



Plugged In, Tuned out?

The Future of the Utility-Customer Experience

Presented by: **Garry Golden**

Designed for:



Drivers of Change

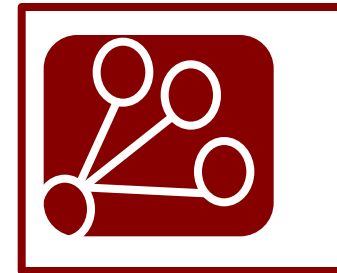


Start

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.

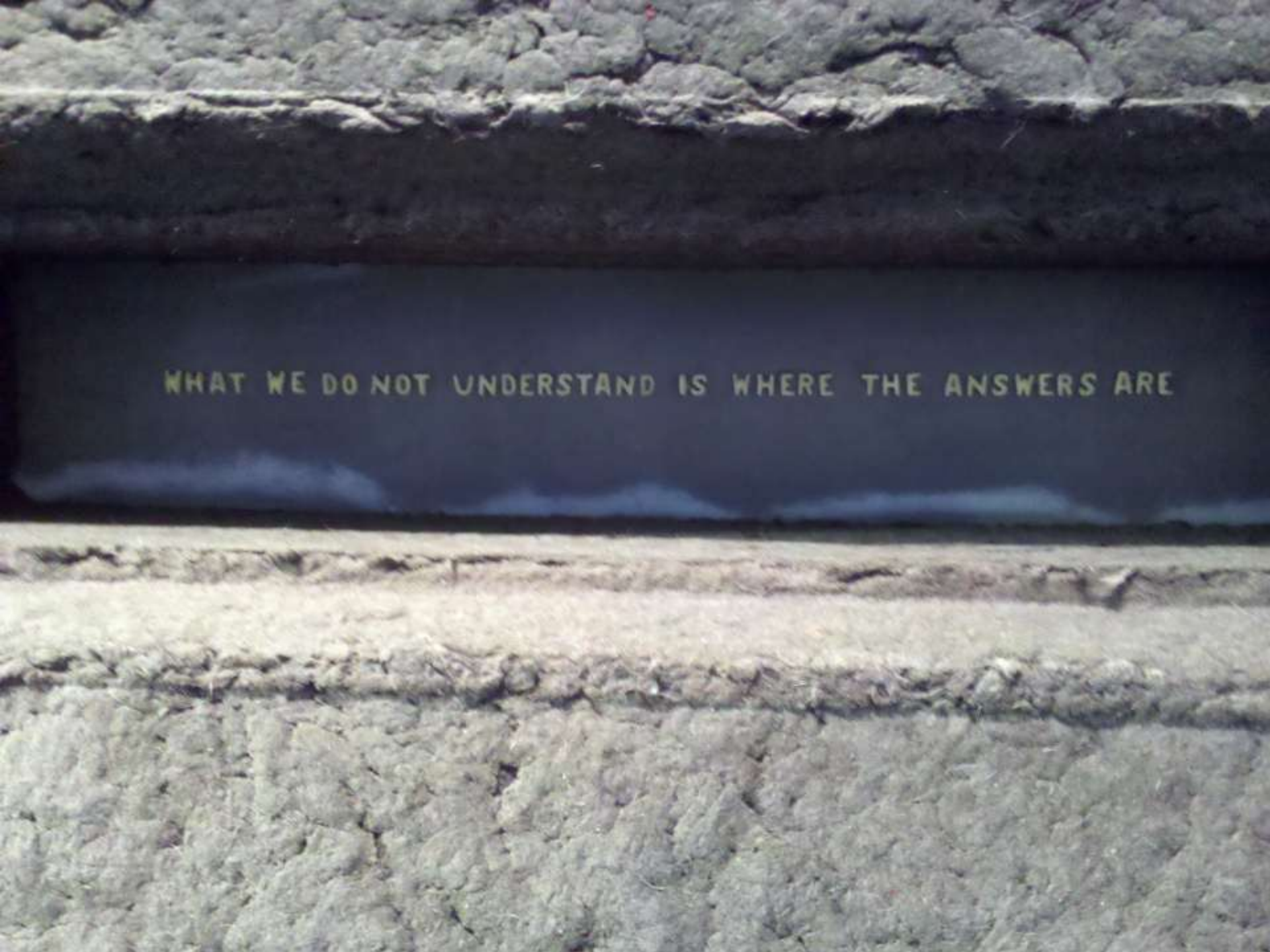
IF YOU HIT THIS SIGN
YOU WILL HIT THAT BRIDGE





WAIT FOR IT

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

A photograph of a cracked, dry earth surface. The foreground and background show a textured, cracked ground. In the center, there is a dark, rectangular area that appears to be a shadow or a recessed part of the ground. Inside this dark area, the text "WHAT WE DO NOT UNDERSTAND IS WHERE THE ANSWERS ARE" is written in a light, monospace-style font.

