

Resource Guide
**The Art & Science of
Strategic Foresight**

Garry Golden
Forward Elements

Workbook Overview

This Resource Guide contains an overview of key strategic activities used in our Strategic Foresight session.

Foresight Session Objectives

- To understand the fundamental applications of strategic foresight
- To explore growth implications of key trends and emerging issues
- To learn frameworks and techniques for applying foresight on your own and within small teams

Fundamental Foresight Activities (Stages)

Investigate

Identifying
& Monitoring Change

- Scanning for Signals
- 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 & Roadmapping
- Transformation Management



Foresight: Overview

Foresight is the ability to anticipate and lead change. It helps organizations construct images of plausible, possible, and preferable futures based on a formal study of change. The discipline may also be referred to as: futures studies, strategic foresight, futuring or futurism.

Foresight is used to improve decision-making toward opportunities and threats that exist beyond present-day plans, market conditions and social expectations.

In the practice of foresight we apply a mixture of qualitative and quantitative techniques used to support forecasting, scenarios and visioning activities. Insights are derived from a range of disciplines including sociology, economics, organizational change, and systems modeling.

The definition of *future* timelines vary based on clients and industry. Governments and companies involved in building and managing infrastructure and natural resources will typically plan using ten to thirty year time horizons. Organizations involved in consumer products and enterprise services typically view three to seven years as the furthest practical time horizon. Alternatively, news companies, stock markets, and consumer attitudes refer to time horizons based on seconds, days or weeks ahead.

The intent of strategic foresight is to avoid single-point forecasts (e.g. predictions) and create a range of plausible outcomes (e.g. scenarios within a cone of plausibility) that help us avoid surprises and expand our ability to respond effectively when changes do occur during market transitions.

A Select History of Applied Foresight

Modern day foresight dates back to the early 20th century:

1930s

Focus on Social Change, Policy and Technology

Sociologist William Ogburn writes *Recent Social Trends* which explores the notion of a cultural lag as society adjusts to technological change in the industrial age.



1950s

Focus on Scenario-based Decision Making

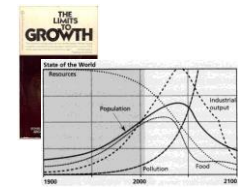
Hudson Institute Founder Herman Kahn works with government leaders to use scenario-based planning at the height of threats associated with the Cold War.



1970s

Focus on Systems Thinking and Principles of Interdependence

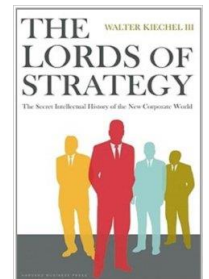
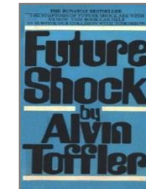
Authors of a widely read book *Limits to Growth* use systems-based modeling to understand effects of non-linear change from the relationships of population growth, industrial production, and natural resource management.



1980s

Focus on Accelerating Change & Proactive Market Transitions

Birth of modern day *foresight* field with release of Alvin Toffler's *Future Shock*, John Naisbitt's *Megatrends*, and emergence of prominent strategic advisory firms: McKinsey and Co., Boston Consulting Group (BCG), and Monitor Group.



A Select List of Foresight Tools, Techniques & Frameworks

Quantitative

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

Qualitative

- Scenarios
- Futures Wheel
(Implications Wheel)
- Backcasting
- Simulations and Games
- Genius Forecasting
- Morphological Analysis
- Role-playing
- Ambient Futures
- Casual Layered Analysis
- Relevance Tree
- Appreciative Inquiry

Qualitative-Quantitative Hybrid

- S-Curve Era-based Analysis
- Horizon Scanning
- Delphi Survey
- Cross Impact Analysis
- Road-mapping
- Survey/Focus Group
- Agent Decision Modeling
- Data/Text Mining
- Field Anomaly Relaxation (FAR)
- Fisher-Pry Analysis

Corporate Foresight Maturity Models

Assessment models test internal foresight capabilities for:

- Leadership
- Framing
- Planning
- Scanning
- Forecasting
- Visioning



By Terry Grim
 Foresight Alliance



By Rene Rohrbeck

Warm Ups

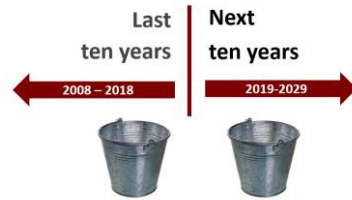


Memories of the Future

Describe the first (or memorable) time you were asked to *think about the future*.
Share: Why? How you responded? What happened?

Warm Up Dynamics...

- Leads with the *personal*
- Creates bonds among participants
- The facilitator's role is to remind us: while most people have not received formal training in how to think about the future – we've been doing it in our personal lives for many years.



More or Less?

Which bucket is *fuller*?
Changes of last decade – or the next decade?

Warm Up Dynamics...

- Helps establish a context of Three Horizon Thinking
 - Horizon 1 – Respond to Current Era (Analysis)
 - Horizon 2 – Align to Emerging Era (Exploration)
 - Horizon 3 – Create Era (Speculation)
- Surfaces assumptions about change
- Gives voice to people in room
- Provides facilitator with an opportunity to build bridges to concepts/people during the session



That's Great

Find a Partner
Person 1: (Delivers bad news)
Person 2: "That's great, positive response"
Person 1: "That's great, we can also do xyz"
Person 2: "That's great, we can do..."

