



# Cognitive Computing: Applications and Global Markets

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- The global market for cognitive computing will grow from \$6.0 billion in 2017 to \$24.1 billion by 2022, with a compound annual growth rate (CAGR) of 32.1% for the period of 2017-2022.
- North American market will grow from \$2.4 billion in 2017 to \$9.9 billion by 2022, with a CAGR of 32.8%.
- European market will grow from \$1.5 billion in 2017 to 6.3 billion by 2022, with a CAGR of 33.2%.



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# Chapter 1: Introduction

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Cognitive Computing—the ability to program computers to replicate aspects of human thinking—is gaining increased traction, led by IBM Watson and others. The market is expected to grow to \$REDACTED billion by 2022 driven by applications across industry sectors.

This report will examine the market for Cognitive Computing to reveal the opportunities available for IT providers as well as determine how the technologies are being used by large IT organizations, helping them to better support company decision making and business efficiency.

## *Study Goals and Objectives*

The trends and the market size and forecast will be covered in this report on Cognitive Computing technologies. The report will identify market opportunities for suppliers of hardware, software products and services as well as firms seeking the best technologies to deploy cognitive solutions.

## *Reasons for Doing This Study*

BCC Research believes that the market for Cognitive Computing technologies represents a long-term trend that will transform the way computing technologies are used while also improving the effectiveness of IT organizations. Cognitive Computing will also enable new applications and services.

## *Scope of Report*

The scope of this report covers the overall Cognitive Computing technologies market with market sizing and trends analysis for the most recently completed actuals for 2016 as well as forecasts, trends and compound annual growth rates (CAGRs) for 2017 through 2022.

The market is segmented by end user, technology and region. End user segments include education, government and enterprise. Applications include the military, healthcare and manufacturing sectors.

## *Information Sources*

The primary information sources include manufacturers and suppliers of Cognitive Computing technology, research organizations, governmental agencies and trade associations. Secondary research of sources, such as databases, trade literature, specialized journals and government statistics, were also researched while compiling this report.

## *Methodology*

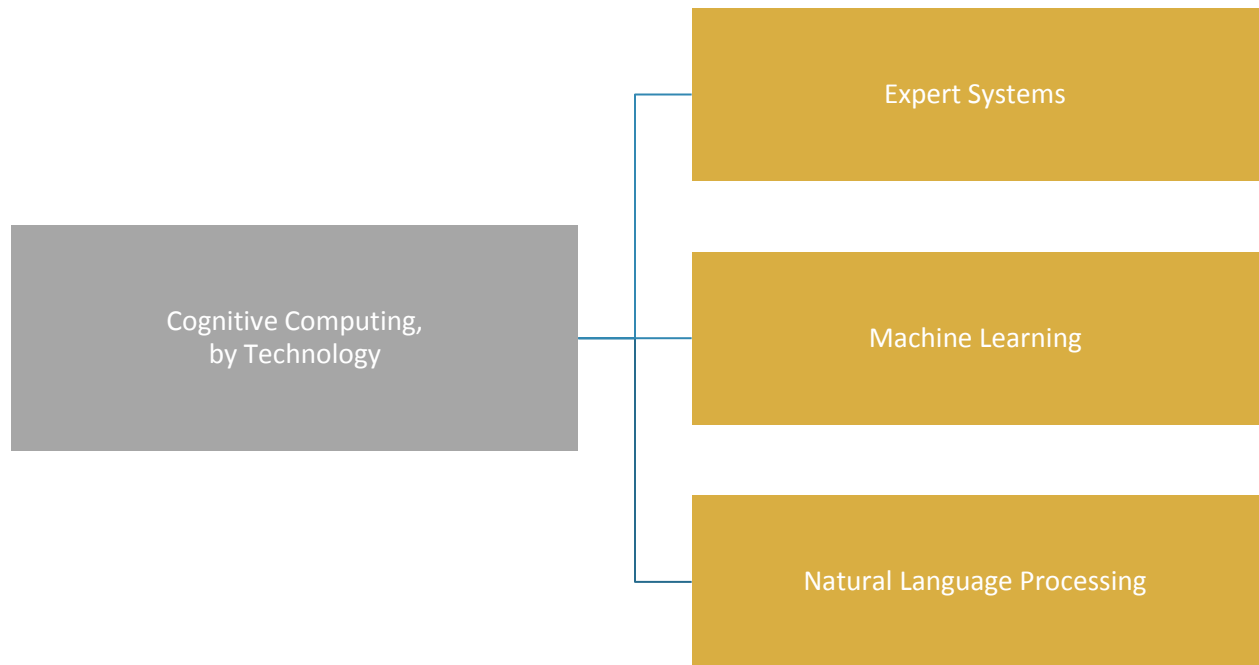
Top-down and bottom-up methodologies were used. The top-down approach was used to size and forecast the overall Cognitive Computing market through secondary research and initial interviews with industry participants. The bottom-up approach encompassed collecting and aggregating market spending by key user segments and the revenue and future growth expectations of the major suppliers. These methods will be combined to triangulate and validate the market size and forecast data.

