthcare
- Financial Services
- Customer Service
- Program Design & Evaluation??

Are we prepared for Software Agents to join the Workforce?

Voice-based Database Searching

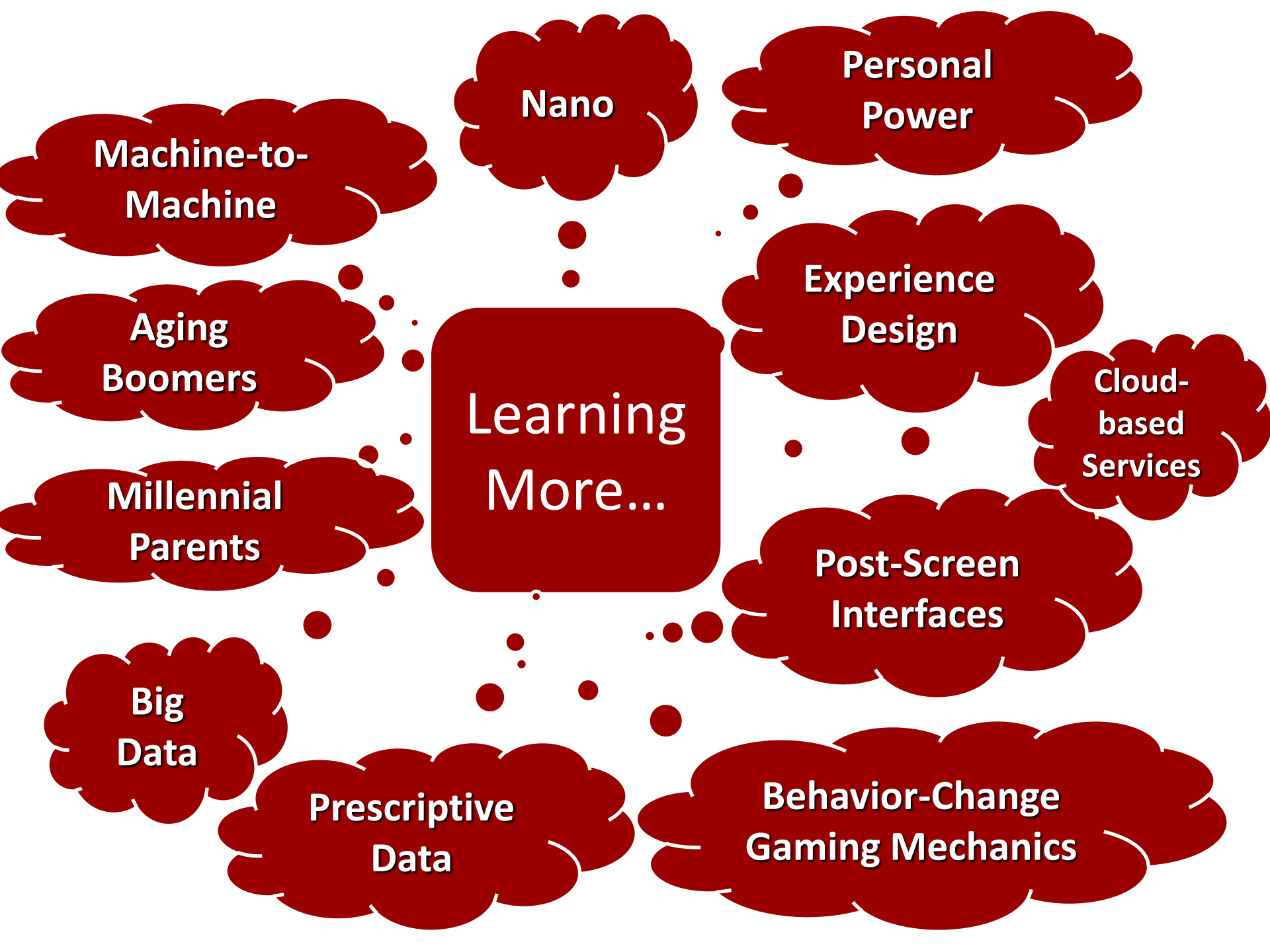


Providing 'Second Opinions' & Recommended Solutions



Real-time ' Answer' Engine

I don’t like the future…


Learning More…
Nano
Personal Power
Machine-to-Machine
Experience Design
Aging Boomers
Cloud-based Services
Millennial Parents
Post-Screen Interfaces
Big Data
Prescriptive Data
Behavior-Change Gaming Mechanics

Building Organizational Foresight Capabilities

Socialize Big Ideas!

Organize Lunch & Learns

Socialize ‘big ideas’ and explore implications by using conference presentations and webcasts available free on the web!

TED Ideas worth spreading

FORA.tv

YouTube

USTREAM

POP! TECH

Follow Smart People

Twitter is a great platform for learning what's on the mind of leading business model innovation experts.

Alex Osterwalder
Author of Business Model Innovation

Nancy Duarte
Founder of Duarte Communications

Paul Kedrosky
Business analyst and Investor

Enable an Energy Entrepreneurship Ecosystem

MIT Clean Energy Prize
AWARDED BY: NSTAR & U.S. DEPARTMENT OF ENERGY

CAMPUS CONSERVATION NATIONALS 2010

DORM ENERGY COMPETITION

inhabitat
SPRING GREENING CONTEST!
ENTER THE COMPETITION HERE

PROGRESSIVE AUTOMOTIVE X PRIZE

Give Structure to Innovative Thinking!