Warm Up Dynamics...

- Fun, high energy
- Builds mental muscles for positive reactions
- Borrows from 'Improv' Innovation:
 - Yes, and (vs No, but)
 - Make Your Partner Look Good
 - Tell a Story with Motivations

Era-based Analysis: Overview

An era is a period of time when our assumptions about how the society / marketplace functions remains consistent. Era-based analysis is often framed around an S-curve development model of change that describes the increase of performance (X-axis) over time (Y-axis).

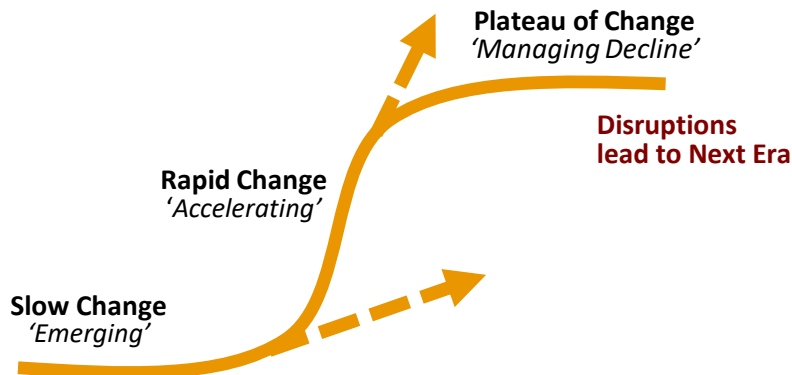
There are three stages of change that signal the limits to innovation within the era: slow change, accelerating change, and a plateau of change.

Organizations use S-curve models to anticipate the falling price of technologies, adoption rates of services/products, and the eventual plateau of performance.

A balanced innovation portfolio should include products/services suited for incremental innovations targeted to the current era, as well as many *small bets* on ideas relevant to the emerging era.

Performance over Time

S-Curve Shape of 'Major' & 'Minor' Eras



Team Activity Goals

- ❑ To identify key differences in organizational strategy and market conditions across the current and emerging eras of growth.
- ❑ To surface assumptions that may be preserved or discarded across the *S-curve* era transition.
- ❑ To find three (3) potential *hunting ground* opportunities for future growth or social impact

Worksheet: Era-based Analysis of Change		
	Current Era: _____	Emerging Era: _____
Vision & Mission - Who you are; Who you serve & how.		
Problems (JTBD) & Solutions - Customer jobs to be done.		
Market Dynamics - Describe types of competitors. - Describe types of partners. - Describe types of acquisitions. - Regulatory landscape: Constraints or protective policies?		
Product & Service Cycle - What do you sell (provide)? - How do you go to market? - How fast or slow do client demands 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?		

Worksheet: Era-bases Analysis of Change

Current Era: _____

Emerging Era: _____

Vision & Mission

- Who you are; Who you serve & how

Problems (JTBD) & Solutions

- Customer *jobs to be done*

Market Dynamics

- Describe types of competitors
- Describe types of partners
- Describe types of acquisitions
- Regulatory landscape:
Constraints or protective policies?

Product & Service Cycle

- What do you sell (provide)?
- How do you *go to market*?
- How fast or slow do client demands 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?

Era-based Analysis: Key Takeaways

- Era-based analysis helps us to recognize threats and opportunities associated with the growth cycle of major industry platforms, products and services – or shifting social norms.
- While incremental innovation preserves assumptions of the current day business era, transformative innovation creates new assumptions designed for the emerging era of technologies, policies, and consumer behavior.

Assessing Era-based Innovation and Growth Strategies

When thinking about your opportunities and threats to era-based change, consider how the speed of innovation and market adoption may be increasing or slowing down along the way to the plateau.

As we look at the limits *to incremental innovation* within the current era, what are:

- Major assumptions to be challenged?
- Metrics that seem less relevant to success?
- Sources of fear about change?

As we look at the *transformational innovation* within an emerging era, what are:

- New assumptions to explore?
- New metrics to consider?
- New needs we can create or anticipate?
- New models for pilots and prototypes?

Guidelines to Consider for Era-based Analysis

Clarify Scope

Are you focusing on major or minor era transitions? Specific divisions or whole company?
Can you break apart minor eras rather than lump them together?

Discuss Spectrum of Timelines

How are you going to define the time horizons of past, present, and future?

Recognize Different Perspectives

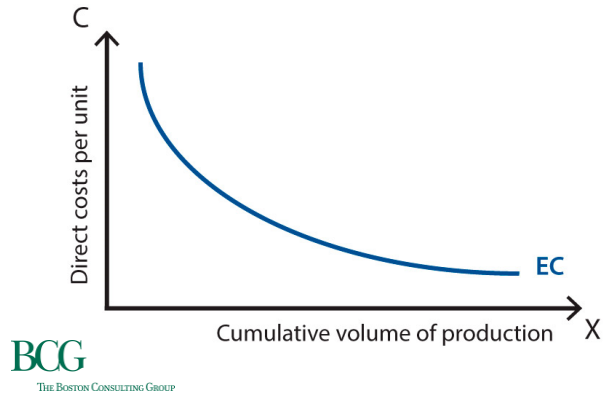
Are you including perspectives of various stakeholders and competitors?