## *Geographic Breakdown*

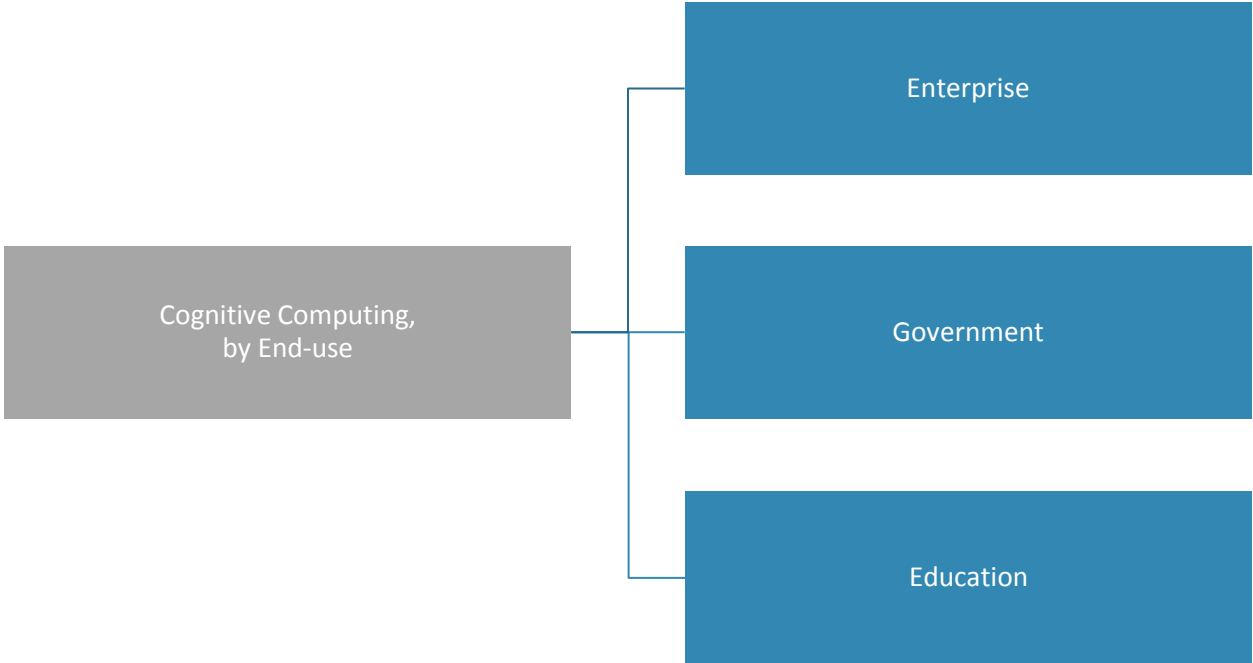
In this report, the geographic regions considered for market analysis include, and only include:

- North America.
- Latin America.
- Europe.
- Middle East and Africa.
- Asia-Pacific
- Rest of World.