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**

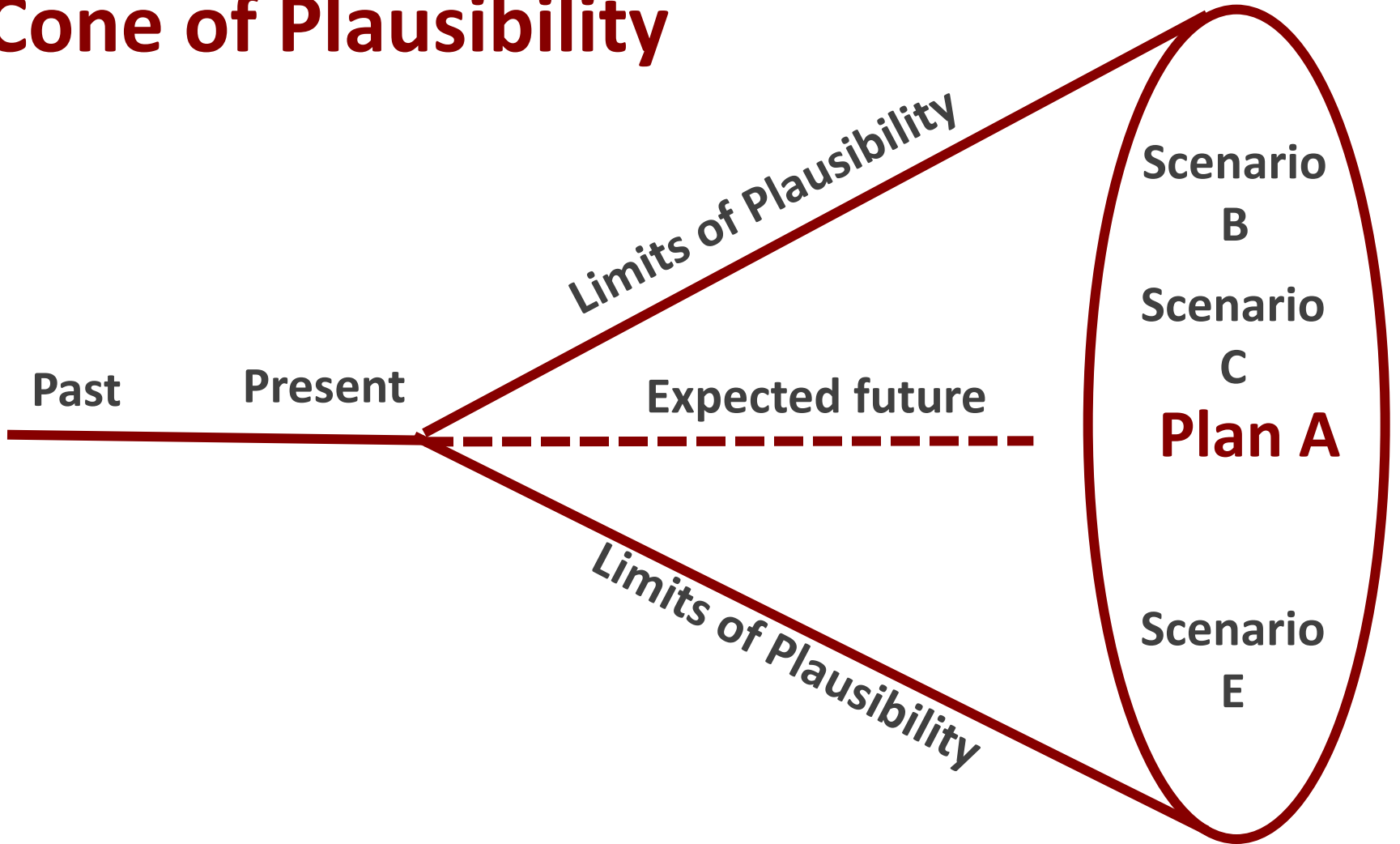
- **Forecasts**
- **Scenarios**

- **Visioning**
- **Planning**
- **Goals –
Objectives - Actions**
- **Metrics / Roadmaps**
- **Evaluation**
- **Iterative Planning**

The Road Ahead: An Official Future?