Integrate with Strategic Planning Efforts

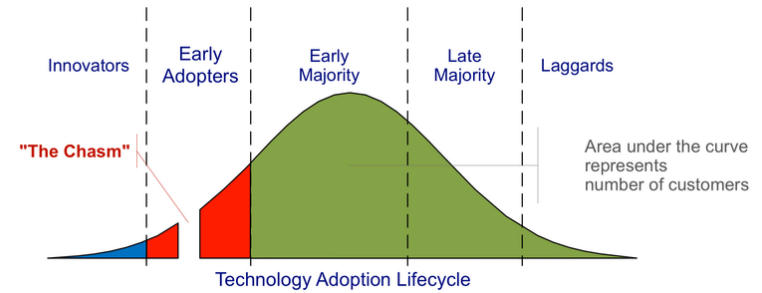
Identify ways to keep this framework current as a living document and part of the strategic planning processes that exist within your organization.

Related Concepts to Explore

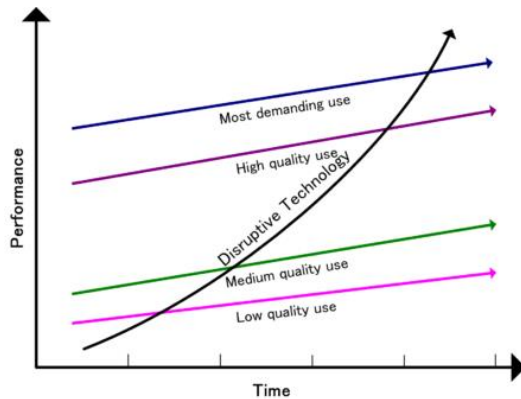
Experience Curve (Learning Curve)



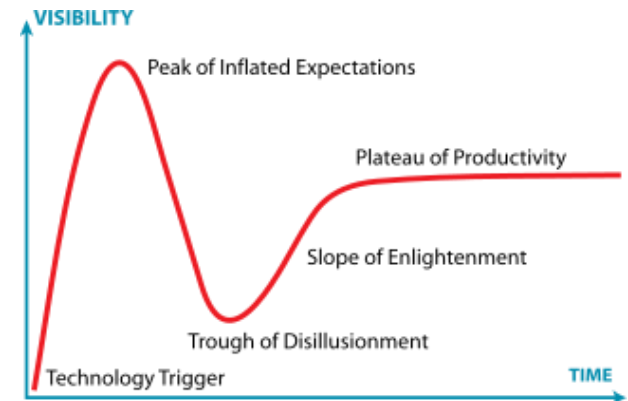
Crossing the Chasm Adoption Model



Low-end Disruption

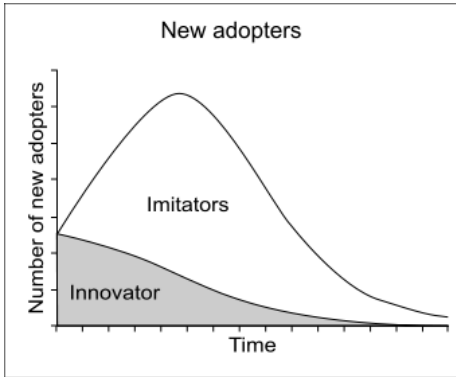


The Hype Cycle



Related Concepts to Explore

The Bass Diffusion Model



Bass, Krishan, Jain (1994)

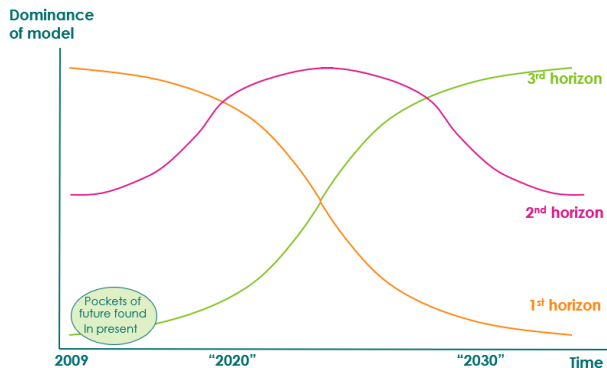
Five S-Curve Models to Forecast Demand

	Logistic (Fisher Pry)	Exponential	Bass	Gompertz	Extended logistic
S-curve shape	symmetric around 50% penetration	asymmetric	"mathematically" symmetric around its inflexion point located between 0% and 50%. In practice, as the S-curve will be set to nil before product launch, the curve can look asymmetric	asymmetric	asymmetric
Behaviour modeled	Homogenous population of IMITATORS, environment with no or limited external influence; adoption takes place through interpersonal contact	Homogenous population of INNOVATORS; adoption following mass media impact; widespread knowledge available; limited interpersonal contact required to decide to adopt.	INNOVATORS in initial phase + IMITATORS in later phases	Replacement of existing product; new technology is similar to previous technology	Heterogeneous population; adoption by few wealthy individuals first and income constraints for remaining adopters
Ease of use	Simple but symmetric pattern sometimes not realistic	Simple but applies in few cases only due to very rapid increase to saturation	Most widely used model by marketers as it captures both innovators and imitators	Simple but applies in few(er) cases	Simple but saturation is reached slowly
Comments	Best results when critical mass of early adopters has already been achieved and imitation leads to rapid penetration increase. More appropriate model when product price decreases rapidly.	Best results in innovative population where saturation is rapidly achieved within few years.	Similar to logistic when alpha is low, and to exponential when alpha is large. More appropriate model when product price decreases rapidly.	Best results to capture replacement demand or a heterogeneous population of adopters. More appropriate model when product price decreases slowly.	Useful when symmetry of logistic is not acceptable. However, its tends to take too long to saturate or take too low values in the early years. More appropriate model when product price decreases slowly.
Parameters required	3 (saturation + 2 points)	3 (saturation + 2 points)	4 (t0 + saturation + 2 coefficients; or saturation + 2 points + "shape" factor)	3 (saturation + 2 points)	4 (saturation + 2 points + t0)