Use ‘Killer Questions’ to Brainstorm Ideas

Following the success of HP’s Chief Innovation Officer Phil McKinney, generate a weekly ‘Killer Question’ email message or ‘Twitter’ conversation that spurs conversation about the future of energy & experience design.

Recruiting Class of 2015

Garry Golden
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Foresight Methodologies / Tools

Qualitative

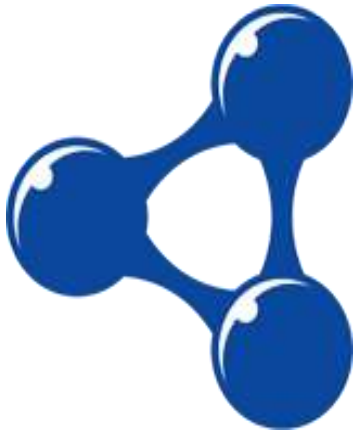
Scanning
Scenarios
Simulations & Games
Backcasting
Genius Forecasting
Morphological Analysis
Role-playing
Ambient Futures
Casual Layered Analysis
Futures Wheel
Relevance Tree
Appreciative Inquiry

Qual-Quan Hybrid

Delphi Survey
Cross Impact Analysis
Survey / Focus Group
Agent Modeling
CA Systems Modeling
Decision Modeling
Text Mining
S-Curve Analysis
Field Anomaly Relaxation (FAR)
Roadmapping
Fisher-Pry Analysis

Quantitative

Trend Extrapolation
Benchmarking
Patent Analysis
Systems Dynamics
Probability Forecasting
Monte Carlo Models



Exploring Implications: Futures Wheel

When filling in implications, be sure to consider:

- Customer
- Company
- Co-workers
- New Product / Service
- Change in Marketplace

Blue Arrows: Opportunities

- Financial (Investment, Revenue, Acquisition)
- Market (Expanded Segmentations)
- New Internal Skills & Capacities (Mashup services)
- New Behavior (More transactions)

Scan hit summary

Green Arrows: Constraints

- Resources (Lack of; Higher Costs)
- Offerings (Cannibalize existing offerings)
- Market Size (e.g. Narrow Customer Segmentation)
- Policy Change (New Regulation is Introduced)
- Wild cards (Product recall)

Era Analysis

This exercise is designed to help your team identify the conditions and sources of change from past to present eras of business - and to then explore potential market transitions in the future. With your team, jot down a few key bullet points about different eras of your organization and industry. After you define your *era time horizons*, begin with the Vision/Mission category on the left. Then work across from 'Past' to 'Present' to 'Future' era. Continue working down with each category - working left to right. Lastly, spend some time analyzing the Disruptive Element boxes carefully to brainstorm characteristics of the future era your company might enter over the next few years.

	Past	Current	Future
Vision / Mission The vision and mission guiding your company / industry sector; List major assumptions for era			
Market Dynamics Regulatory and business dynamics for industry; Factors for competition; What primary conditions shaped the marketplace?			
Customer Offerings Product and service portfolio; Life stages / Lifestyles; How did customer needs change? What was considered innovative?			
Partnerships Who were you partners? (Successes? Failures?) What were some primary roles across the value chain?			
Minor Eras / Transitions Were there small but significant changes within the company? Industry? (Internal/External)			
Disruptive Elements Disruptive elements that led to the next major era What are the 'limits to growth' within this era?			

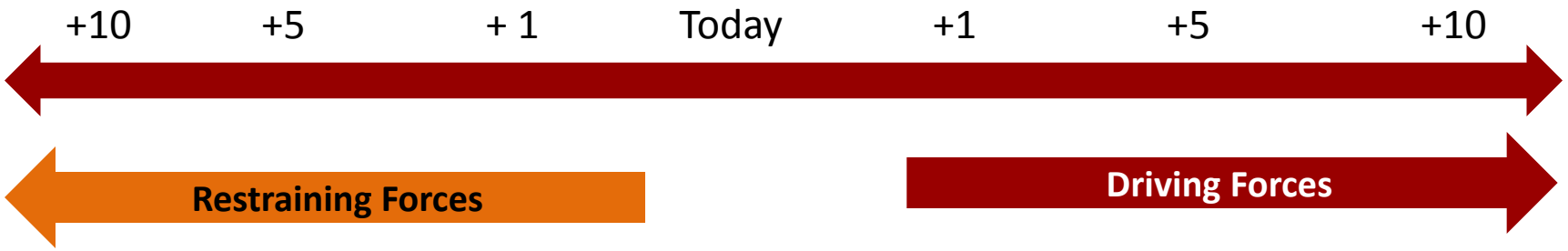
Era Analysis (Version 1)

	Past	Current	Future
Vision			
Markets			
Offerings			
Customers			
Partners			
Minor Eras			
Disruptive Elements			

Worksheet: Force Field Analysis

Direction A
Scenario Name

Direction B
Scenario Name



Scenarios – Methods

'GBN' Method

- 2x2 Matrix Uncertainty & Impact
- Issues oriented
- Business-friendly

Other Methods

- 'Manoa' Scenarios
- Backcasting / Incasting
- Cross-Impact Matrix