OVERVIEW

An Introduction to Futurist Thinking and Planning

- Introduction: Futurism and Futurist Thinking
- Use Case Scenarios
- Futurist Thinking Methodologies
  - Environmental Scanning
  - Trend Analysis
  - Scenario Development – what are the unintended consequences?
  - Delphi Method
  - Visioning
- Futurist thinking in government agencies
- Innovative Thinking and Approaches to the Future
What is futurism or futurist thinking?

- It is NOT the attempt to predict the future. This assumes that there is only one possible and fixed future that is unchangeable.

- It IS the systematic study of what COULD happen in the future “in order to help people understand anticipate, prepare for and gain advantage from coming changes.” The futurist uses foresight to describe what could happen in the future and, in some cases, what should happen in the future.
“The future” cannot be “predicted” because the future does not exist.

- Jim Dator
#1: Possible futures can be forecast.

"The future" cannot be "predicted," but "alternative futures" can, and should be "forecast."

Thus, one of the main tasks of futures studies is to identify and examine the major alternative futures that exist at any given time and place.
#2: Envision and re-evaluate the future you want.

"The future" cannot be "predicted," but "preferred futures" can and should be envisioned, invented, implemented, continuously evaluated, revised, and re-envisioned.

– Thus the major task of futures studies is to facilitate individuals and groups in formulating, implementing, and re-envisioning their preferred futures. To be useful, futures studies needs to precede, and then be linked to strategic planning, and thence to administration.
#3: You must plan and execute for the future you want.

*To be useful, futures studies needs to precede, and then be linked to strategic planning, and thence to administration.*

Identification of the major alternative futures and the envisioning and creation of preferred futures then guides subsequent strategic planning activities, which in turn determine day-to-day decision-making by an organization's administrators.

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WHAT IS A FUTURIST?

And What Do They Do?

- A futurist studies the future in order to understand, anticipate, prepare for and gain advantage from coming changes.
- By considering systems and human agency, futurists help identify choices that affect the future, and attempt to influence events to create a desired future.
- Futurists work in large and small businesses, governments and non-profits, as teachers or researchers in education, and as consultants or as permanent staff.
- Many futurists focus on one topic such as a technology or an industry. Other futurists study broad social changes or global problems.
FUTURIST THINKING IN GOVERNMENT

Alternate Definitions

**Strategic Foresight** is a more common term for the use of futurist thinking in government. It is “the systematic, participatory, future-intelligence-gathering and medium-to-long-term vision building process aimed at present day decisions and mobilizing joint actions...There are said to be five essential elements of foresight:

1. anticipation
2. participation
3. networking
4. vision
5. action

A defining characteristic of foresight is that, in essence, it is a human capacity to think ahead and to forecast possible outcomes of present decision.”

Definition. Futures Academy. Accessed from: http://www.thefuturesacademy.co.uk/futures/methods#strafore
HOW TO THINK LIKE A FUTURIST
An Overview of What Questions Futurists Ask

- What am I noticing around me?
- What are the causes?
- Whom or what does it affect?
- What are the unintended consequences?
- What decision must I make?
- What are the different ways the scenario can play out?
  - Best case scenario
  - Worst case scenario
  - Any scenarios in between
- What would I prefer to happen?
- How can I plan to make that future happen?

FUTURIST METHODOLOGIES

TREND ANALYSIS

- Trend Analysis involves various techniques based on historical data and involves several processes:
  - Spot an emerging trend and validate using historical data
  - Analyze the nature of the trend and its implications
  - Extrapolate the trend forward – taking the data and finding the trend curve and extrapolating it into the future
  - Identify causes of the trend and limits to those causes
    - What is causing this trend?
    - Will those causes continue indefinitely?
    - Are there upper limits to the trend?
    - What other forces may affect the trend?

At this point trend analysis relies more on subjective judgment rather than objective extrapolation of historical data.
# FUTURIST METHODOLOGIES

## TREND ANALYSIS

### STRENGTHS & WEAKNESSES

**Strengths**
- Based on hard historical data
- Most common way to generate a forecast

**Weaknesses**
- Extrapolation assumes that the rate of change in the future will continue based on the rate in the past
- Extrapolation results are only as good as the initial data input; if data is incomplete, or biased, then results suffer

### EXTRAPOLATING DATA

Are you interpreting the data correctly?