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Three Horizons (Bill Sharpe)



Graphic courtesy of Andrew Curry, The Futures Company

Balancing the Practice of Foresight Inside Your Organization

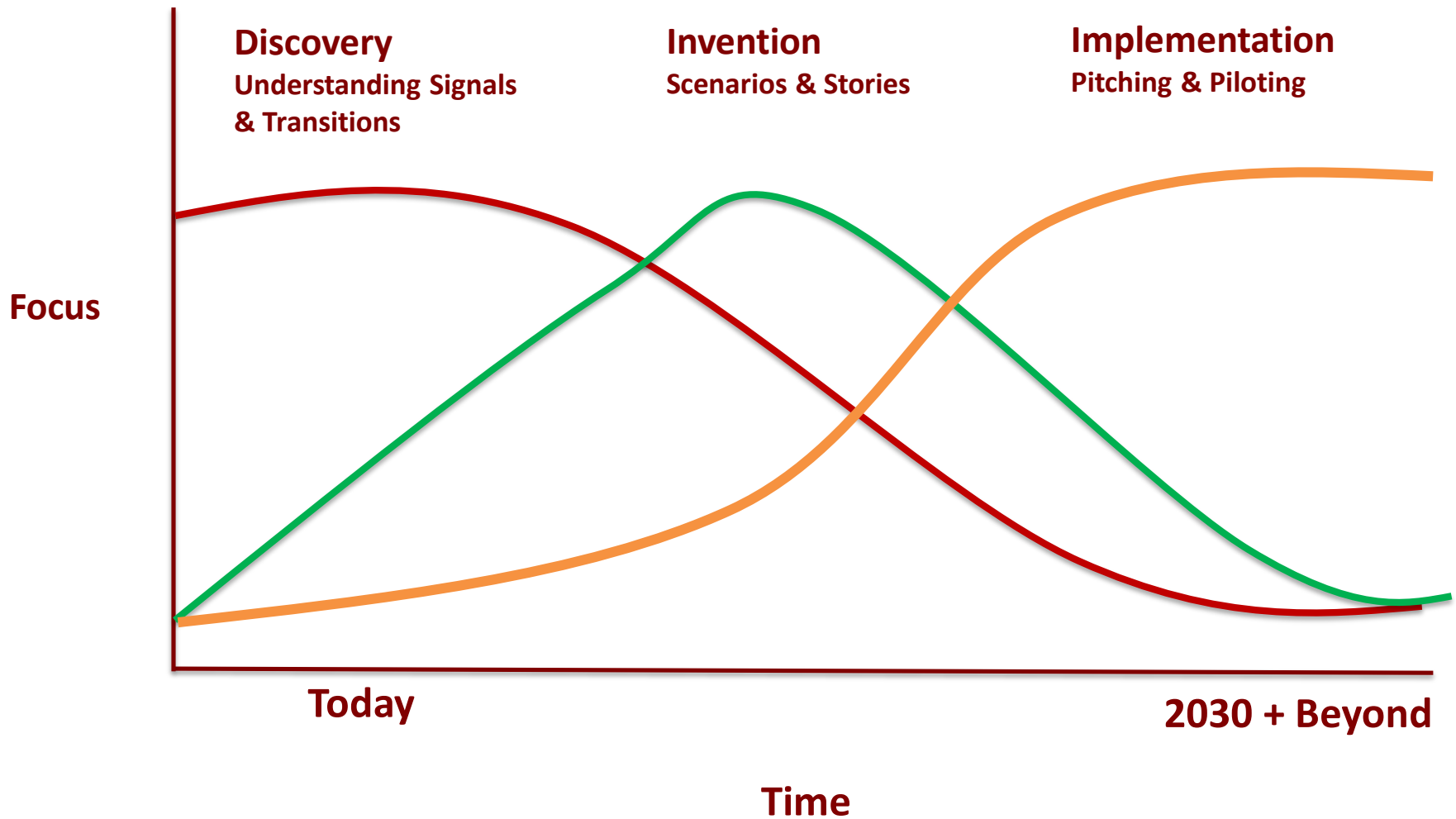
Value of Process
(Tools, Techniques, Behaviors)

Value of Content
(Domain expertise; Knowledge)



Scanning for Signals of Change

The Big Picture: Scanning to Discover, Understand & Build Knowledge



Building Habits around Searching for Signals of Change



Defining
Scope of Change



Expanding
Signal Sources



Building a
Library of Signals

Scanning for Signals

A signal can be a news event, a new service, product, technology, policy, social movement, or conversation stream on Twitter!

Signals grab our attention but can also be easily dismissed as noise. A *weak* signal is a small or early step innovation, disruption or constraint that could grow into something larger across society, business or government.