Cone of Plausibility



Our Focus on Alternative Futures



Forecast Thinking:

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

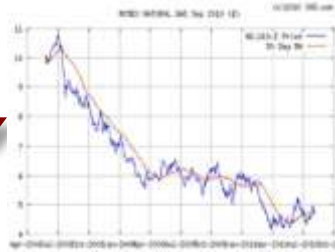
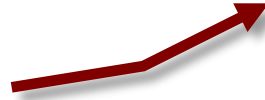


Scenario Thinking:

- 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

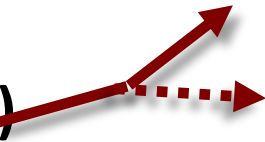
Trends
(Continuities)



**Plausible
Future**

Forecasts

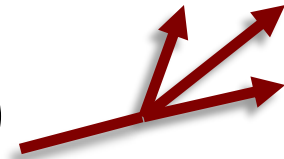
Events
(Discontinuities)



**Possible
Futures**

Scenarios

Choices
(Discontinuities)



**Preferred
Futures**

Visions

Compelling Vision?

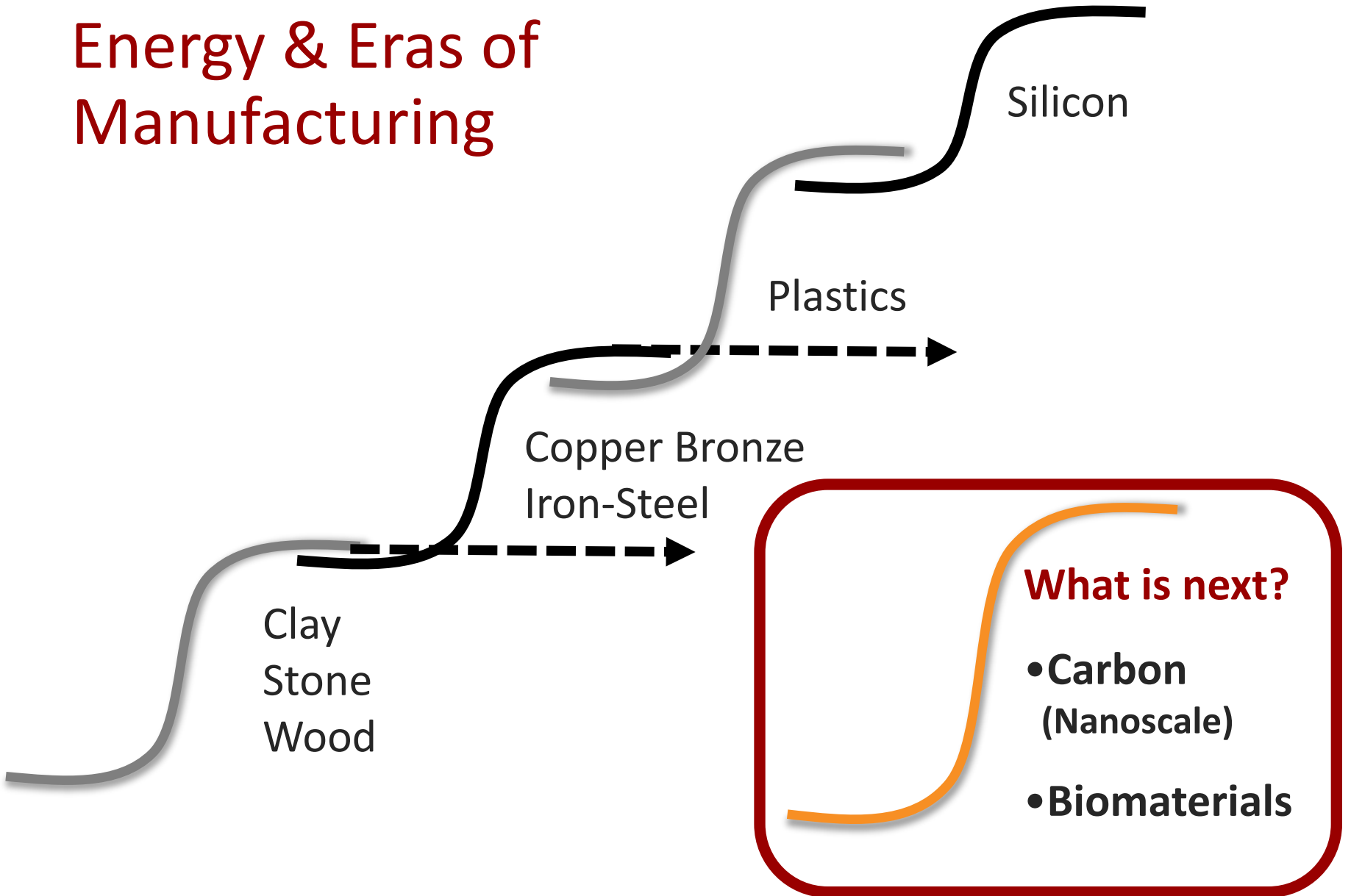


**Transforming
Energy Systems**



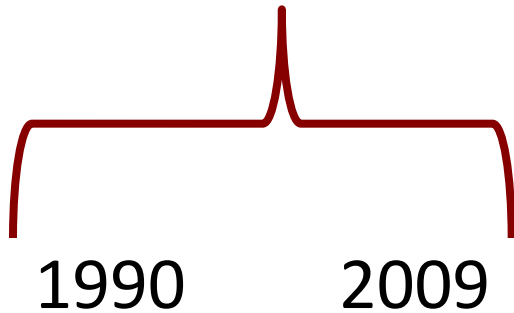
**Culture of
Advanced Users**

Energy & Eras of Manufacturing

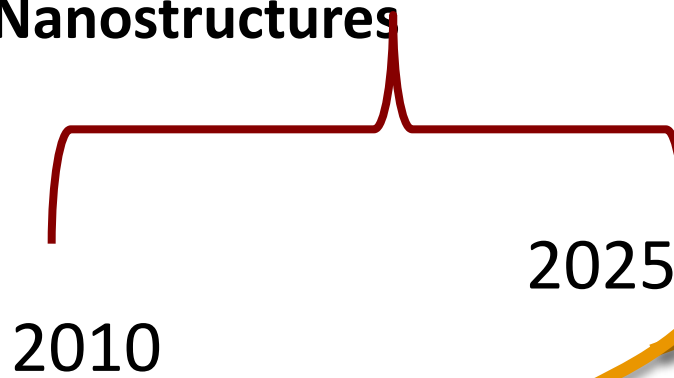