We might estimate that a child aged four has grown at the rate of 5 inches a year, and then calculate that this rate of growth means he will be over 13 feet tall at the age of 34!

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http://crab.rutgers.edu/~goertzel/futuristmethods.htm

FUTURIST METHODOLOGIES

ENVIRONMENTAL SCANNING

- What is environmental scanning?
  - Process of scanning the media to identify emerging issues

- What does environmental scanning do for you or your organization?
  - Enables organization or individuals to anticipate and respond to changes
  - Provides strategic intelligence to the strategic planning process by:
    - Identifying changing trends and potential developments
    - Monitoring them
    - Forecasting their future pattern
    - Assessing their impacts

Image Source:

http://crab.rutgers.edu/~goertzel/futuristmethods.htm
FUTURIST METHODOLOGIES

ENVIRONMENTAL SCANNING

What is the objective of environmental scanning?
- To look over the widest range of possible factors and identify connections with the organization's function or business, especially the significant positive or negative effects those could have on the organization.

How do you implement environmental scanning in an organization?
- Detect scientific, technical, economic, social, political and ecological events and other elements important to the company;
- Define the potential threats or opportunities or major potential changes for the organization that are implied by those events;
- Provide continuous awareness and evaluation of trends to guide planning and action choices;
- Inform management and staff of the need for anticipatory action; minimize reaction; stimulate proaction;
- Alert management and staff to trends which are converging, diverging, speeding up, slowing down, or interacting.

http://crab.rutgers.edu/~goertzel/futuristmethods.htm
Home Depot caters to homebuyers

But the new market of millennials are not buying homes like previous generations

How would you consult Home Depot based on what you see in the environment?

Scanning the environment, what are some trends you are seeing that contribute to less home buying among millennials?

What are the economic, social, political, cultural, ecological elements of this trend are important to Home Depot?

What are the threats or opportunities?

What are the major potential changes to the company implied by these?

What anticipatory action would you recommend to the company?
**EXERCISE: ENVIRONMENTAL SCANNING**

**TRENDS**

- Economic:
  - Increased student debt
  - Economic downturn
  - Sharing Economy – Uber, Airbnb, Co-working

- Socio-cultural:
  - New values stressing mobility and experiences.
  - Real estate is no longer the main road to build wealth.

**CHALLENGE**

- Renting has become the new form of buying for millennials.
- To engage them and win their business, you need to make them feel as important as homeowners.
- But millennials don’t want to buy tools and materials that they don’t want to own.

**POSSIBLE SOLUTION**

- You don’t have to buy a house to own a home.
- The Home Depot should become the tool that transforms rentals into homes.
- Ideas include removable flooring and wall paper, re-install renovation services.

[Image Source: https://dwtd9qkskl5ds.cloudfront.net/blog/wp-content/uploads/2015/10/Trulia_RvB_500x344_Header.png]
[Image Source: http://us.res.keymedia.com/files/image/millennialhomeowners.jpg]

https://faithpopcorn.com/clients-case-studies/home-depot-case-study.html
FUTURIST METHODOLOGIES

SCENARIO DEVELOPMENT

Scenario Development is the describing of possible scenarios that could happen in the future given a certain set of conditions or events, and provides a narrative.

Jay Ogilvy of StartFor Magazine breaks down scenario planning into two parts:
1. **Scenario Logics** – the process of choosing which scenario to flesh out.
2. **Storytelling** – building the narrative around that scenario and its implications.

Image Source: https://unitid.nl/wp-content/uploads/2014/02/scenario_setting42-1024x520.png
FUTURIST METHODOLOGIES

SCENARIO DEVELOPMENT: SCENARIO LOGICS

The first step is determining which scenarios are worth developing, by identifying the:

1. **Focal Issue** – this narrows the scope of the scenario to be developed, which can be
   a. **Narrowly focused**: Should we buy this company? How should we respond to XYZ act of aggression against our country?
   b. **Broadly focused**: What trends in the online retailing environment will impact our business? How will Asia’s expansion into the semiconductor industry affect the US?

2. **Key Factors** – Lists out all the factors associated with the focal issue

3. **External Forces** – identifies external forces that affect that focal issue, both risks and potential upsides that can result from forces outside one’s control: war, economic, social, technological, etc.