Scanning can be applied across a wide spectrum of strategic activities. When applied to scenario thinking or customer research a *signal* may do one of three things:

- Confirm** assumptions of one scenario outcome
- Diminish** the likelihood of a particular scenario
- Create** a new scenario to consider

Strap on the Fitbit: John Hancock to sell REUTERS only interactive life insurance

BUSINESS NEWS SEPTEMBER 19, 2018 Suzanne Barlyn

(Reuters) - John Hancock, one of the oldest and largest North American life insurers, will stop underwriting traditional life insurance and instead sell only interactive policies that track fitness and health data through wearable devices and smartphones, the company said on Wednesday.

Judging Signals – Criteria, Consideration and Questions

Credibility of Source

(e.g. Blogger vs Industry Analyst vs Company Press Release)

Compare your resource on the *Emerging Issues Analysis (EIA) framework (pg 16)*

Newness/Uniqueness

Is the signal valuable because it is 'new' or 'unique' to whom?

(e.g. myself, colleagues, industry leaders, government leaders)

Why is it unique? (e.g. Lack of exposure to the idea; Truly game-changing idea)

Degree of Uncertainty

Is the signal valuable because it increases uncertainty? (e.g. We have gift of time to act; Place many bets)

Is it valuable because it reduces uncertainty?

(e.g. moves us closer to particular scenario or 'Resolution' stage of emerging issues analysis)

Degree of Impact (Steppingstone or Milestone)

Is the signal valuable a 'Steppingstone' (supports direction of change) or a 'Milestone' (signals 'new era' for industry)?

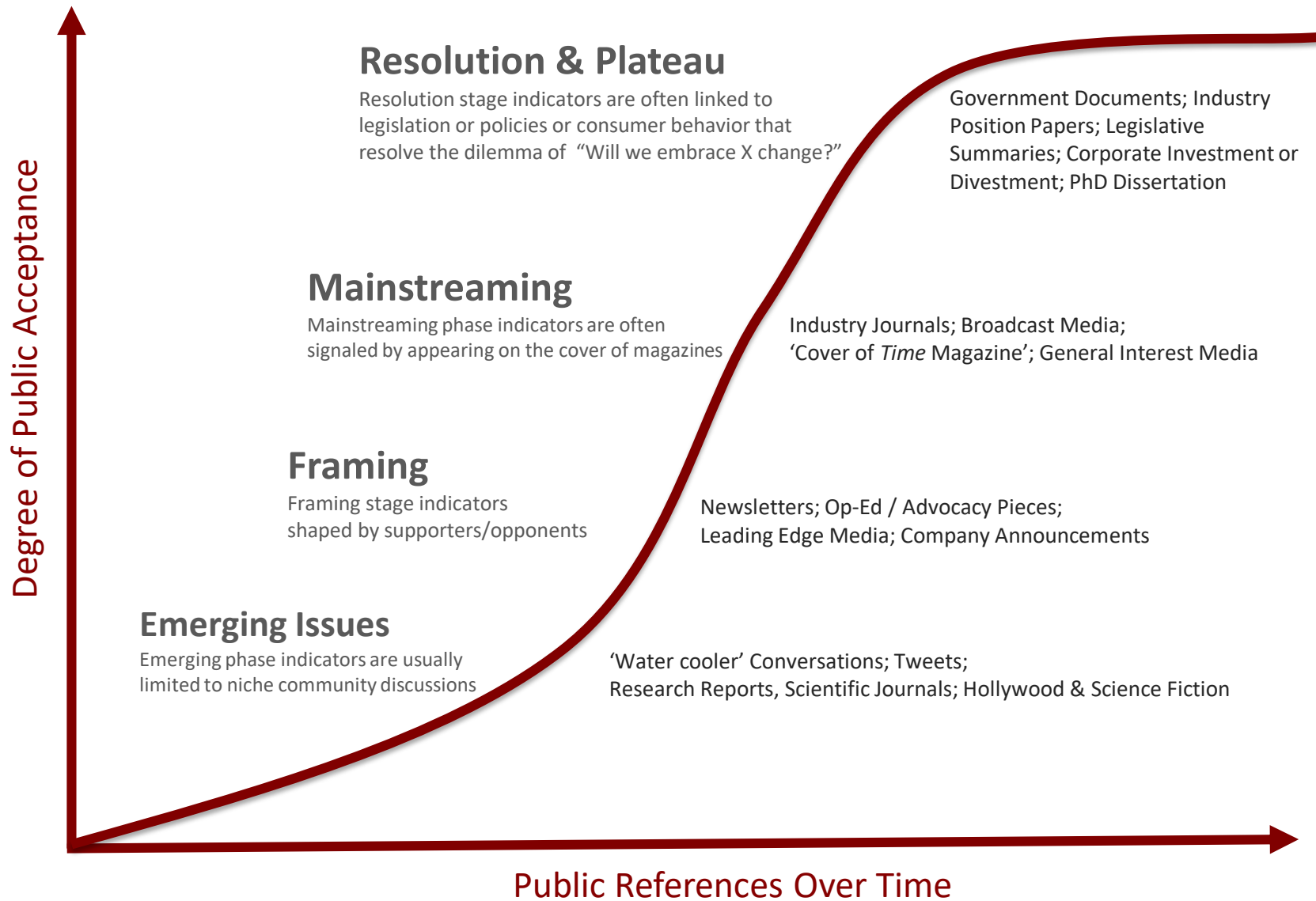
(e.g. Company explores relationship versus Company announces new drug development project)

Momentum (e.g. slowing down, speeding up)

Is the signal 'snowballing' and gaining momentum and forcing us to act or make decisions?

