The Importance of "Wild Card" Scenarios
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As I have understood my assignment for this paper and its accompanying talk, it is to construct one or more global scenarios and identify the methodology used to do so, highlighting key drivers, forces, and trends. The key driver I would like to concentrate on is surprise. Surprise is an obvious "driver" of the future, but, by definition, is basically unknowable and therefore of at best peripheral interest to most forecasting efforts. However, I do not believe that all surprise in the future is unknowable and will argue that certain kinds of surprises are avoidable, especially when using scenarios to help think about the future.

In these initial stages of a scenario approach to the National Intelligence Council 2020 Project, then, I would like to do five things:

- argue the importance of explicitly including "wild card" scenarios,
- suggest an appropriate way to include them,
- describe a systematic means for identifying "wild card" candidates,
- describe a means of selecting a set of "wild card" scenarios, and
- give an example of such a "wild card" scenario and suggest others.

I come at the issue of scenarios not from the perspective of a forecaster who would like to be right about the future, but from that of a risk-averse strategic planner who would like, to the extent possible, not to be wrong about the future. My specific outlook in this brief essay derives from Assumption-Based Planning, a strategic planning tool developed at RAND, which I will describe in sufficient detail to buttress my approach.[1]

The Importance of Explicitly Including "Wild Card" Scenarios

Let me start with an example from the National Intelligence Council's Global Trends 2015. One of the virtuous aspects of Global Trends 2015 is that it revisited Global Trends 2010 and sought to learn from intervening events. In doing so, GT 2015 points out that GT 2010 (published in 1997) did not foresee the global financial crisis of 1997-98. While I will not argue that the failure to foresee the financial crisis was critical to national security, I will argue that assumption-based thinking could have avoided that surprise. Further, since the global financial crisis *could* have been important to national security, reducing such surprises is an important role that "wild card" scenarios can play in the NIC 2020 Project.

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[1] For details, see Dewar, James A., Assumption-Based Planning: A Tool For Reducing Avoidable Surprises, Cambridge University Press, 2002, or Dewar, James A., Carl H. Builder, William M. Hix, and Morlie H. Levin, *Assumption-Based Planning: A Planning Tool for Very Uncertain Times*, Santa Monica, Calif.: RAND, MR-114-A, 1993.

I would describe the global financial crisis as a "wild card" scenario in terms of Global Trends 2010 in the sense that it violates the general assumption in GT 2010 that economic growth would continue

> "We project real growth in per capita income of over 2 percent per year between now and 2010. Fueled by accelerating global trade, knowledge-based technologies, and the integration of capital markets, economic growth will bring unprecedented wealth to a greater number of states."[2]

To the extent that a failure to achieve continuous growth was critical to national security, a "wild card" scenario detailing a serious financial crisis would have been useful for considering appropriate preparations for such a possibility. Such preparations could have included developing indicators that a financial crisis was imminent or underway and identifying national security actions that might either forestall such a possibility or prepare for its occurrence.

The importance of "wild card" scenarios is not to correctly guess which surprises will occur, but to identify, where possible, important surprises that *could* occur. I argue that, by recognizing the assumption in GT 2010 that there would be no financial crises, such a "wild card" scenario could easily have been recognized and developed (had it been critical) by those who developed GT 2010 and in advance of the actual financial crisis.

The Appropriate Role of "Wild Card" Scenarios

All good forecasters and strategic planners recognize that there are innumerable plausible futures to consider. No finite set of future scenarios can ever hope to completely cover all possible surprises. At some point, the exercise of generating scenarios must posit assumptions about what will (and won't) occur – what trends are likely to continue, what changes are likely to occur, what events are not likely to take place, and so forth. From a small reasoned set of assumptions, a set of scenarios can be developed to address remaining uncertainties and can be used for their intended purposes.

In the strategic planning arena, Assumption-Based Planning is built on the notion that a set of "wild card" scenarios should be developed for purposes of making more robust the plans that have been developed (whether by using scenarios or not). Those plans have made assumptions about the future, not all of which are certain to come or remain true. "Wild card" scenarios are plausible futures that violate one of the assumptions that underlie the plan. The specific purpose of the "wild card" scenarios is to help strategic planners develop signposts for indicating that an assumption is being violated, shaping actions to keep the assumption from failing (to the extent possible), and hedging actions to prepare the organization in the event an assumption does fail.

I am presuming that the National Intelligence Council 2020 Project will not result in a strategic plan. However, to be useful, it will have to make some assumptions about the world of 2020. Including a few "wild card" scenarios can play a role similar to the "wild card" scenarios of

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[2] *Global Trends 2010,* National Intelligence Council, November 1997 or see http://www.cia.gov/nic/pubs/index.htm.