4. **Critical Uncertainties** – this step analyzes all the factors discussed in steps 2 and 3, and prioritizes them accordingly

5. **How to decide** – you must have a process for determining which scenario to develop further – will it be the most probable? Most interesting? Consensus?
FUTURIST METHODOLOGIES

SCENARIO DEVELOPMENT: STORYTELLING

The second step after you choose the scenarios to develop is to build a narrative around that scenario, the steps involved are:

Tell the WHOLE story – from beginning to end, don’t just stop when it is no longer within your realm of relevance or control.

Determine Implications and Options – after the scenarios are generated, this phase is usually meant to figure out the implications of each scenario and devise strategic options for dealing with them.

Early Indicators – according to Jay Ogilvie, these “are the first signs of the big changes that differentiate one scenario from another
- They will be what you use to move in the direction of options for the likely scenario.

FUTURIST METHODOLOGIES

DELPHI METHOD

- Convenes a panel of experts around a specific problem.
- Facilitates a rigorous group communication process.
- Panel assesses timing, probability, significance, implication, trends and events, through consecutive rounds of anonymous surveys.

**Strengths:** explores issues that require judgement objectively and in a detached manner.

**Weakness:** time consuming, and takes a great deal of preparation of surveys/questionnaires and selection of experts.

Image Source: http://4.bp.blogspot.com/-16w3qFSUJqQ/TzOaeXaBz9I/AAAAAAAAqe8/_1A3VpgpMW0/s1600/panel%2Bof%2Bexperts.PNG

http://crab.rutgers.edu/~goertzel/futuristmethods.htm
FUTURIST METHODOLOGIES

TECHNOLOGICAL FORECASTING

Technological forecasting makes forecasts about how soon various types of technology will be possible and what characteristics they will have.

While any futurist method can be employed, technological forecasting has developed its own distinct literature, practice, and concepts such as:

- **Stages of Innovation** – that each technological advance passes through.
  - **Scientific Findings** – basic scientific understanding.
  - **Laboratory Feasibility** – a specific problem with a specific solution has been identified and a lab model developed.
  - **Operating Prototype** – a device for an intended environment is built.
  - **Commercial Introduction or Operational Use** – where the innovation is technologically successful and economically feasible.
  - **Widespread adoption** – innovation supersedes the previous method.
  - **Diffusion to other areas** – innovation is adopted for purposes other than those originally intended.
  - **Social and economic impact** - innovation has changed the behavior of society or has somehow involved a substantial portion of the economy.

http://crab.rutgers.edu/~goertzel/futuristmethods.htm
FUTURIST METHODOLOGIES
TECHNOLOGICAL FORECASTING

Can you go through the stages of innovation for the Mobile Phone Technology?

Evolution of the Mobile Phone

1. Scientific Findings
2. Laboratory Feasibility
3. Operating Prototype
4. Commercial Introduction or Operational Use
5. Widespread adoption
6. Diffusion to other areas
7. Social and economic impact

http://crab.rutgers.edu/~goertzel/futuristmethods.htm
### FUTURIST PLANNING

**Association of Professional Futurists’ Planning Process: 5 Areas**

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<td>Where do you begin?</td>
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<td>Describing</td>
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[https://apf.org/faq/](https://apf.org/faq/)
FUTURIST PLANNING

1. FRAMING: Where do you begin?

A futurist usually does not set out to describe “The Future,” but to make a decision about the future or solve a particular problem or adapt to a coming change.

The foundation of a good futures project is the solid understanding of the present conditions and historical influences. A futurist describes a situation using a deliberate and structured method. This process includes the surface conditions of, for example, an industry, but the futurist also studies the goals and purposes behind the industry.

The framework of a futures study usually can include many different kinds of information:

• Data-driven evidence like trend analysis and historical analysis.
• Descriptions of driving forces like a systems model.
• Mapping of influence networks, leaders or followers.
• Perspectives and visions of leaders and decision makers in the field.
• Current accepted expectations of the future of the field.
• Understanding the current conditions and the accepted assumptions about the field are key to opening the future.

https://apf.org/faq/
FUTURIST PLANNING

2. SCANNING: What is happening now?

THERE ARE 2 TYPES OF SCANNING to look at events in the world.