Is the signal a sign of 'hitting a speed bump or wall' suggesting we do not need to act or move in that direction?

Graham Molitor: Emerging Issues Analysis (EIA)



Techniques: Signals Sourcing Strategy



Understand the Domain's Language and Memes:

- Identify 10-20 *hash tags* for consideration
#futureofwork; #AI; #aging; #algobias; #automation

Create Lists to Organize Your 'Follow' Communities



Create Alert list that includes 10-15 industry keywords

- Test variations with new phrases, sources or regions



Use LinkedIn as a daily news feed curated by industry thought leaders



Begin building out your library of 'tags' and keywords that cross multiple domains. Scan quickly, scan broadly and scan to challenge your own assumptions.

Futures Wheel: Technique for Taking Mental Leaps

The Futures Wheel is a tool for developing our capacity to imagine non-linear change connected to weak signals of disruption in our world.

This structured brain storming technique was popularized by Joel Barker, as the Implications Wheel, in the 1980s. It remains a commonly used technique used to explore future developments of trends, emerging issues and potential events.

The Futures Wheel exercise stretches our thinking beyond the next quarter - to a more distant horizon that will be full of surprising headlines.



The Futures Wheel: Single Sheet



Outputs: 2nd & 3rd
Order Implications for:

- Policy / Regulations
- Competition
- Business Models
- Business Processes
- Experiences
- Service Models
- Social Norms

Story Format:
Fictional News Headlines



September 14, 2023

**Apple buys Disney
Plans to Build out Retail
Experience Entertainment**

October 14, 2025

**Congress Ends
501c Tax Code**



Tips on Creating Headlines

- Bring it to Life (e.g. familiar people, places and companies)
- Leap, Don't Tweak
- Design for the Art of the Double Take*
- Avoid generic statements: *Traffic accidents down 30%*
Use headlines with implicit change:
Nationwide Insurance Goes Bankrupt

Activity: Stories of Our *Four Futures*

It is important for organizations to be able to imagine and communicate a range of plausible futures – including their own transformation or demise.

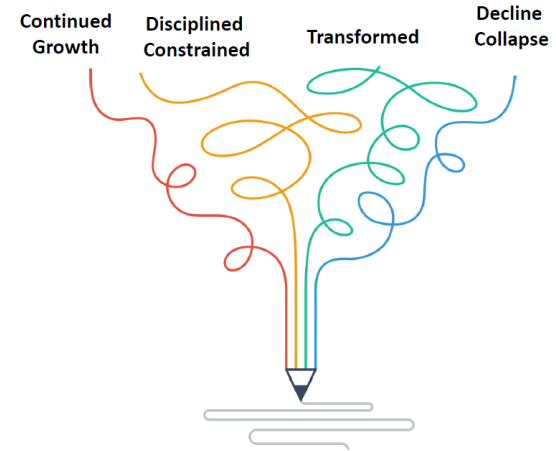
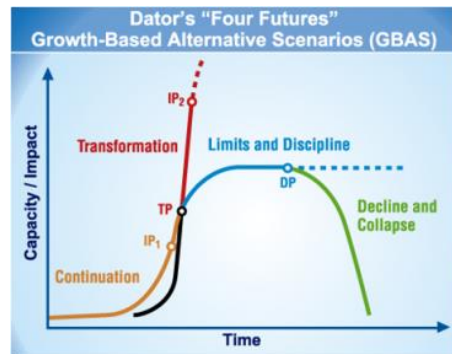
Four Futures refers to a set of scenario archetypes:

- Continued Growth (Continuation)
- Disciplined/Constrained (Limits)
- Transformed (Transformation)
- Decline Collapse



The original model was developed and popularized by Professor Jim Dator at the University of Hawaii-Monoa Futures Studies program.

While the framework has been used for years in the foresight community it was most recently codified in the Journal of Futures Studies November 2009.



As a product, the Four Futures output may be structured as traditional multi-paragraph stories about the future. Some teams may find it easier to use bullet points to convey storyline elements. Others may wish to use visualizations to convey story messages.

There is flexibility in running this activity:

Single Session

Your team may wish to dedicate a two hour session to draft out all four futures in one setting. The advantage of a single session is the ability to generate outputs from a focused conversation.

Multi-week Activity

Your team may also find more value in separating scenario drafting sessions over a period of a few weeks. This provides more time to reflect on the stark differences across the four futures.

Four Futures Thinking: Continued Growth (Continuation)

Continuation is story based on signals that reflect *known knowns* and extrapolation of generally positive forces. This scenario may be viewed as the 'baseline' (extrapolation) or 'official future' which reflect the shared (often unspoken) assumptions of an organization.



When you create the Continuation story it should include

- Familiar stakeholders and partnerships
- Services & value offerings, and customer needs
- How you overcame new twists & turns along the way

The story should include challenges of new social norms and market dynamics but inevitably reveal how your organization leverages its core capabilities and 'rides the wave' of change.

Four Futures Thinking: Disciplined/Constrained



Coal is not going away anytime soon but for Peabody their most likely future is constrained by stronger regulations, shrinking market access, and low cost natural gas and renewables.

Disciplined/Constrained is a story of the future where your organization continues to operate in a traditional manner despite evidence that the world around you has shifted. Key organizational challenges are maintaining relevance and returning to growth.