Assumption-Based Planning. Such scenarios can be used to: help identify possible national security concerns of futures that are plausible but considered less likely to occur; signposts that can be monitored to determine if one such less plausible scenario is coming about, actions that will discourage (or, perhaps, encourage) the occurrence of a given scenario, and actions that can help prepare the United States in case one of the "wild card" scenarios actually does occur.

If there had been a means of identifying "wild card" scenarios during the preparation of Global Trends 2010, the possibility of a global financial crisis could have been identified, considered, and, if appropriate, addressed further. Global Trends 2015 actually identified eight general "wild card" scenario candidates in its section on "Significant Discontinuities,"[3] but apparently did not consider their implications further. GT 2015 also considered several other of what I would call "wild card" scenario candidates, particularly in its generally optimistic section on the global economy. Under "Alternative Trajectories"[4] five potential brakes to the rosy economic picture are detailed to the point that each could be turned into a "wild card" scenario.

As earlier, it is not difficult to develop "wild card" scenarios, but this section suggests that only a limited number of such scenarios can usefully be tolerated. I want to turn now to a systematic way of generating "wild card" scenario candidates and a rough means of ranking them so that the most salient survive the culling process.

A Systematic Means for Identifying "Wild Card" Scenario Candidates

As described above, Assumption-Based Planning generates "wild card" scenarios for strategic planning by creating them from failed assumptions underlying the future(s) toward which a strategic plan is directed. But how are the assumptions identified? In developing ABP we have identified and created a variety of means for identifying assumptions, but one in particular works very well on GT 2010 and GT 2015. The technique for identifying assumptions is to look for "wills" in the documentation about the future. Most written descriptions of the future use the word "will" liberally. As an example, the quote earlier from GT 2010 has the sentence, "Fueled by accelerating global trade, knowledge-based technologies, and the integration of capital markets, economic growth **will** bring unprecedented wealth to a greater number of states." This sentence assumes something about the future and uses the word "will" to document it. In the 19 pages of Global Trends 2010, the word "will" appears 244 times. In the 85 pages of Global Trends 2015, "will" appears used 845 times.[5]

Not every use of the word "will" suggests an assumption. Further, the same quote from GT 2010 above contains the sentence, "We project real growth in per capita income of over 2 percent per year between now and 2010." This is a clear assumption and doesn't contain the word "will." Nonetheless, the word "will" is a reliable and easy way to begin the search for assumptions. In an electronic document (such as GT 2010 and GT 2015) the "replace all" function in word

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[3] *Global Trends 2015: A Dialogue About the Future With Nongovernment Experts*, National Intelligence Council, NIC2000-02, December 2000, p. 81 or see http://www.cia.gov/nic/pubs/index.htm.
[4] GT 2015, p. 39.
[5] Compared with 13 appearances of "may" and 38 appearances of "could".

processors can make every instance of the word "will", say, bold and red, making it stand out for easy identification.

A thorough search for assumptions would utilize other techniques (many of which – such as interviewing the developers of GT 2015 – are well known) that would also help pick up explicit and implicit assumptions. But even a thorough search will not guarantee that all the important assumptions being made about the future have been captured or that all possible surprises have been identified. Nonetheless, this technique arguably picks up and deals with at least some of the *avoidable* surprises to which all forecasts are subject.

Then comes the question of which "wild card" candidates to pay attention to.

Selecting "Wild Card" Scenarios

"Wild card" scenarios, are, by definition, less likely than other plausible futures. What makes a "wild card" scenario important is when the future it describes would produce disproportionately dire consequences. There must be some sense, then, that the consequences of a failed assumption would have a major impact on, in this case, national security. The classical case of an unlikely scenario with dire consequences is nuclear war. The combination of its extreme unlikelihood and horrific consequences make its risk worth worrying about and planning for.

Risk, the product of likelihood and consequences, is the obvious means for selecting which "wild card" candidates are worth carrying forward as scenarios. There's no escaping that both the likelihood and consequences of any future scenario are judgment calls, so the determination of risk becomes a judgment of judgments. Nonetheless, judging risk is a common activity and reasonable people can generally agree on relative risks. To make concrete the judgment of the risk of an assumption failing, it can be thought of in terms of answering three ordered questions:

- Could this assumption *possibly* fail in a way that has serious consequences for national security? Are those consequences different from consequences in scenarios already identified? [How important is it?]
- If so (on both counts), is it *plausible* that the assumption could fail in that way? [Is it likely enough?]
- How does the risk of this broken assumption compare with other "wild card" risks? [How does the risk compare with other risks?]

The first question gets at how important it would be if an assumption failed. If there are no known circumstances in which the failure of the assumption would have significant consequences, that assumption need be considered no further. Also, if the consequences are similar to those of a scenario already identified, even if the scenario is dissimilar, its consequences should already be under consideration.