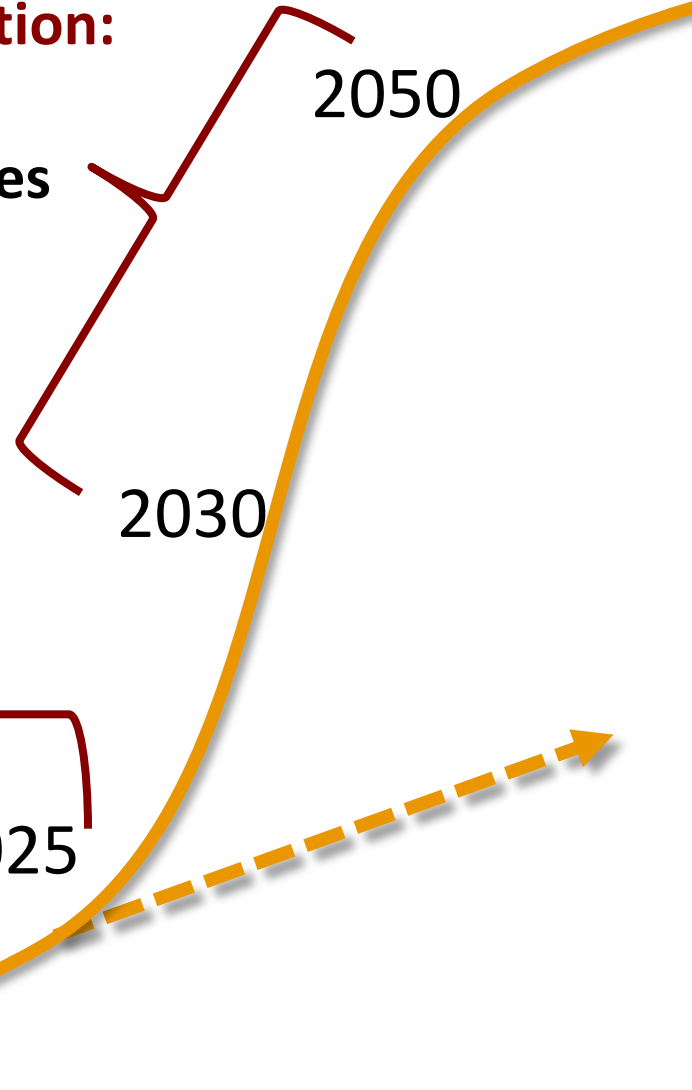
Characterization:
Passive
Nanostructures



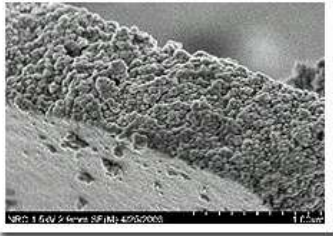
Functionalization:
Passive
Nanostructures



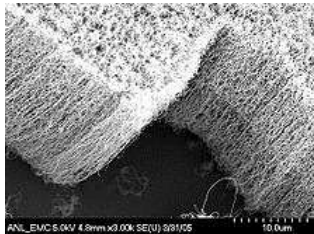
Functionalization:
Active
Nanostructures



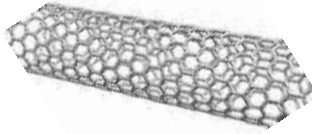
Nano-Materials for Energy: Coatings & Additives



Nanoparticles



Nanotubes



Nanosheets
(Graphene)



The background of the slide is a grayscale scanning electron micrograph (SEM) showing a porous, honeycomb-like structure. The structure consists of interconnected, roughly circular or hexagonal cells, creating a lattice-like appearance. A prominent red speech bubble is overlaid on the image, containing white text. The speech bubble has a tail pointing towards the bottom-left corner of the image.