When you create the Disciplined/Constrained story be sure to reveal:

- Signals that suggest your current services and value offerings are less relevant or aligned to market and client needs.
- Signals that challenge organizational culture or processes.

The story might surface how the organization's inability or refusal to change has hit a 'limits to growth' phase. The story's tone is not fatalistic but morale and expectations for growth are muted. You will survive but not thrive.

Four Futures Thinking: Transformed



IBM has transformed itself from hardware to software and now into an 'as-a-service' business.

U.S. Intelligence Agencies have transformed themselves post-Cold War and post-9/11.

Transformed is a scenario archetype where the world and organization have gone through an era-step change. Think caterpillar to butterfly – or Industrial to Information Economy.

The story should reveal how the organization became something different. This may be the emergence of a new department or team. Or it might be a wholesale reinvention of the entire organization culture or value proposition.

The story tone is not utopian. There should be new problems and challenges that appear as expected – or as unintended consequences. Leave some issues unresolved.

The key story dynamic should show how the organization is empowered and feels in control of its future in this new world.

Four Futures Thinking: Decline/Collapse

 BlackBerry



NOKIA

In 2008 CEOs scoffed:
“What do Apple and Google know about the phone business?”
“Our mobile operating systems dominate the marketplace.”

Decline/Collapse is a scenario archetype where the world has changed and your company has not.

The Collapse Story connects signals that suggest:

- Your imminent demise (e.g. Shut down org; Merger)
- An End of Growth (*A Burning Platform*)
- Stagnation is challenging your culture

When you create the Decline/Collapse story be sure to describe both external conditions (outside-in changes) and internal actions (inside-out changes).

You might also emphasize inactions or decisions not made. The story may describe innovative efforts that failed and did not succeed as you attempted to transform the organization.

Tips for Writing Storylines

Experiment with Story Structures

- Multi-paragraph stories
- Bullet points of storyline elements
- Visualizations that communicate the message

Three Mechanisms of Change

Your scenarios should include:

1) Trends (STEEP Categories)

Slow moving changes over time;
Language should be 'more' or 'less'

2) Events

Sources of discontinuity including:

Scheduled Events

e.g. Leadership Changes; Elections; New Service

Plausible Events

e.g. Policy Reform; Regulatory Shifts

Wildcard Events

Low Probability, High Impact Events

e.g. Global Pandemic; Scientific Discovery

3) Choices

Reflect our investments in people,
partnerships and places.

Prompt Questions (Reflection for Readers)

When the Four Futures are written, you should engage colleagues in answering strategic questions:

- What signals or trends have you seen that might support the future described in each scenario?
- What are the internal implications for our partners and teams?
What might our customers do differently to thrive in this future?
- Where might the story go from here?
Write a few extensions from this future.
- What indicators or milestones might we monitor that represent a tipping point of this future?

Assessing Four Futures – Force Field Analysis

Tools such as *Force Field Analysis* ask you to rate “push-pull” forces that might be holding the organization back within a particular scenario.

‘Forces’ are extracted from the story. They might be: Rise of Automation, Shifting Client Expectations, New Service Models, New Policies, et al.

Steps

1. Review the Scenario / Issue

Have your team review the scenario – discussing the new set of assumptions you are being asked to embrace.

2. Describe the Forces

Have your team write out the forces of change. Place one force on each line.

3. Rate it / Weight it!

Next, have each person provide a quantitative value to each force that reflects the strength of the force. Forces of change that have strong stakeholder influence, policy support or favorable factors receive the highest weight.

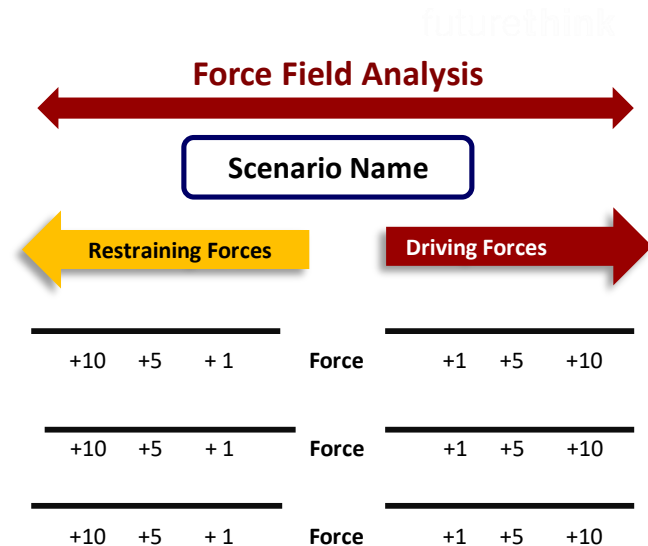
Option 1 – Weight each with a number (e.g. 1-10; 1 being weakest; 10 being strongest)

4. Re-arrange

On a new template average out the Rate/Weight factors then put the forces of change that have the most influence at top; weakest at the bottom. When your Force-field analysis chart is complete you will have a sense from your team how to identify challenges and opportunities.

5. Address Challenges & Opportunities

The next step is to discuss strategic ways of confronting negative forces (obstacles to change) holding you back; and ways to reinforce positive momentum pushing you towards the scenario.