The second question gets at the plausibility of a failed assumption, given its judged consequences. Spending a little time thinking about plausibility can pay dividends. Even some things that are clear about the future can turn out to be wrong – it hasn't been that long since it

was "clear" that the USSR would be the primary geostrategic problem for the United States well into this century.

The third question asks if the risk of a failed assumption competes with others that have already been identified.

Given a completed list of "wild card" candidates, a final judgment must be made about how many of the ranked risks are worth pursuing further. In the end, those "wild card" candidates that aren't chosen for further development can be carried in much the same way that the "Significant Discontinuities" were carried in GT 2015.

What I'm suggesting, then, is that this is a method for creating "wild card" scenarios after the major scenarios have been chosen for the National Intelligence Council 2020 Project. As an example of how it would work, I took a look at Global Trends 2015 and identified candidate "wild card" scenarios based on the assumptions evident in the GT 2015 report. I will describe one and defend it as though it had been developed for GT 2015. I will then list a few other assumptions from which similar "wild card" candidates could be developed.

"Wild Card" Scenario Example: First-World Epidemic

Global Trends 2015 says about health trends:

> "Biotechnology will drive medical breakthroughs that will enable the world's wealthiest people to improve their health and increase their longevity dramatically."[6]

> "In developed countries, major inroads against a variety of maladies will be achieved by 2015 as a result of generous health spending and major medical advances. The revolution in biotechnology holds the promise of even more dramatic improvements in health status."[7]

This suggests continuing general improvements in health in developed countries. This assumption may not hold true from now through 2020 as suggested in the Significant Discontinuities section when it refers to the possibility of:

> "Another global epidemic on the scale of HIV/AIDS … with grave damage and enormous costs for several developed countries."[8]

Could a first world epidemic affect U.S. national security? An instructive example comes from the history of the Black Death bubonic plague that ravaged Europe from 1347 to 1351 and killed as much as one-third of Europe's people. Among its many effects, "so many people died that there were serious labor shortages all over Europe. This led workers to demand higher wages, but landlords refused those demands. By the end of the 1300s peasant revolts broke out in

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[6] GT 2015, p. 9.
[7] GT 2015, p. 24.
[8] GT 2015, p. 81.

England, France, Belgium and Italy. The disease took its toll on the church as well. People throughout Christendom had prayed devoutly for deliverance from the plague. Why hadn't those prayers been answered? A new period of political turmoil and philosophical questioning lay ahead."[9]

This suggests that grave damage to the United States from an epidemic could certainly create national security concerns and could involve military personnel in activities such as disaster relief and policing functions. These are both activities that differ from typical national security concerns and negatively affect military readiness.

Further, if one of the developed countries that suffered grave damage and enormous costs was South Korea and North Korea, because of its general isolation, were spared significant damage, that could create serious national security concerns for the United States. As a suggestive hint from another historical example, Hippocrates described an epidemic of an influenza-like disease that slaughtered an entire Athenian army.

Is such an epidemic plausible? Despite the miracles of modern medicine, medical professionals worry about the possibility of epidemics or global pandemics from diseases such as HIV/AIDS, SARS, Ebola, anthrax and smallpox. Perhaps the pandemic they worry about most, however, is influenza. Influenza pandemics have occurred for centuries and three times (1918, 1957, and 1968) just in the 20th century. The so-called Spanish influenza that hit Europe and spread globally in 1918 is the most telling.

Estimates of that pandemic say it struck between a fifth and half the *world's* population and resulted in between 20 million and 100 million deaths – a significant percentage of whom were young, healthy people living in "developed" countries (a 'W' shaped mortality curve instead of the usual 'U' shaped curve that concentrates on the young and the old). The flu killed 2.5% of its victims (compared with .1% for a "normal" flu). The influenza virus has been around for centuries and its ability to mutate into unexpected forms has kept us (with all of our "generous health spending and major medical advances") not only from wiping it out, but even from controlling it with much success. The influenza virus has several of the characteristics of an "ideal" epidemic agent: it is a virus (against which we have few medical weapons), it can mutate very quickly (making it difficult to guard against or eliminate), it is droplet-borne (helping it spread quickly), and its mortality is enough to be deadly but not enough to kill its carriers before they can infect others.

For those who don't find influenza a compelling epidemic, there are other possibilities. An interesting one would be a common organism, such as e. coli, that mutated into a deadly disease. E. coli O157:H7, for example, is a particularly nasty version of the e. coli bacterium that causes cramping and bloody diarrhea and, in severe cases, kidney failure. An even nastier version of e. coli, though foodborne, could cause problems because, as a common bacterium, it could be more difficult to pinpoint as the epidemic agent.

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[9] Taken from http://www.byu.edu/ipt/projects/middleages/LifeTimes/Plague.html.

Finally, suffice it to say, that there is no guarantee that the future of bioengineering won't produce a particularly virulent epidemic agent. But that brings us to the questions of likelihood and risk.

