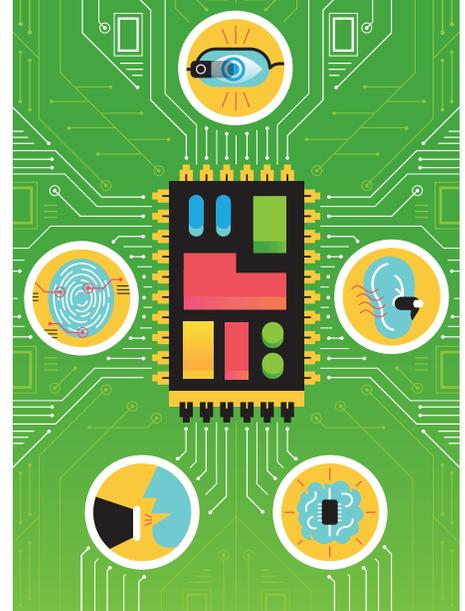




Amplified intelligence

Tech Trends 2015: The fusion of business and IT A public sector perspective



Some of the most promising and valuable uses for analytics will come not from the field of artificial intelligence alone, but from “amplified intelligence.” That’s where the effort and intelligence of public sector employees can be augmented with machine-generated data-driven insights that can help improve people’s decision-making and efficiency.

Public sector perspective



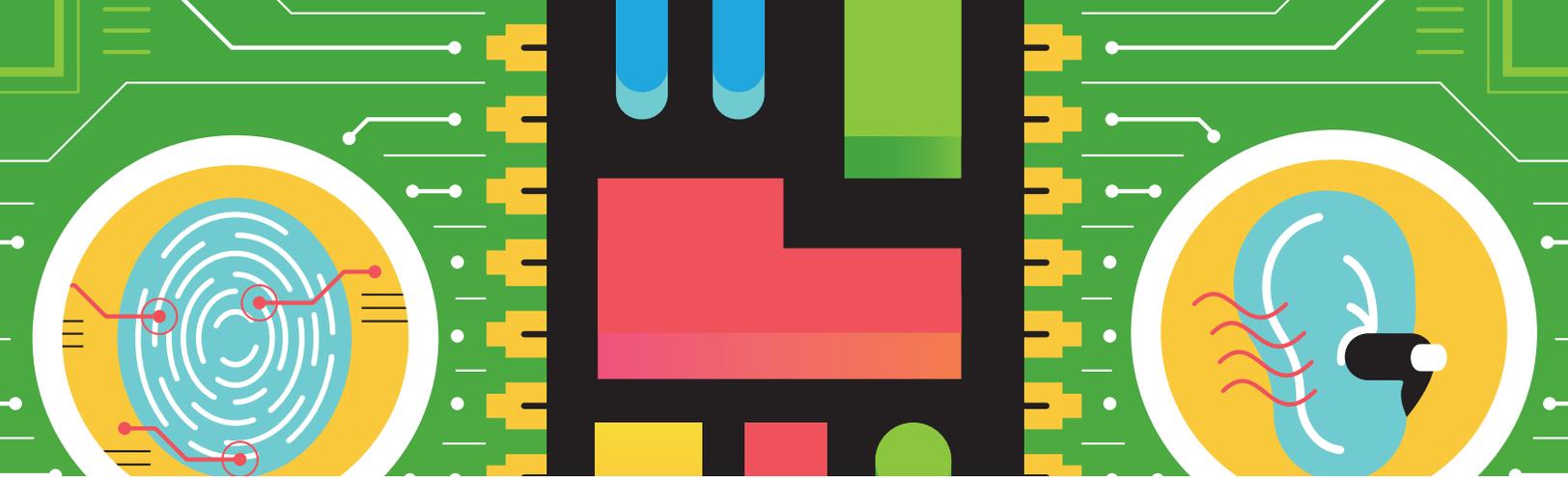
The graphic above represents the trend’s potential relevance, timing (short, medium, or longer runway), and overall readiness (low, moderate, or high) of the public sector to adopt this trend. These broad ratings are based on the professional opinions of some of the authors and may not reflect your organizations unique situation.