Force Field (Push vs Pull) Analysis

futurethink

Scenario Name

Restraining Forces (Pulling You Away)

Driving Forces (Pushing Toward Scenario)

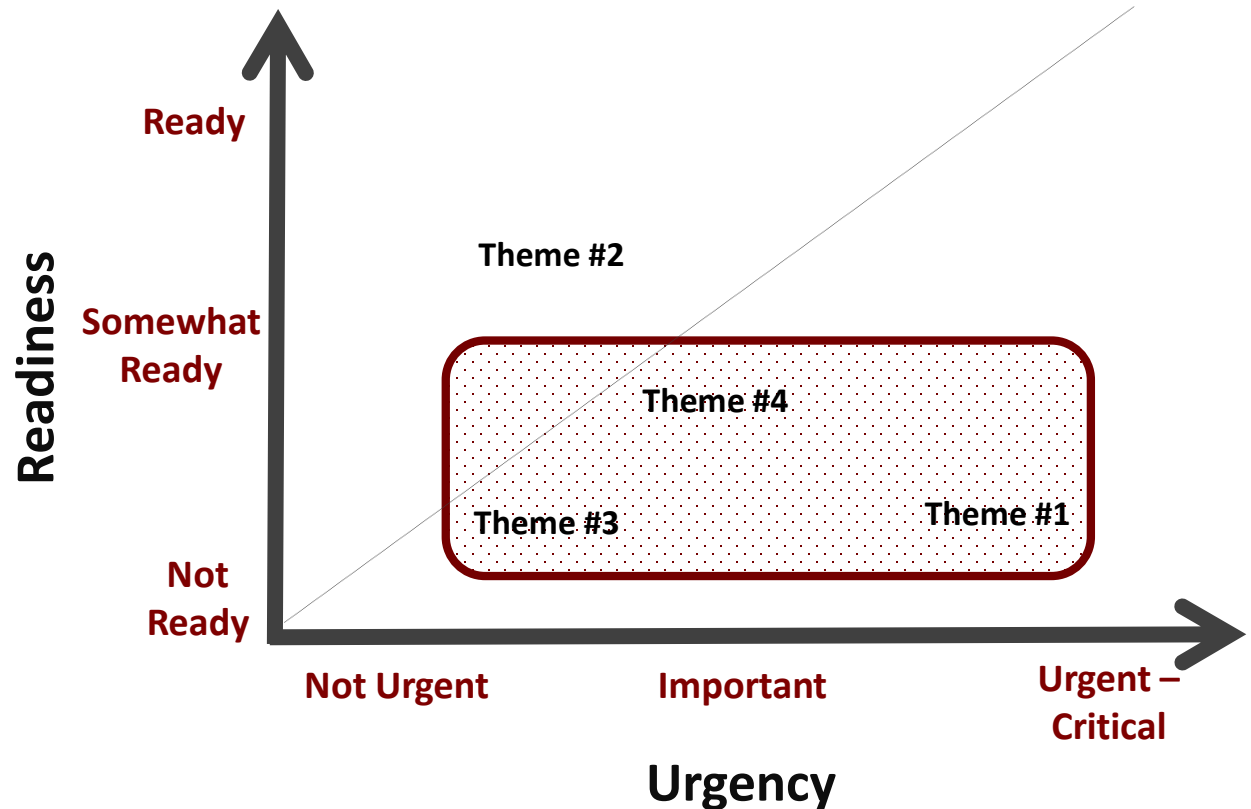
- 10	- 5	- 1	Force	+1	+5	+10
- 10	- 5	- 1	Force	+1	+5	+10
- 10	- 5	- 1	Force	+1	+5	+10
- 10	- 5	- 1	Force	+1	+5	+10

Wrap up Activities

Take a Pulse Check on Emerging Trends vs Organizational Appetite

Top Trends/Themes

- 1)
- 2)
- 3)
- 4)
- 5)



Research Tool: Develop Framework Forecasts on Key Themes of Change

Framework Forecast

Contents lists available at SciVerse ScienceDirect

Futures

journal homepage: www.elsevier.com/locate/futures

Framework foresight: Exploring futures the Houston way

Andy Hines*, Peter C. Bishop

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ABSTRACT

Over the last several years, the University of Houston developed and codified a method for teaching students how to carry out foresight projects. This development represented a philosophical shift from a neutral presentation of methods without particular advocacy for one or the other. The challenge that this neutral approach presented is that each method is somewhat different and especially for those new to foresight, it became challenging to find common ground, distinguish them, or to know when to use one or the other. Our experience is that our initial wariness of promoting a standard method and thus a "one-right-way" of doing foresight proved unfounded. Not only does it not detract from the teaching of other methods, in fact it has made it easier. Framework Foresight was deliberately built to accommodate and incorporate other methods and approaches. It provides a basis of comparison of how various practitioners and methods do the work, enabling them to assess the strengths and weaknesses of each. Framework Foresight thus could be viewed as a meta-method in that it is a modular approach that accommodates a substitution of, or supplementation from, other methods or techniques at various steps. As students became practitioners and used the method in their practice, they have provided useful feedback and have generally reported back good results. Thus, Framework Foresight is offered to the foresight community as a method for carrying out foresight projects.

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Future of _____

- Define the Domain
- Key Concepts (Glossary)
- Timeline / History
- Conferences
- Key Stakeholders
- Key People to Follow
- Stated Plans
- Key Figures & Forecasts
- Trends
- Uncertainties
- Ideas (Visionary)
- Emerging Issues (Policy Questions)



