Hindsight

Insight

Foresight

... the ability to anticipate and lead change
Foresight = Front end of Innovation & Strategy

Era-based Analysis of Change

Incremental Innovation within an Era

Transformational Innovation across a New Eras
Performance over Time

S-Curve Shape of ‘Major’ & ‘Minor’ Eras

Slow Change
‘Emerging’

Rapid Change
‘Accelerating’

Plateau of Change
‘Mainstreaming + Diminishing Returns’

Disruptions lead to Next Era!!!
Eras of Mobility

- Human / Animals
- Cars
- Boats
- Rail
- Planes
- Rockets

What is next?
- Electric Vehicles (Battery + Fuel cell)
- Assistive + Autonomous
- Low-Volume Production
- Sub-orbital Space
Tapping Your Inner Futurist: Monitoring Signals of Change

- 2004
- 2007
- 2010
- 2015
- 2022
- 2035
- 2045
Eras of Engineering & Manufacturing

- Clay
- Stone
- Wood
- Copper Bronze
- Iron-Steel
- Plastics
- Silicon

What is next?

- Carbon-based Nanoscale Materials
- Biomaterials / 4D Printing
- Additive (3D) Printing
Eras of Media/Communication

One

Broadcast
One to Many

Social
Many to Many

One-to-One

What is next?
- Internet of Things (IoT)
- Intelligent Assistants
Transportation / Mobility

- ‘Electric’ (H2 FCs = EVs) (Role of Clean Fuels)
- Autonomous Fleets
- Portable Places

SURUS Platform
Silent Utility Rover Universal Superstructure
(Battery + Hydrogen Fuel Cell ‘Electric’ Vehicle)
Energy Infrastructure

- Sector Coupling (Gas + Grid + Mobility)
- Distributed Energy Resources (DERs)
  - Solar, Battery, H2, Fuel Cells
- Fuel Cells
  - MicroCHP; Portable Power
How will societies navigate S-curve transitions for...?

**Transportation/Mobility**
Convergence – Evs, AVs, TNCs; Empowered Cities

**Healthcare / Wellness**
Population Health; Outcomes-based Care; Genomics

**Agriculture / Farming / Food**
Precision Ag; Automation; Urban; Bio-; Small scale farmer

**Retail**
Online; Hybrid Brick+Mortar; Localization

**Education / Learning**
Life stage to Lifelong; AI / Augmented

**Media / Communication**
Authentication/Verification; AI; IoT; Agents/Assistants

**Energy**
Gas + Grid Convergence; Decentralized Resources (DERs)
# Worksheet: Era-based Analysis of Change

<table>
<thead>
<tr>
<th>Current Era:</th>
<th>Emerging Era:</th>
</tr>
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</table>

## Vision & Mission
- Who you are; Who you serve & how.

## Problems (JTBD) & Solutions
- Customer jobs to be done.

## Operational Market Dynamics
- Describe types of conditions.
- Describe types of partners.
- Describe types of acquisitions.
- Regulatory landscape:
  - Constraints or protective policies?

## Service Cycle
- What do you provide?
- How do you (go to market)?
- How fast or slow do clients demand change?
- What is considered innovative?

## Minor Eras
- Were there small but significant platform transitions within the company or industry?
- Disruptive Elements
- What elements challenge this era, and lead to changes in the company?
- Are there constraints or "limits to growth" within this era?
<table>
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Applying Foresight

- Work with colleagues in generating PoV on era-based transitions for next decade

- Surface three (3) assumptions that might be discarded across the S-curve era transition

- Identify three (3) hunting ground opportunities for future success or organizational impact
Era-based Analysis
Related Frameworks

“Three Horizons” Model of Change (Bill Sharpe)

Foresight = Second & Third Horizon

Graphic courtesy of Andrew Curry, The Futures Company
Era-based Analysis: Related Frameworks

Experience Curve

Low-end Disruption

Crossing the Chasm

Gartner Hype Cycle
Thinking Like a Futurist?
Slide Sequence Removed
Foresight 101: Cone of Plausibility
Multiple Outcomes, Multiple Time Horizons

Past

Present

Expected future

Limits of Plausibility

Plan A

Scenario B
Scenario C
Scenario D
Scenario E
Every day I make an effort to move toward what I do not understand.