2. Anomalies or unusual events: that may provide an indication of change or a solid piece of evidence for an emerging trend, called weak signals.

- Both types of scanning require futurists to be “information sponges.” Structured methods are used to sort and categorize data to help sort useful information from noise.

- A wide variety of sources are used: newspapers, books, periodicals, scientific and trade journals, forecasts, interviews with subject matter experts, electronic media, arts and cultural trends, to name only a few.

- Scanning is most effective when used in combination with a defined, focused framework.

https://apf.org/faq/
FUTURIST PLANNING

3. DESCRIBING: What are the possible futures?

Two ways to describe the future

**FORECAST**

Describes how events may unfold.

- A futures forecast can take the form of a technology road map, a projection of a trend or a warning of an impending event.
- Many futurists prefer to stay away from forecasting, but we all do it to some extent.
- Rather than predicting a single future, futurists consider *multiple possible futures*.
- A probable or baseline future is a generally accepted forecast.

**SCENARIOS**

Describes how a future would turn out if a certain set of events or conditions happen.

- Usually presented in a set of different possible futures where each scenario is based on different conditions.
- Allows you to consider the consequences before an event happens.
- It may never happen – probably will never happen – but foresight will enable you to make better decisions.

https://apf.org/faq/
Tomorrow, Monday, July 3, 2017: it will be a scorcher – sunny with a high of 90 degrees in New York, dropping to 75 in the evening. Continuing through the week with chances of rain.

If it rains – I'll drive to work.
If it's sunny – I'll walk to work.
If it snows – I won't go to work.
FUTURIST PLANNING

4. Visioning: How do you come up with new ideas about a future that does not exist yet?

Visioning is the process of discovering what could happen in the future:

10. Ask people – This can be done through structured surveys of experts, workshops, or informal interviews.

10. Look deep within oneself - By directed visualization, a person can become immersed in a future and “see” details that may have otherwise been overlooked.

10. Visioning is used to discover new opportunities, open and expand the range of possibilities, survey a full range of potential futures and explore the future, but it also leads to a goal.

10. From the discoveries about the possible future, select the most plausible and most desirable.

10. The purpose of many visioning exercises can be to get a detailed description of what the most appealing future would look like, so as to understand how to move toward that future.
FUTURIST PLANNING

5. Planning: So what?

Planning is the process of taking all the insights from visioning, scanning, scenarios and forecasts plugging them into your framework and saying, “So what?”

How you apply the knowledge you gain from your futures work depends on why you were exploring in the first place. Some of the possibilities:

• to prepare for change
• to make better decisions today
• to be ready for whatever does happen
• to avoid surprises
• to assess the long term implications of choices
• to imagine new opportunities and innovations

Perhaps the most important planning activity is to be able to plot a course to get from the present to the future you desire.

The objective is frequently not to come up with a single answer, but to change the way that you think about what could happen and how to choose what should happen.
INNOVATIVE WAYS TO THINK ABOUT THE FUTURE OF HOMELAND SECURITY

EXERCISE: STOPPING THE SPREAD OF TERRORISM

A European Case Study

You are a police officer in the crime prevention unit, in a small Danish town. In one day, you receive multiple phone calls from several hysterical parents from the local Muslim community, frantic because their teenage sons have disappeared in the middle of the night. Later, you come to find out that they have all become radicalized through various outlets preaching radical Islam, and they have gone to join the fight in Syria.

WHAT ARE THE POSSIBLE FUTURES YOU SEE ARISING FROM THIS SITUATION?

UTILIZING ANY OF THE FUTURIST THINKING AND PLANNING TECHNIQUES, HOW WOULD YOU APPROACH THIS PROBLEM?
INNOVATIVE WAYS TO THINK ABOUT THE FUTURE OF HOMELAND SECURITY

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AS A POLICE OFFICER, WHAT DO YOU DO TO KEEP THIS FROM SPREADING?

WHAT IS ONE INNOVATIVE APPROACH OR SOLUTION?
INNOVATIVE WAYS TO THINK ABOUT THE FUTURE OF HOMELAND SECURITY

ONE INNOVATIVE APPROACH TO COUNTER TERRORISM

You are a police officer in the crime prevention unit, in a small European town. In one day, you receive multiple phone calls from several parents from the local Muslim community, frantic because their teenage sons have disappeared. Later, you come to find out that they have all become radicalized through various outlets preaching radical Islam, and they have gone to join the fight in Syria. You see this is a trend, not just in your town, but across Europe.