What is the risk of a first world epidemic compared with other risks? First, such an epidemic is plausible, but just how likely is it? As the World Health Organization has said with respect to influenza, "Experts agree that another influenza pandemic is inevitable and possibly imminent."[10] But how likely is another pandemic to be as deadly as the 1918 epidemic? The recent outbreak of SARS (Sudden Acute Respiratory Syndrome) is a cautionary tale. SARS bears a resemblance to the Spanish flu of 1918 in that it is a very infectious virus (for which we have no treatment) and has a mortality rate in the 4 – 15% range (much higher than that of the Spanish flu). It might also resemble the Spanish flu in a more deadly way. There were two waves of the Spanish flu in 1918. The first wave was reasonably benign and the second wave was the deadly pandemic. Health officials are worried that SARS could come back again this winter with a vengeance.

Apart from the specific case of SARS, there are modern factors that encourage epidemics and counterbalance some of the medical advances against such diseases. Global travel and open borders make the modern world much more efficient at spreading infectious diseases, particularly to developed countries as we saw in the SARS case. In addition, our "clean" modern medical facilities are actually breeding "super" bugs that have survived and are now immune to our bug killers. These and other countervailing factors balance out, much more than we would like, the progress that has been made against infectious diseases.

And none of what I've said so far discusses attempts at intentionally-generated first world epidemics. As we've seen with concerns about anthrax and smallpox, there are epidemic agents that terrorists or others could engineer specifically for the purpose of causing a first world epidemic. We are in a period of heightened awareness of that possibility – which probably overstates the likelihood – but whatever that likelihood is, it adds to the likelihood of an unintentional such epidemic, making the overall likelihood that much higher.

So what? Given that the first world epidemic scenario is one of the "wild card" scenarios that makes the final cut, what should be done with it? The anthrax scare of 2001 has sensitized the national security community to the possibility of an intentionally-generated epidemic. One result has been a lot of thinking and planning for that possibility. Ideally, that is what one could hope for in response to a "wild card" scenario.

If the primary scenarios of the National Intelligence Council 2020 Project are to be used for strategic national security planning, the "wild card" scenarios should be used for study and monitoring. A spontaneously-generated first-world epidemic scenario is different from an intentionally-generated first-world epidemic. This suggests some questions that it would be good to answer. From a national security perspective, are they similar enough that thinking and planning for an intentionally-generated first-world epidemic will adequately prepare us for a

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[10] World Health Assembly Executive Board Documentation, EB111/10, 26 November 2002, p. 2 or see http://www.who.int/gb/EB_WHA/PDF/EB111/eeb11110.pdf.

spontaneously-generated one? If not, what are the differences and do they suggest near-term national security actions?

Other Vulnerable Assumptions

Instead of generating further "wild card" scenarios, I'll close by listing a few other assumptions from GT 2015 that I think pass the tests of sufficient plausibility and sufficiently significant consequences that they should be considered as "wild card" scenario candidates. I'll state the assumptions and then just briefly sketch a scenario direction.

"Despite a 50 percent increase in global energy demand, energy resources will be sufficient to meet demand.[11] … Meeting the increase in demand for energy will pose neither a major supply challenge nor lead to substantial price increases in real terms.[12]"
   - Suffice it to say that one of the Alternative Trajectories to a rosy global economy in GT 2015 is "Global energy supplies are disrupted in a major way. Although the world economy is less vulnerable to energy price swings than in the 1970s, a major disruption in global energy supplies still would have a devastating effect. Conflict among key energy-producing states, sustained internal instability in two or more major energy-producing states, or major terrorist actions could lead to such a disruption."[13]

"The pervasive incorporation of information technologies will continue to produce significant efficiency gains in the US economy."[14]
   - There is much we don't know about the effects of information technologies (including their effects on the current economy) and much we are counting on from them. A prudent "wild card" scenario would be one in which the promise of information technologies leads instead to a financial disaster.

"The state will remain the single most important organizing unit of political, economic, and security affairs through 2015. [15]…Europe will not achieve fully the dreams of parity with the United States as a shaper of the global economic system.[16]"
   - Given the increase in regional problems and the globalization of the economy, it is plausible that a regional entity such as the European Union could begin emerging as a more important organizing unit of political, economic and security affairs by 2020. It would be interesting to start thinking through some of the implications if that were to happen.

"[India will] continue its nuclear standoff with Pakistan.[17]"
   - Much thought has been given to the next use of a nuclear weapon in anger. That thinking should not be lost in thinking out to 2020.

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[11] GT 2015, p.9.
[12] GT 2015, p. 28.
[13] GT 2015, p. 39.
[14] GT 2015, p. 34.
[15] GT 2015, p. 38.
[16] GT 2015, p. 75.
[17] GT 2015, p. 17.