- Cellist, Yo-Yo Ma
History and Evolution of Foresight

William Ogburn (1930s)
Social Change
(Society + Technology)

Herman Kahn (‘50/60s)
RAND / Hudson Institute
Scenario-based Decisions

Club of Rome / Limits to Growth (70s)
Systems-based Simulations

Future Shock by Alvin Toffler
Megatrends
BCG
Monitor
McKinsey & Company

(‘80-Present)
Rise of Strategy Industry

2010s + Beyond
Era of Integration,
Inclusivity &
Intervention
Bringing Foresight In-House
Expanding Leadership Capabilities & Leveraging Early Stage Influence
Organizations with Futurists or Foresight Practices
Fundamental Stages + Activities of Foresight

**Investigate**
Identifying & Monitoring Change
- Horizon Scanning
- Emerging Issues Analysis
- Indicator Analysis (Leading vs Lagging)

**Imagine**
Exploring Implications
- Forecasts (Trend Extrapolation)
- Scenarios (Alternative Assumptions)

**Inspire**
Communicating the Need for Change
- Visioning & Backcasting
- Planning, Goal Setting & Roadmapping
- Transformation Management

Wendy Schultz/Garry Golden
Foresight 101: Mechanisms of Change

- **Trends** (Continuities)
  - Plausible Future
  - Forecasts

- **Events** (Discontinuities)
  - Possible Futures
  - Scenarios

- **Choices** (Discontinuities)
  - Preferred Future
  - Visions

Popularized by Peter Bishop
Framework: Four Futures Thinking

- Continued Growth
- Disciplined Constrained
- Transformed
- Decline Collapse

Popularized by Jim Dator
Your Task: Develop an Ability to Tell Stories of Our Four Futures

Continued Growth
Disciplined Constrained
Transformed
Decline Collapse
Questions on Foresight?
Changes Ahead

Experience Graph
Connected Data
& Graph Analytics

Crypto + Blockchain
Trusted Transactions &
Programmable Assets
2020 - 2030

How might data-driven change reshape your organization?

What might be the most valuable type of data in 2030?
In the News
Stanford Business School is piloting a program with **Experience.ai** to capture experience data from learning, project performance and decision processes within case study groups. Stanford’s vision is for every student to retain rights to experience data and build a critical personal digital asset for the future.
Context of the Creepy Line

Google

Inevitability of Dealing with the Creepy vs Compelling Line in...

Data Driven Innovation
Why Software is Eating the World...

THE WALL STREET JOURNAL.
By MARC ANDREESSEN
August 20, 2011
Really Funny ‘Dog’ Slide Sequence Removed
Outcomes-based Value Creation Depends on...

- Descriptive: What happened.
- Predictive: What might happen.
- Prescriptive: What should happen.
Emergence of Data & Outcomes-driven World

Data isn’t truth, but language.
It can help us decide or express the truth, but data never is the truth.

- Deanna Day
Signal of Change from the Learning & Development (L&D) Community

Activity Streams
<Actor, Verb, Object>
“I did this”
Course

3 hours

“I did this…”
Statements

Seamless Integration into Manager & Team Tools

Real World

300 hours

Assumption for 2020s:
Experience Data Leaps from L&D into Everyday Life
Scenario: Talent Embraces Experience Capture Analytics

Sarah read an article on blockchain for automating compliance
Sarah opened an Evernote folder on blockchain solutions
Sarah watched a Youtube video introducing the Ethereum blockchain
Sarah searched for Ethereum Meetups in NYC
Sarah attended the Crypto Compliance conference in NYC
Sarah created a List of ‘Ethereum Developers’ (People) on Twitter
Sarah interviewed the Head of Blockchain Solutions at JPMorgan
Sarah mentored with Joe Lubin co-Founder of Consensys
Sarah completed a course on Ethereum’s Solidity programming language
Sarah demonstrated her pilot Ethereum application at a NYC Meetup
Sarah taught a Coursera MOOC on Ethereum for KYC / AML
Sarah was hired as Lead Developer of Blockchain Compliance Solutions at Fidelity
Jefferson Institute supported the VIKING 18 exercise organizers' delivery of Advanced Distributed Learning (ADL) capabilities into a large scale, multinational collective training event.

VIKING 18 is a 10-day civil-military exercise, held April 2018 in Sweden, and involving more than 2,500 trainees from 50 countries.

xAPI is a system specification that lets learning technologies better record, aggregate, and analyze learning performance data, particularly across diverse learning experiences.

“You can’t manage what you don’t measure.”
Enterprise L&D: Early Adopters Preparing to Scale

How did we do it?: Where are we now?