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ONE INNOVATIVE APPROACH TO COUNTER TERRORISM

Countering Terrorism by Preventing Radicalization

While many European countries took a zero tolerance policy against any citizen that joined the ISIS effort, one Danish town took a different approach.

- They looked at the trend of young men becoming radicalized.
- They determined the cause: these young men often felt pushed to the margins because of religious, political, or racial discrimination and felt they did not belong.
- They decided to address the cause, instead of the symptom: for any young Muslim man at risk of radicalization, they welcomed them in and provided resources for these young men to feel like they belonged in Danish society – jobs, mentorship, school, counseling, etc.

Image Source: http://media.npr.org/assets/img/2016/07/14/alan-aarslev_custom-167b5bd4a80c690de09f18ef7f6dd47e24136c2a-s1600-c85.jpg
INNOVATIVE WAYS TO THINK ABOUT THE FUTURE OF HOMELAND SECURITY

ONE INNOVATIVE APPROACH TO COUNTER TERRORISM

What was the result of this approach?

**Countering Terrorism by Preventing Radicalization**

- The future they chose: of the 34 young men who went to Syria in 2012, after 3 years of the program, that number dropped to 1, and over 330 men have gone through this prevention program.

Algorithms are a set of instructions for a computer to execute, these algorithms are programmed by humans. The algorithm can only produce the results instructed by humans.

Machine Learning (Artificial Intelligence or A.I.) is where a computer is fed data by humans, and learns what is most efficient, probabilistic, or "best" based on that data. Humans do not control the results produced by AI.
The data is perfect

What if the data fed into a machine learning algorithm can determine a cancer patient's exact life span? What would insurers do with this information? Doctors?


The data is incomplete or biased

What if Google's machine learning hiring algorithm is fed data where all previous hires were male, white, from Ivy league institutions? How would this new AI hire the next set of employees?

Image Source: https://pbs.twimg.com/media/C3jcYGfXUAAexNm.jpg

The data is fraudulent

What if another government hacks into our machine learning systems and inputs fraudulent data portraying positive Communist sentiment among voters – how could this affect policy, voting, campaigning?

Image Source: http://www.redsignal.biz/blog/wp-content/uploads/2012/03/fraud1.jpg
What if we become over reliant on Artificial Intelligence (AI) for decision making because of its efficiency?
INNOVATIVE WAYS TO THINK ABOUT THE FUTURE OF HOMELAND SECURITY

THE FUTURE OF MACHINE INTELLIGENCE AND HUMAN MORALS

TED Talk: Zeynep Tufekci on the Ethics of Machine Intelligence

Link to video: https://www.ted.com/talks/zeynep_tufekci_machine_intelligence_makes_human_morals_more_important
HOW DO WE MAKE THE FUTURE CONCRETE

CHAMPIONING THE FUTURE YOU WISH TO SEE

• What if after all your futuristic thinking and planning – you arrive at the future you wish to see? How do you convince others to plan for that desired future?

Anab Jain brings the future to life, creating experiences where people can touch, see and feel the potential of the world we're creating.

• Through her design lab, she can simulate all the possible futures from:
  • Drones policing your streets.
  • Dhubai's Air Pollution in 2030.
  • Medical genomics leading to genetic discrimination.

• By simulating the potential future consequences of such decisions, Jain is able to affect the decisions of today.

To learn more, go to TED Talk - Why we need to imagine different futures: https://www.ted.com/talks/anab_jain_why_we_need_to_imagine_different_futures
Module and Resource List – Futurist Thinking & Planning

Date of Information: July 2017

Overview: Futurist Thinking or Strategic Foresight and planning has been used across industries, and has been utilized by government agencies such as the DOD and FEMA, which regularly produce futures reports. This bibliography provides a list of key readings to understand the techniques and processes, notable works in futurist thinking, current trends, and emerging ideas of the future.