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

Rise (and Return) of Distributed Power Generation

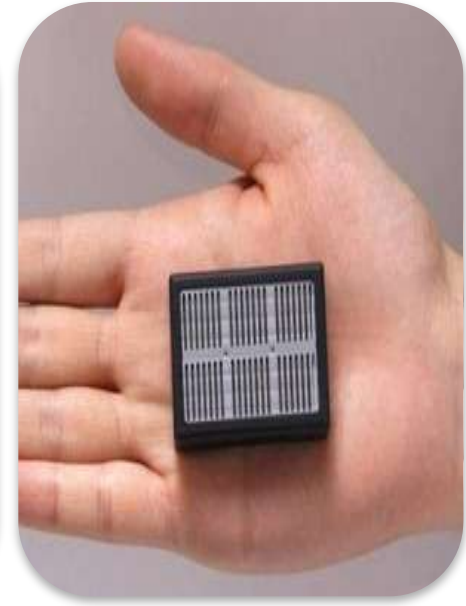


Bloomenergy

Distributed Power Generation



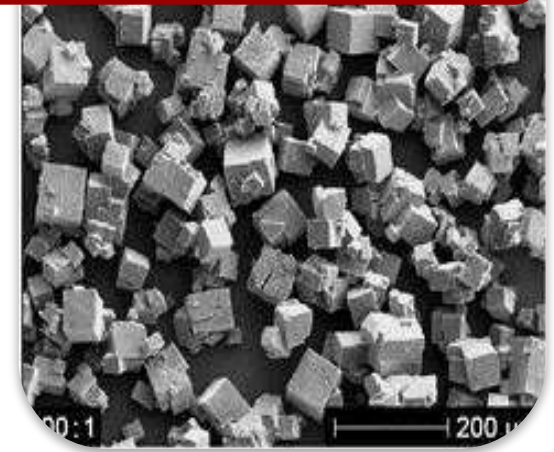
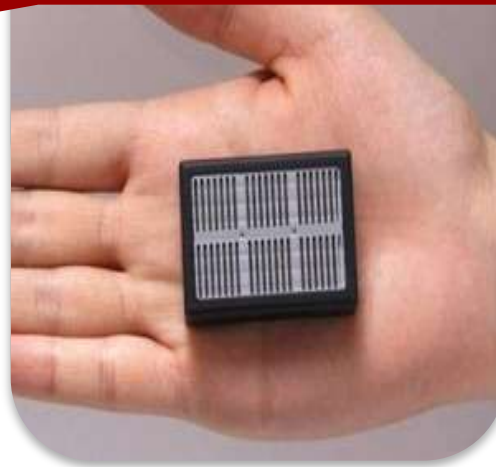
**Portable Fuels
& Micro Energy**



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...

©Cartoonbank.com



"On the Internet, nobody knows you're a dog."

"On Facebook, 273 people know I'm a dog.
The rest can only see my limited profile."



© creative commons

Anonymous Web
1998

... to a more

Social Web
2008

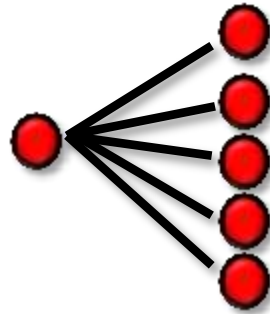
Most people know I am....