April 2018:
Over 3 million statements so far
Over 110,000 learners who are sending xAPI statements
We are using 1 LRS system which is segmented by data for each country
Last three months increased our total by 1 million statements

Summer 2019:
We will have 250,000+ learners using it and sending xAPI
We will have a global learning analytics community of around 100 people whose role (full/part) is to look at learning data and help transform our learning

Start small and grow...this is a long journey
Outcome: Seeing What People Need vs They Tell You They Need

Searched verbs

Running training needs analysis in real-time

Using the searched verb we can analyse what people are looking for example:

- Tax legislation
- Tax processes legislation
- Excel macro creation
- Macro creation
- Coaching
- Coaching skills
- Coaching management skills

We can use this data to:

- Highlight need – see what learners want
- Match available learning to need and tag our content – dynamic curation
- Spotting holes in our learning – our gaps
- Global coverage – spotting patterns across countries, trending topics
Case Study: Caterpillar

When trying to help someone learn, the team considers these three vital questions:

1. Where does the learner want to go?
2. What does the learner know?
3. How can we develop the individual?
Signal: Virtual Reality + ExperienceAPI

CenarioVR + EXPERIENCE API

amazon float

“A I did this...”
Scenario: Computer Vision + ExperienceAPI

Computer Vision in the Field

amazon

The world's first deep learning enabled video camera for developers

DM1 Dashboard allows you to remotely manage and connect to your devices via the DM1 Remote app.
Scenario for 2020s: Early Adopters Embrace Experience Analytics
Assumption to Explore

By 2025, Experience Data Will Become Our Most Valuable Digital Asset and Controversial

If we capture experience data...

“I did this...” Statements

How do we approach regulations?
How do we avoid the creepy line?
How do we make sense of it?
Building a Connected Data Foundation for Innovation

Tables = Past

Graph Thinking = Future
Graph Database = Understanding Relationships + Connections

Node: Chantel Johnson
Relationship: Lives in, Started (group), Subscription member, Liked

Nodes: Adam Edwards, Toronto, Actors Meetup, Music Review, Theatre
Relationships: Lives in, Liked, Subscription member, Started (group)

Adam Edwards is in a relationship with Toronto, and they are interested in music reviews. Chantel Johnson, who lives in Toronto, has liked and subscribed to several groups, including Actors Meetup and Theatre.
Graph Solutions for Understanding the Journey vs Outcomes

Mirrors the *Real* World to Reveal Influencer Profiles, Decision Pathways and Recommendations
Scenario 2020s: ‘Graphs’ Eat the World +
Experience Data Becomes Our Most Valuable Dataset

Era of Social Graph

Era of Experience Graph
Mainstreaming Solutions for IT Teams

Neptune Graph DB
Enterprise Knowledge Graphs – Connecting Silos

Knowledge Graph (Canonical Model/FIBO)

Harmonization

Projection

CRM
Trading
Loan
Logs
... 3rd party data services

Enterprise (Data Lake, Source Catalog)

Line of Business (Curated Data Catalog)

AML
Fraud Detection
Insider Threats
Recommendation
KYC/Customer 360
Finding Alpha
Digital Assistants
Regulatory Reporting

'Graphy' Use cases
End Game = Connecting Knowledge Graphs & Experience Graphs

Maana Knowledge Graph

- Repair Records
- Job Reports
- Sensor Data
- Maintenance Records
- Alarm Data
- Trip Data
- Weather Data
- Call Center Data
How might an *Graph Analytics* be applied...

- **Knowledge Graphs**
  Organizational Capabilities; Protocols & Procedures

- **Risk Management Graphs**
  Integration of Data Silos; Threat Detection/Assessment; Security Controls

- **Automation & AI**
  Preparing Operational Data for Machine Readable Age

- **AI Driving Performance Support**
  Context-based Training, Moving to Model of Performance Support
Learning Curve

Experience Analytics
Learning Record Stores

Graph Analytics
Organizational Opportunities & Challenges in an Era of Experience Data-led Changes?
Rethinking Societies + Organizational Dynamics via Trusted Transactions and Programmable Assets
By 2025, 10% of Global GDP will be orchestrated by blockchain applications.

World Economic Forum Survey Projects Blockchain 'Tipping Point' by 2023

The Hype and Enthusiam...
Remember, It Was Hard to Explain the Internet in 1994

1994: "Today Show": "What is the Internet, Anyway?"
Evolution of the Web

Internet of Files

Internet of Social Networks

Internet of Trusted Transactions (+ Programmable Assets)
In Records (& Smart Contracts) We Trust

Network Consensus on who did what...