Websites:

- Stratfor - Stratfor is a strategic forecasting organization that focuses primarily on geopolitical events and trends. They provide consultation and advisory services to clients in a wide range of industries from business to government.
  - Citation: Main Splash Page: www.stratfor.com and provides articles on emerging trends and themes around the world.
  - Threat Lens is one of their proprietary products that offers data, content, a library of research, and access to security experts on specific topics of threat. More info at: https://www.stratfor.com/products/threatlens

- Gizmodo – is a design, technology, science, and science fiction website that writes about current trends in those fields, and occasionally writes about political issues concerning technology.
  - Citation: Main Splash Page: http://www.gizmodo.com

- io9 – is the specific blog on Gizmodo that concerns itself with the future and futurism.
  - Citation: Main Splash Page: http://www.io9.gizmodo.com A few notable posts to a survey of current futurist issues:
    - 20 Crucial Terms Every 21st Century Futurist Should Know – this post covers the emerging trends and the terms that describe them from “multiplex parenting,” the process of genetically editing defects out of babies, to “evolvability risk” – the ability of a species to produce variants more apt or powerful than those currently existing within a species.
    - The Most Significant Futurists of the Past 50 Years - this post covers the ideas of the most influential futurists and their impact on the present, from transhumanism to cyberfeminism.

- FEMA (Federal Emergency Management Agency) has a mission to support our citizens and first responders to ensure that as a nation we work together to build, sustain and improve our
capability to prepare for, protect against, respond to, recover from and mitigate all hazards. The agency has robust strategic foresight resources ranging from research, reports, tools, and exercises, which can be found at: https://www.fema.gov/strategic-foresight-fema

- **Foresight Activity:** “Assessing the Future Operating Environment” (March 2015) This guide assists organizations in planning and implementing a one to two hour strategic foresight discussion, drawing on the essence of scenario planning techniques without the need to utilize specialized concepts or develop new materials. Accessible: https://www.fema.gov/media-library/assets/documents/103643
- **Foresight Workshop How-to Guide:** https://www.fema.gov/media-library/assets/documents/103643

**Futurist Organizations:**

- **Association of Professional Futurists** - The Association of Professional Futurists is a growing community of futurists, dedicated to promoting professional excellence and demonstrating the value of strategic foresight and futures studies for their clients and/ or employers. Futurists work in global corporations, small businesses, consultancies, education, non-profits, and government. Founded in 2002, the APF now includes more than 400 members from thirty-three countries.
  - **Citation:** Main Splash Page: http://www.apf.org/

- **World Future Society** - known for the Futurist magazine and World Futures conference, the World Future Society (WFS) is a non-profit organization based in Chicago that convenes professionals and non-professionals around future ideas. Founded in 1966, the organization is driven by three critical objectives:
  - 1) Uniting people passionate about building their desired futures through an ecosystem of members, chapters and partners.
  - 2) Advocating to bring to public awareness the world's major challenges.
  - 3) Building global labs where futurists of all types are able to produce solutions, that are not solely reactive to the present, but to architect new systems that make the broken ones obsolete.
  - **Citation:** Main Splash Page: http://www.wfs.org/

- **The Millennium Project** was founded in 1996 after a three-year feasibility study with the United Nations University, Smithsonian Institution, Futures Group International, and the American Council for the UNU. It is now an independent non-profit global participatory futures research think tank of futurists, scholars, business planners, and policy makers who work for international organizations, governments, corporations, NGOs, and universities. The Millennium Project collects and assesses judgments from over 2,500 people selected by its 40 Nodes around the world. The work is distilled in its annual "State of the Future", "Futures Research Methodology" series, and special studies.
  - **Citation:** Main Splash Page: http://millennium-project.org/

- **RAND Corporation** – is a research organization that develops solutions to public policy challenges through research and analysis. While not a futurist organization per se, RAND

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1 FEMA. *About the Agency.* Accessed from: https://www.fema.gov/about-agency
provides research, particularly in US government and defense, that is typically used for strategic forecasting or futurist planning.

