

Examples of Data Use

1. Transportation

Big Data powers the GPS smartphone applications most of us depend on to get from place to place in the least amount of time. GPS data sources include satellite images and government agencies.

Big Data simplifies and streamlines transportation through:

- **Congestion management and traffic control**
Thanks to Big Data analytics, Google Maps can now tell you the least traffic-prone route to any destination.
- **Route planning**
Different itineraries can be compared in terms of user needs, fuel consumption, and other factors to plan for maximize efficiency.
- **Traffic safety**
Real-time processing and predictive analytics are used to pinpoint accident-prone areas.

2. Advertising and Marketing

Ads have always been targeted towards specific consumer segments. In the past, marketers have employed TV and radio preferences, survey responses, and focus groups to try to ascertain people's likely responses to campaigns.

3. Banking and Financial Services

The financial industry puts Big Data and analytics to highly productive use, for:

- **Fraud detection**
Banks monitor credit cardholders' purchasing patterns and other activity to flag atypical movements and anomalies that may signal fraudulent transactions.
- **Risk management**
Big Data analytics enable banks to monitor and report on operational processes, KPIs, and employee activities.
- **Customer relationship optimization**
Financial institutions analyze data from website usage and transactions to better understand how to convert prospects to customers and incentivize greater use of various financial products.
- **Personalized marketing**
Banks use Big Data to construct rich profiles of individual customer lifestyles, preferences, and goals, which are then utilized for micro-targeted marketing initiatives.

4. Government

Government agencies collect voluminous quantities of data, but many, especially at the local level, don't employ modern data mining and analytics techniques to extract real value from it.

5. Media and Entertainment

The entertainment industry harnesses Big Data to glean insights from customer reviews, predict audience interests and preferences, optimize programming schedules, and target marketing campaigns.

6. Education

Administrators, faculty, and stakeholders are embracing Big Data to help improve their curricula, attract the best talent, and optimize the student experience. Examples include:

- **Customizing curricula**
Big Data enables academic programs to be tailored to the needs of individual students, often drawing on a combination of online learning, traditional on-site classes, and independent study.
- **Reducing dropout rates**
Predictive analytics give educational institutions insights on student results, responses to proposed programs of study, and input on how students fare in the job market after graduation.
- **Improving student outcomes**
Analyzing students' personal "data trails" can provide a better understanding of their learning styles and behaviors, and be used to create an optimal learning environment.
- **Targeted international recruiting**
Big Data analysis helps institutions more accurately predict applicants' likely success. Conversely, it aids international students in pinpointing the schools best matched to their academic goals and most likely to admit them.

7. Healthcare

Big Data is slowly but surely making a major impact on the huge healthcare industry. Wearable devices and sensors collect patient data which is then fed in real-time to individuals' electronic health records. Providers and practice organizations are now using Big Data for a number of purposes, including these:

- Prediction of epidemic outbreaks
- Early symptom detection to avoid preventable diseases
- Electronic health records
- Real-time alerting
- Enhancing patient engagement
- Prediction and prevention of serious medical conditions
- Strategic planning
- Research acceleration
- Telemedicine
- Enhanced analysis of medical images