Ledger of Keys & Asset Transactions

Smart Contracts for Business Process Automation!

\[ T = 0 \]
Development Platforms for Applications

Public

- Cardano
- EOS
- Bitcoin
- Ethereum

Private

- Patientory
- r3
- Quorum
- Hyperledger Project
Peer to Peer Transaction Marketplaces
Decentralized exchanges to disrupt* the third-party while opening up service stack for new value driven services. *Low fees may still apply.

iTunes without iTunes
Smart Contracts
disperse payments

Uber without Uber
Distributed Ridesharing

ebay w/o ebay
Distributed Marketplace

Peer to Peer
Energy Trading

Disruptors will be trying to build ecosystems to disintermediate Big Tech
Real Estate Asset Tokenization: Unlocking Access

Tokenizing property will allow real estate assets to be uniquely identified via a digital record that contains information regarding occupancy, physical characteristics, legal status, historical performance, and financial position.

The first real estate backed token paying out dividends

Leaseum Partners introduces a new model of blockchain based real estate investments that will combine the best of both real estate investment management & blockchain worlds, making it significantly more attractive for investors.

Bespoke dividends paid in Fiat $€ or in Crypto ₿₿.
Supply Chain Coordination, Transparency & Settlement
Boehringer Ingelheim (Canada) Ltd. and IBM Canada Announce First of its Kind Collaboration to Integrate Blockchain Technology into Clinical Trials
Blockchain technology has the potential to improve trust, transparency, patient safety and patient empowerment in clinical trials
Blockchain: Legal (Contract) Agreements Framework

Stay focused on what you’re building. Let your contracts work for you.

Built for entrepreneurs and creatives

Gain 100% oversight on your contractual agreements, track progress and obligations, and keep everything important in one place. We enable you to stay focused on what you do best: growing your business.
Waves raises $120 million to integrate blockchain into corporate and government digital infrastructure

By East-West Digital News / December 21, 2018

Waves, a Blockchain solutions developer founded by a Russian team and incorporated in Switzerland, has secured $120 million to develop its project Vostok.

Designed for large enterprises and public institutions, this private blockchain platform “lies at the intersection of several disruptive technologies, including blockchain, Big Data, artificial intelligence and the industrial Internet-of-Things,” according to Waves founder Alexander (Sasha) Ivanov.
Unlocking Ability for Data Scientists to Deliver Insights

The stock market is inefficient with respect to new developments in machine learning — only a fraction of the world’s data scientists have access to its data. Numerai is changing this.

Learn more in Encrypted Data for Efficient Markets

Because Numerai abstracts its financial data, data scientists do not know what the data represents and human biases and conflicts of interest are eliminated.

Radical Idea:
We tap ‘crowd’ to generate insights into operational & strategic decisions
Future: Crypto Currencies Tied to Behavior Change

Incentivized Patients...

Crypto Currencies + Smart Contracts
Automate Incentives for Adherence

Radical Idea:
We create crypto economic incentives to drive performance outcomes
Tipping Points? Keep an Eye on Hardware Solutions

Sirin Labs' $1,000 cryptocurrency phone arrives this November

When might your organizations embrace crypto hardware solutions?

Samsung Unveils Cryptocurrency Wallet, DApps for Galaxy S10 Phone
Society-level Implications: 2020 -2035

- Accelerating the Disintermediation of Financial Institutions (OECD vs Emerging Economies)
- Drive operational efficiencies and integration
- Elevate ‘peer to peer’ culture
- Media – Verification & Authentication layer (Countering a world of ‘deep fakes’)
- Unknown Unknowns
Assumption to Explore (even if it confusing!)

By 2024 military and government organizations will begin to use blockchain infrastructure for decentralized applications (DApps) and smart contracts to:

- Reduce operation costs
- Drive collaboration and operational integration
- Transform stakeholder experiences (Incentive Behavior Change)
- Confront cybersecurity issues
- Integrate into peer-to-peer community marketplaces and data exchanges
Take a Pulse Check on Emerging Trends vs Organizational Appetite

Top Trends/Themes
1)
2)
3)
4)
5)
Launch Conversation on Who do we want to be...?

“I” Shaped Person
Success via Specialization

“T” Shaped Person
Success via Integration
What do we want to be as T-Shaped Individuals?

“T” Shaped Professional Community

Also Trained in ....?

Ethics
Behavior Science
Cyber Security
Aging
Systems Thinking
Experience Design
Service Design

Psychology
Data Science
Crypto / Blockchain
Restorative Practice

___________

___________

___________
In Five Years...
Generate weekly questions that spur conversations about the future of your organization.

_In five years_

... what is a function, department or role that does not exist today but will deliver our most innovative solution?

... which non-traditional organization becomes our most valued partner?
What is the biggest risk we should take over the next five years to align our organizations to this emerging world?
Garry Golden
garrygolden@gmail.com

PDF: garrygolden.com/March27
Two Rs

Tags:
diigo.com/user/garrygolden/KEYWORD