- **Citation:** Main Splash Page: www.rand.org

**Media:**

- **Video:** *TED Talk: Why we need to imagine different futures:* In this TED Talk, Anab Jain discusses not only the need to imagine different futures, but experience them so we can fully consider their implications and mitigate potential negative futures now.
  - **Transcript:** [https://www.ted.com/talks/anab_jain_why_we_need_to_imagine_different_futures/transcript?language=en#t-272289](https://www.ted.com/talks/anab_jain_why_we_need_to_imagine_different_futures/transcript?language=en#t-272289)

- **Video:** *TED Talk: Machine intelligence makes human morals more important:* In this TED Talk, Zeynep Tufekci, a computer programmer and techno-sociologist, makes the case that because we cannot control how artificial intelligence processes and makes decisions based on data, it can fail in ways that don’t fit human error patterns, so we cannot outsource our responsibilities to machines.
  - **Transcript:** [https://www.ted.com/talks/zeynep_tufekci_machine_intelligence_makes_human_morals_more_important/transcript](https://www.ted.com/talks/zeynep_tufekci_machine_intelligence_makes_human_morals_more_important/transcript)

- **Podcast:** *INVISIBILIA: Flip the Script:* is a podcast on the power of non-complementarity and how one Danish town used this principle to de-radicalize young Muslim men in their village who fought for ISIS or were in danger of radicalization.

**Articles:**

- **Michael Marien** is a notable futurist who founded and edited Future Survey, a 24-page monthly guide to futures-relevant books, reports, and articles, published by the World Future Society (Bethesda MD) in the 1979-2008 period. During its successful 30-year run, more than 21,000 abstracts were published in FS.
  - **Citation:** A selection of his recent articles and book reviews in full text can be found on the Cadmus website, accessible at: [http://cadmusjournal.org/user/219](http://cadmusjournal.org/user/219)

- **Why the Future doesn’t need us** is a seminal article published in Wired Magazine in its April 2000 issue by Bill Joy, then co-founder of Sun Microsystems, who, as quoted in his subtitle,
argues, "Our most powerful 21st-century technologies — robotics, genetic engineering, and nanotech — are threatening to make humans an endangered species," due to the speed at which artificial intelligence is developing and the ability of technology to self-replicate. The article explores the ramifications of technology for the future and how to plan for it.


- The World In 2033: Big Thinkers Share Their Thoughts is a compilation of interviews of leading thinkers and leaders and what they see in the future of technology, global conflict, education, space travel, climate, and more.

Reports

- 2015-16 State of the Future Report is a comprehensive overview of the present situation and prospects for humanity, integrating forecasts, trends, and judgments of thought leaders and scholars from around the world sharing important future possibilities to improve strategies today.


- Statement for the Record, Worldwide Threat Assessment of the US Intelligence Community, Senate Select Committee on Intelligence. Daniel R. Coats, Director of National Intelligence, May 11, 2017. The Director of National Intelligence provides a worldwide assessments of threats ranging from cyber security and disruptive technologies to regional threats around the world.

Books:

- Global Foresight Books is an electronic database created by futurist Michael Marien, who writes reviews on every book in the database. His reviews are well regarded. Marien founded the Future Survey, a 24 page monthly guide to all futures-related literature for almost 30 years from 1979-2008.
  - Citation: Database is accessible at: http://www.globalforesightbooks.org/

- Foundations of Futures Studies I & II are foundational textbooks for futures studies, written by Wendell Bell, a professor emeritus of sociology at Yale University and a highly regarded futurist
he was awarded the Lifetime Achievement Award by The World Futures Studies Federation in 2005.


**Future Shock** was written in 1970 by Alvin Toffler, a well-known futurist who first coined the term “information overload.” *Future Shock* examined the implications of rapidly accelerating pace of change in society and questioned whether human beings would be able to adapt to that pace of change. He warned that people might be “doomed to a massive adaptational breakdown.”


**A Futurist’s Guide to Emergency Management** is a guide written by Adam Crowe, a certified emergency manager and is a nationally recognized leader in social media and emergency management. He particularly engages in emerging cultural, technological, and political issues that impact emergency management. The book is divided into three sections: trends in citizen behaviors; impacts of age, gender and sexuality roles in emergency response as well as changing perceptions of risk; and finally emerging social, environmental, technological issues.


**Other Links and Resources:**

- Overview of Methodologies: http://crab.rutgers.edu/~goertzel/futuristmethods.htm
- Dictionary of Futures terms from the Futures Academy: http://www.thefuturesacademy.co.uk/futures/methods#strafore
- Faith Popcorn is a well-known futurist for trend analysis, she publishes her ideas and projects, and makes available her clients and case studies on: https://faithpopcorn.com