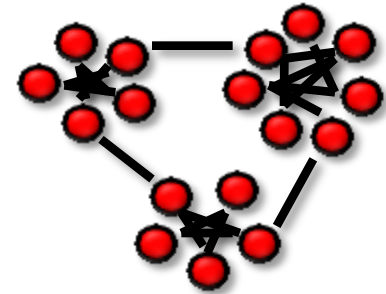
Eras of Media / Communication



Era of
One-to-One



Era of
Broadcast



Era of
Social Media



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



Experiences:
Lighting / Sound



Location-based
Experiences

Era of
Machine to Machine



**Smart
Meter**



Object to Object

Evolution of Web & Energy Services

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

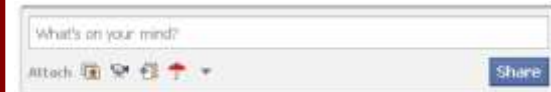


Learning Systems

Cloud Computing

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



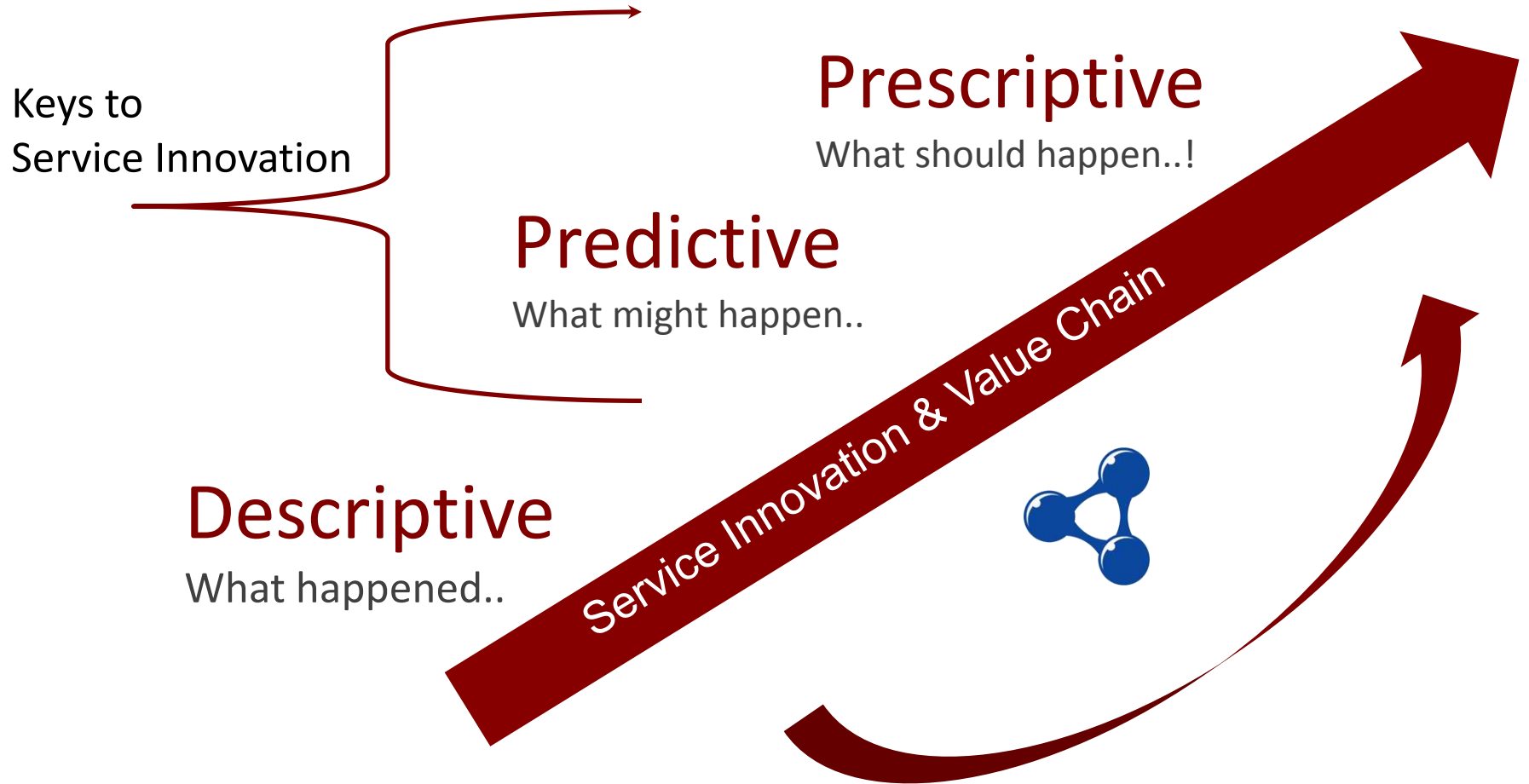
HELLO...

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



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'



Inspired Experience Design



luminant
CONSULTING GROUP

LucidDesignGroup

Homepage Comparisons Competitions Green Features

Campus Conservation Nationals LEAD Browse All Competitions

Feb 1 (PST) 17 days, 4 hours remaining Feb 28 (PST)

Electricity Water Learn more

All Buildings' Savings So Far
\$ 3894 Dollars saved
kWh CO₂ Money

How are you conserving?