The public sector has historically led the way on adopting artificial intelligence (AI) in critical areas such as defense and national intelligence. For example, the military’s F-35 fighter jet has specialized equipment designed to provide valuable intelligence to human pilots while reducing their workload.¹ Troops on the ground are increasingly supported and informed by a wealth of live data based on their combat surroundings.² Also, not surprisingly, the intelligence community is an early adopter to process large volumes of calls and digital data in an effort to identify potential terrorists, while the rocket scientists at NASA are looking for ways to use technologies such as machine learning, natural language processing, and human-computer interaction to help astronauts detect potentially life-threatening errors when performing routine tasks in space.³ However, despite these examples of AI adoption, public sector organizations tend to lag behind their commercial counterparts, many of which have started using artificial intelligence and natural language processing to improve their operational and analytical capabilities in a wide variety of ways – both large and small.

It is one thing to augment warfighters and astronauts with eye-catching AI technologies, but how can similar technologies be used to create value in the everyday operations of government?

Amplified intelligence will be enabled by analytics, which itself is enabled by data and human intelligence. Today, machines still struggle to make sophisticated connections and find higher-order patterns within data; yet those are precisely the kinds of sophisticated and creative analyses where human experts excel.

Consider this notional public health scenario: If a certain state were to find that infections are rising dramatically, but the data does not reveal much more than the velocity and scale of the trend –this would not be enough for them to pinpoint what is actually causing infections to rise. Unfortunately, that’s where today’s common machine-generated insights stop. In this scenario, the breakthrough would occur when a person thinks to compare infection data with NOAA’s weather-related data, such as recent sandstorms in the region. In cases like this, the underlying analytical algorithms are simple, and the machine can then perform the heavy lifting calculations; it’s the human decision to correlate weather data with infection data that is the real breakthrough. Combining machine intelligence with human brainpower provides opportunities to create and test various hypotheses such as “could weather irregularities be the cause of a rise in infections?”



The public sector faces a number of significant challenges to adopting this trend – starting with data. Siloed data and data ownership can make it difficult for public sector organizations to harness amplified intelligence. For example, creating a single, comprehensive data source to use as the basis for analysis might

be almost impossible. However, such challenges should not necessarily be viewed as deal-breakers. In the case of data, there are proven and effective workarounds that make it possible to connect and link data across legacy systems without moving it to a centralized repository.

Moving forward

- **Identify clear questions.** Start with a hypothesis, and don't just look at data with the vague notion that "we have so much data, there must be something we can do with it." Begin with a specific problem or, better yet, a specific question. Amplified intelligence can help accelerate you toward an answer.
- **Formulate your path.** In the public sector, it might take a few steps before agencies fully embrace amplified intelligence. Implement visualization, and then move on to cross-system insights; from there, amplified intelligence can play a bigger role.
- **Tackle tedium.** Speak to analysts, and find out where they spend their time. Identify areas that are repetitive or tedious, and then determine where a machine could help augment or accelerate tasks – freeing up humans to focus on higher-value analysis and insights.
- **Widen your circle.** Look at your data and data governance models, and see where you can leverage data sharing or crowdsourcing to tap into other internal or external skills that might uncover new insights in your data.

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Endnotes

¹ Patrick Tucker, "The Military's New Year's Resolution for Artificial Intelligence", *Defense One*, December 31, 2014, <http://www.defenseone.com/technology/2014/12/militarys-new-years-resolution-artificial-intelligence/102102/>, accessed April 13, 2015.

² John Edwards, "Military, intel turn to big data for better situational awareness", *Federal Times*, June 2, 2014, <http://archive.federaltimes.com/article/20140602/FEDIT/306020009/Military-intel-turn-big-data-better-situational-awareness>, accessed April 14, 2015.

³ Steven Johnson, "Automated Task Monitoring, Feedback and Training for Critical Missions", *NASA.gov*, December 8, 2014, <http://www.nasa.gov/content/automated-task-monitoring-feedback-and-training-for-critical-missions/#.VPiITnF-Ck>, accessed April 13, 2015.

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