Fast Data

SUMMARY: The drive to leverage big data will lead to more data gathering and more effective use of existing data. An increasingly important form of data analytics is "fast data," which emphasizes real-time decision making based on the idea that the greatest value from data comes from immediate application. Examples include fraud detection, recommendation engines, personalization, and real-time demand forecasting. In all of these cases, the value comes from quickly processing and acting on the data—and this value can diminish quickly as the data get stale.

Forecasts

- While the trend toward big data represented a change in the scale and structure of static data, fast data will impose new challenges because the analysis and recommended actions must occur nearly instantaneously.
- Artificial intelligence and expert systems may be required to monitor and respond to data at sufficient speed. The role of human analysts may shift toward training fast data systems to do analysis in real time.
- The trustworthiness of fast data analytics will be a growing concern. The speed and continuous nature of fast data mean that the underlying assumptions of the data model can change faster than conventional analytics. Analysts will need to routinely test their fast data models to verify that they are accurately reflecting current reality.
- Growth of the internet of things (IoT) will accelerate the growth of real-time data collection, creating new challenges for analytics systems. It will also boost the accumulation of dark data: data that is collected and stored, but not actively used for business purposes.

Key Uncertainties

Who has access to what information

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Whether analytics insights can be verified or are "black box" systems

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Whether data are public and shared or private and proprietary

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Ability to extract the signal from the noise in real time

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Tradeoffs of being an innovator versus a fast follower

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Supporting Trends

- **From big data to fast data.** Increasingly, the value from big data is coming from the immediacy of the decision-making it supports.
- **Predictive analytics.** Predictive analytics uses techniques from statistics, data mining, and machine learning to identify patterns in datasets. This enables organizations to use their data to better anticipate changes occurring in their environments.
- **Self-service business intelligence.** Self-service business intelligence moves data modeling and analysis out of the IT department and into the hands of business users. This can remove analytical bottlenecks and free business users from dependence on their IT departments.
- **Rise of the data lake.** Companies are turning to the "data lake" model in which a firm's data are stored in a single information reservoir in its original format, and then transformed or reshaped into more standardized datasets or imported to formal data warehouses depending on business need.
- **The internet of things.** The internet of things (IoT) is the next wave of internet development, extending internet connectivity and interaction to billions of objects and devices.

Related Drivers of Change

- Fraying Cybersecurity
- Personalized Artificial Intelligence
- Who Owns the Data?
- Reputation by the Numbers

Notable Data Points

CHEAP AND UBIQUITOUS SENSORS

Global internet-of-things (IoT) sensor sales are forecast to **grow from $9.6 billion in 2018 to $34.4 billion in 2025.**

Source: Value Market Research, Global IoT Sensor Market Report

DATA FLOWS FROM THE INTERNET OF THINGS

Growth for the IoT is forecast to be rapid, with market analysts forecasting that the **IoT market will grow** from an installed base of nearly **27 billion devices in 2017 to 125 billion in 2030.**

Source: IHS Markit

FAST DATA AND FAST FOOD

In 2019, **McDonald's purchased Dynamic Yield for $300 million with the intention to deploy order personalization** and recommendation technologies at drive-through ordering stations and, eventually, at in-store ordering kiosks.

Sources: Anthony Ha, "McDonald's is acquiring Dynamic Yield to create a more customized drive-thru," TechCrunch

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Strategic Insights

- Real-time analytics could evolve into an association service for members. With the association monitoring areas of interest to members, subscribers could receive early warning of issues and events. By performing real-time sentiment analysis on social media, associations could enhance their ability to spot emerging issues and respond to developing crises.
- Associations could apply fast data to their own operations—calibrating content offerings by monitoring member sentiment or adjusting meeting content based on messaging from registered meeting participants.
- Associations need to upgrade their own analytics systems to implement fast data practices. This will require hardware and software upgrades, but the more important upgrade may be to the analytical capability of association leaders and staff.
- The rise of fast data could create new expectations across the business community for speed and responsiveness. Associations may have to meet growing expectations for speed and responsiveness from an increasingly impatient membership.
- Fraud detection is a major fast data application. Associations could play a role in facilitating cross-industry anti-fraud initiatives.

Timing

- **Stage:** Growth, though at an early stage
- **Speed:** Rapid and accelerating

Potential Alternative Futures

- **The data firehose:** Rapid growth of the internet of things (IoT) quickly escalates the supply of real-time, actionable data.
- **Cyber-chaos:** Aggressive hackers and insecure IoT devices create an increasingly unstable data ecosystem.
- **Disposable data:** Taking action on real-time data grows increasingly valuable, yet the value of most of this data expires in a short period of time (e.g., traffic, weather, public sentiment).
- **Big data backlash:** Complaints about "algorithmic discrimination" and privacy impede the full application of data analytics.

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Take Action

- **Find and use the fast data you already have.** These are current examples of use cases:
  - Meeting registration data week-by-week and compared to historical trends.
  - Member response to new products and services.
  - Web analytics that identify a spike in a particular request, need, or failed transactions.
  - A/B testing in marketing campaigns to find effective appeals.
  - Social media campaigns to promote awareness, raise money, or respond to an issue.
  - Personalized online learning tools to identify needs and direct members to resources.
  - Dynamic pricing to attract strategically important member segments.

- **Apply fast data to smarter planning and decision making.** The board's strategic plan and priorities help determine which data are important to collect to support strategy. In a sea of potential data, identify the data indicators that are good enough to test your strategies, then be prepared to alter course based on what you learn. Fast data can stop you from traveling too far down the wrong road, but it may not be appropriate for evaluating aspirational strategic goals.

- **Aggregate your industry's fast data for monitoring and feedback.** Associations need to know where and how their members are using fast data and explore potential services that aggregate this information to strengthen situational awareness and gain an authoritative voice for the industry. This may require building trust with members or partnering with others to gain access to their data.

- **Don't fall behind the fast data adoption curve.** Members expect associations to have a similar capacity to their own in using fast data. No association can afford to fall behind member expectations for speed and responsiveness.

Keyword Search

To continue researching this change driver, use these search terms:
fast data, business analytics, real-time data analysis, anticipatory intelligence, predictive analytics, business intelligence, machine learning, artificial intelligence, algorithmic learning, data mining, personal data, data trails

Who Will Be Affected

Data analytics is a game changer for how all organizations and businesses function. Fast data serve two important purposes: generating information to effectively run your business and identifying how to better serve your members, customers, and community.

About ASAE ForesightWorks

ASAE ForesightWorks is a deliberate, evidence-based research program and emerging line of products to provide association professionals with a continual stream of intelligence about the changes facing the association industry, including:

- regularly updated action briefs;
- tools for applying insights from the research in your association;
- guidance in performing environmental scans; and
- opportunities to engage with peers around the research.

Ultimately, the program's mission is to empower association leaders to create a culture of foresight.

Check **asaecenter.org/ForesightWorks** and follow **@ASAEfdn** on Twitter for updates on new findings and events.

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