- Better turn off that Quik server under your bed, guys. It's sucking up all the energy in this building. 1 hour ago
- Tip: Hallway lights account for ~20% of electric loads. Feb 1 10:00 AM PST 11 min ago
- Current competition standings: Oberlin in 1st place, Hamilton in 2nd place (27 days remaining). Competition ends, 1 hour ago
- I'm hanging my clothes out to dry today. Feb 1 10:00 AM PST 2 hours ago

All Groups: All Buildings Your Buildings Total % reduction

Group	Reduction	Rank
HARRISS MALL OBERLIN	37% reduction	1st
FAIRCHILD HOUSE HAMILTON	35%	2nd
DASCOMB CENTER IOWA	34%	3rd
BARROWS PLACE HARVARD	30%	4th
NORTH HALL IOWA	27%	5th
SOUTH HALL EMORY	27%	6th
TALCOTT BUILDING JHU	20%	7th

Beyond 2015....

Federal Refund

\$0

Where Do I Enter

Get Answers

Find Tax Help

Using TurboTax

Contact Us

My Return

View Tax Summary

Print My Return

View Past Returns

Show Topic List

Income

Deductions

Taxes and Credits

Miscellaneous

Any Rollovers or Conversions?

Choose which of the following applies to this distribution. [Explain Rollovers and Conversions](#)

- I rolled over the entire distribution of \$15000.00 to another traditional IRA.
- I rolled over part of the distribution to another traditional IRA.
- I converted the entire distribution of \$15000.00 from a traditional IRA to a Roth IRA.
- I converted part of the distribution from a traditional IRA to a Roth IRA.
- I rolled over part and converted part of the distribution.
- None of the above.

Back

A Turbo Tax 'App' for Energy Program Evaluation?

Beyond 2015...

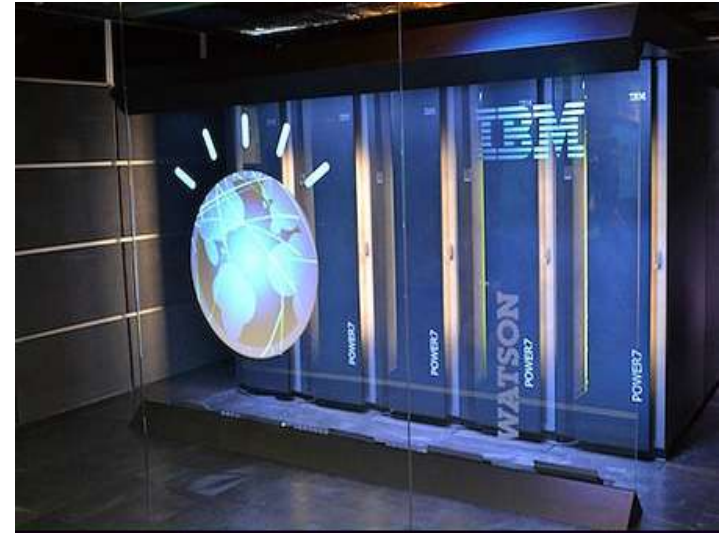
Smart Software: Augmented Learning

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?



IBM WATSON

Watson for a Smarter > Industry Perspectives > Healthcare



2:16


Healthcare

Medical records, tests, journals and research documents are all written in natural language – a language that computers traditionally struggle to understand. A system that instantly delivers a single, precise answer from these documents could transform the healthcare industry.

"In healthcare, we talk about turning data into knowledge. That's really what Watson does."

*Jim Gattison
Program Director,
IBM Healthcare and Life Sciences
Research*

Thought leaders including Dr. Herbert Chase, Professor of Clinical Medicine at Columbia University School of Physicians and Surgeons, share their thoughts on how the DeepQA technology that powers Watson could impact the way doctors diagnose and treat patients.



1:54


Finance

Enormous amounts of data are generated every day in the financial industry. Watson, the IBM computer system designed to compete on Jeopardy!, has the Deep Analytics capabilities that could help businesses extract knowledge from this data in order to identify patterns and make more informed financial decisions.

"The currency of financial services is information."

*Ger Abrams
Financial Services Sector Business
Executive for IBM Research*

See how leaders in analytics think the DeepQA technology that powers Watson could transform how the financial industry does business.



1:02

Customer Services

IBM experts share their thoughts on how DeepQA technology could help transform the customer service industry into a faster, more accurate experience.

"Imagine if you had a system where you just called Watson, asked a question, and you get the answer in real time."

