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UNIFIED DATA

Want to Know the Future? Use Big Data



Robert Plant, Associate Professor, School of Business Administration, University of Miami
3/20/2013
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While the ability to time travel may be a few years off, this is a real subject of research, and in fact, it's a goal that the United States Government is spending significant amounts of money to achieve.

Time travel for intelligence gain

While time travel usually conjures up images of H.G. Wells-like steam driven devices with gyroscopes that produce lots of whirring noises, the reality is it's becoming a branch of complexity theory within applied physics, and a topic of intense interest by iARPA, the Intelligence Advanced Research Projects Activity. iARPA is a US government agency that invests in high-risk/high payoff research programs and sponsors projects that "have the potential to provide our nation with an overwhelming intelligence advantage."

Clearly, time travel, or more realistically, being able to predict future events, falls into that category.



A key project funded by iARPA focused on this area is ACE (Aggregative Contingent Estimation), the goal of which is "to dramatically enhance the accuracy, precision, and timeliness of the intelligence forecasts for a broad range of event types, through the development of advanced techniques that elicit, weight, and combine the judgments of many intelligence analysts." In other words, Business Intelligence for spies. This is reinforced by combined -- or

aggregated, in iAPRA speak -- skill sets:

The ACE Program seeks technical innovations in the following areas: (a) efficient elicitation of probabilistic judgments, including conditional probabilities for contingent events; (b) mathematical aggregation of judgments by many individuals, based on factors that may include: past performance, expertise, cognitive style, meta-knowledge, and other attributes predictive of accuracy; and (c) effective representation of aggregated probabilistic forecasts and their distributions.

Continuous, automated analysis

A second key project is the Open Source Indicators (OSI) program. In this initiative, iARPA is interested in:

Developing methods for continuous, automated analysis of publicly available data in order to anticipate and/or detect significant societal events, such as political crises, humanitarian crises, mass violence, riots, mass migrations, disease outbreaks, economic instability, resource shortages, and responses to natural disasters...

Many significant societal events are preceded and/or followed by population-level changes in communication, consumption, and movement. Some of these changes may be indirectly observable from publicly available data, such as web search queries, blogs, micro-blogs, internet traffic, financial markets, traffic webcams, Wikipedia edits, and many others.

In other words, big data.

One immediate step business leaders can take to see into the future is to understand that iARPA is the future. In fact, their motto is "be the future," and as such, what iARPA is developing now will eventually be the state of the art in the civilian world. After all, they helped sponsor the development of the Internet, timeshare computers, and lasers, among other things!

Fundamentally, these iARPA projects act as signposts to executives contemplating the creation of innovative big data projects, those which predict the future -- not just trends or generalizations about products

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Seeing the future for competitive advantage

Imagine you had a two-day lead time over your competitors in knowing an event was going to occur -- an employee day of action at a vendor such as a strike; a crisis in a supply chain such as flight delays due to weather events overseas; or a destabilizing event such as the death of a President or religious leader. While we are not suggesting you duplicate the iARPA project, it may be useful to start the planning for data collection beyond your immediate products and processes. This will entail looking for data feeds from both internal and external sources.

Having access to extra-corporate data sets will be a basic requirement, and these may include metrological data; sensor readings; news feeds; as well as scraping data off suppliers' websites on their business activities -- activities which individually may appear inert and otherwise go unnoticed, but when combined (aggregated), raise alerts. This big data strategy is vital in the world of "brittle" lean business practices, where, for example, firms rely upon JIT supply chains, and where those suppliers produce to-order, maintaining zero stock.

In such situations, the ability to engage a secondary supplier when a primary supplier has the potential for an outage can be priceless.

This predictive aspect of big data will inevitably become a key to success, and as such, perhaps it's time to replace the art of tea leaf reading and the corporate crystal balls with some new, more eclectic ideas around what data means to your company, as well as your data set needs. Maybe it's time to actually hire (crossing their palms with silver) a data scientist who can help your firm see into the future. The rewards will be well worth the journey.

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— Robert Plant, Associate Professor, School of Business Administration, University of Miami

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 UKjontech, User Rank: Bit Player
3/31/2013 | 9:19:05 AM

Re: iARPA only
This type of technology in the hands of enterprise could offer incredible advantage to those who get e breakthrough first once govt and military let go of it. The advantage it could give to an asset manager or insurer for example would be huge....

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 a.saji, User Rank: Megabyte Messenger
3/28/2013 | 11:44:16 PM

Re: iARPA only
@Saul Yes we do need to have some sort of a discipline even when we use technology. If we are not responsible on what we are doing then what is the purpose of having us in the market ?

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 AlphaEdge, User Rank: Exabyte Executive
3/26/2013 | 11:20:05 AM

Re: iARPA only
With more data, data quality may be of a concern. I think more data does not necessarily bring about better predictive model. Without thinking of data quality may be a hurdle for big data analytics evolving in the future.

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 kiran, User Rank: Petabyte Pathfinder
3/26/2013 | 6:31:19 AM

Re: iARPA only
It is really useful information as it is important for organizations to predict future business success. Programs that can forecast the changing future trend helps business to build a proactive strategy. This will be a competitive edge for the organization as well. However, I am little unsure about how firms will be competent to invest in these programs. This will require lots of resource to develop such programs for the enterprises especially in a time where economy has just recovered from a financial setback.

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 Ariella, User Rank: Blogger
3/24/2013 | 8:42:13 AM

Re: iARPA only
@netcrawl I take it more like predicting the weather based on past data, present data, and general patterns.

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netcrawl, User Rank: Petabyte Pathfinder
3/24/2013 | 6:30:57 AM

Re: iARPA only

@Susan I don't get it, I mean why iARPA spend a lot of resources in a science project that has no clear picture. I believe it will face tremendous challenges, it will not going to take off the ground! The necessary technology and sotware for the project was beyond the capabilities of current technology.

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netcrawl, User Rank: Petabyte Pathfinder
3/24/2013 | 6:22:49 AM

Re: iARPA only

@Saul and @Ariella, is this possible? What exactly the US government get here? precise information about future? US government spending a huge amount of money on some science project, its like a Tom Cruise's Minority Reports movie, where government could be able to predict the future and stop crimes.

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So big data has started to get deeper into the future, predicting outcomes and then what next? What exactly iARPA get here? Use the technology as tools in intelligence gathering.

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Ariella, User Rank: Blogger
3/23/2013 | 9:06:28 PM

Re: iARPA only

@Robert ah, big data as a detective, fitting together the various pieces of the puzzle that added up to the horse meat fiasco.

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Saul Sherry, User Rank: Blogger
3/22/2013 | 1:08:55 PM

Re: iARPA only

And used responsibly too!

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