*Ravi Bloom
IBM Chief Technology Officer for
Telecommunications Research*

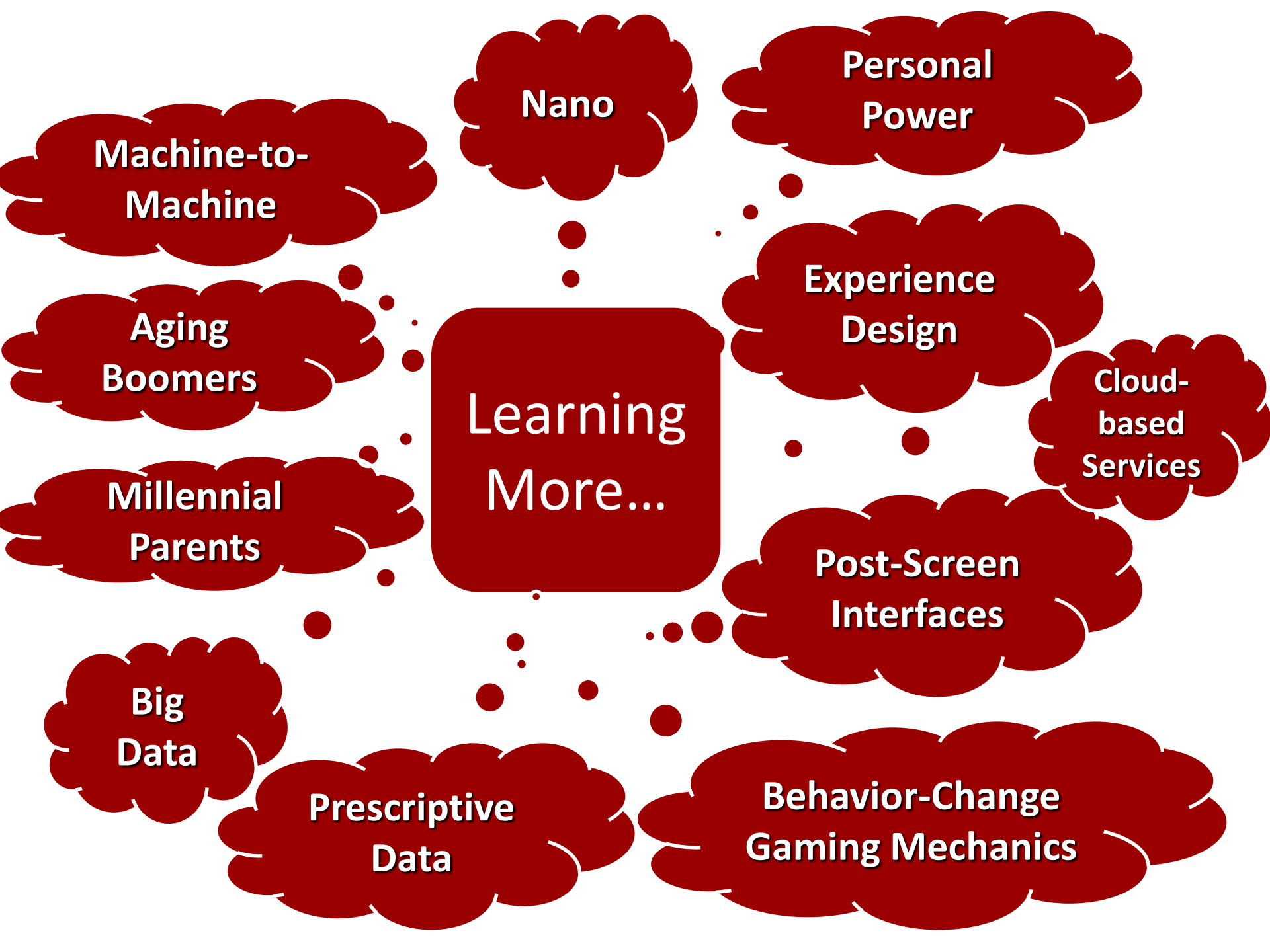
Voice-based Database Searching

Providing 'Second Opinions' & Recommended Solutions

Real-time 'Answer' Engine

I don't
like the
future...





Machine-to-Machine

Nano

Personal Power

Aging Boomers

Experience Design

Cloud-based Services

Millennial Parents

Learning More...

Post-Screen Interfaces

Big Data

Prescriptive Data

Behavior-Change Gaming Mechanics

Building Organizational Foresight Capabilities

**Process
& Culture**

**'Evangelists'
& Prototyping**

**Ad Hoc
Activities**



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

USTREAM

You Tube

**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

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.



killerquestion

@killerquestion

*A feed of killer questions that will unlock killer ideas .. also
follow @philmckinney*

<http://www.killerinnovations.com>



killerquestion killerquestion

#KQ What **#customer** **#segment** will emerge in 5 years that
doesn't exist today? <http://om.ly/ytUv>

28 Oct

Recruiting Class of 2015



Garry Golden

www.garrygolden.net

garrygolden@gmail.com

347-463-7412



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



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			

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