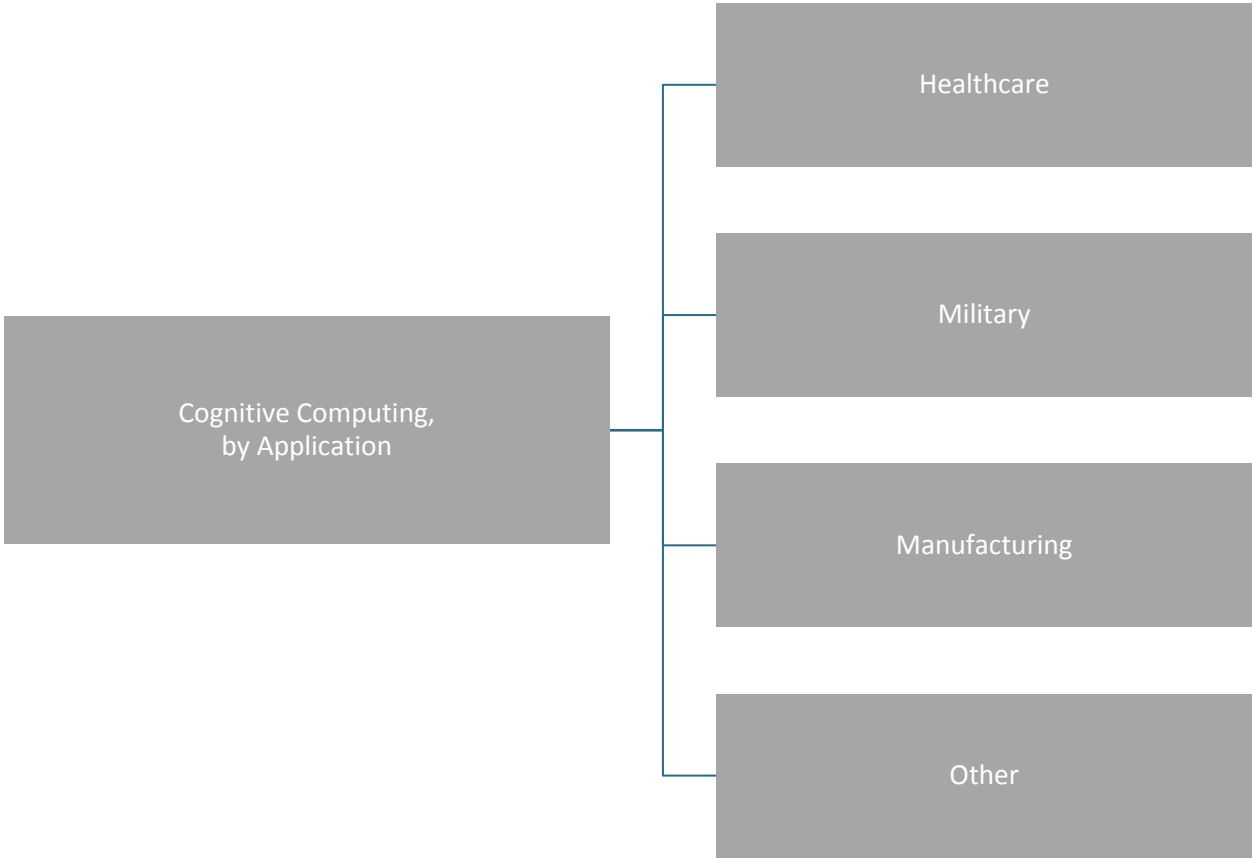
# Cognitive Computing by Technology



Cognitive Computing by End Use



Cognitive Computing by Application



## *Analyst's Credentials*

Michael Sullivan is currently Senior Editor for Information Technology at BCC Research. He is also an IT industry analyst with more than 20 years of experience investigating, studying and reporting on information technology development and applications. Previous reports include coverage of connected medical devices, medical device security, mobile technologies, voice recognition systems, content delivery networks, sensors for the Internet of Things and robotics, printed electronics and zero net energy buildings. Recent reports include software defined storage and cloud computing in healthcare.

## *Related BCC Research Reports*

- *IAS094B Smart Machines: Technologies and Global Markets*
- *IFT039D Global Markets and Technologies for Voice Recognition*
- *IFT126A Smart Manufacturing: Technologies and Global Markets*
- *IFT159A Machine Learning: Global Markets to 2022*

# Chapter 2: Summary and Highlights

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Cognitive computing like many IT terms is defined both by its technical capability and applications and by marketing statements. From a technical standpoint, cognitive computing is a system that uses machine learning algorithms to continually increase its “knowledge” from the data it receives. The learning aspect is characterized by the system continuously refining patterns in the data as well as the way data is processed. This learning allows cognitive computing systems to anticipate new problems and model possible solutions in an adaptive and iterative manner. The system also works within a context and can identify and extract contextual elements such as meaning, syntax, time, location, regulation, user profiles, tasks and goals.

Applications of cognitive computing are derived from data mining, pattern recognition and natural language processing. These applications automate manual processes or augment more basic computing processes. The marketing definition of cognitive computing is to solve problems as well as or better than humans without human assistance. However, cognitive computing may best be applied as an enabler in a process that involves both machines and humans rather than one replacing the other.

As with the field of artificial intelligence in general, cognitive computing is now coming into practical application because of a convergence of underlying technologies. These include high performance processors and advanced algorithms, which combine to enable computing systems to leverage machine learning, natural language processing and expert systems to provide new value in dealing with consumer and business applications.

While cognitive computing represents the continued evolution of artificial intelligence to practical commercial applications, it is currently benefiting from accelerated adoption in the market caused by its ability to make sense of unstructured data. According to some estimates, the amount of data being generated globally is growing at a rate of REDACTED% per year. Most of this growth is from unstructured data types (e.g., data that does not fit neatly into a database, including documents, videos, photos, audio files, presentations, web pages, etc.). Conventional database management systems are not designed to organize and interpret this data, limiting the applicability of IT organization to make use of it. Enter cognitive computing, which can apply new processes to discern patterns that can be used to manage, interpret and act on unstructured data.

The demand for this kind of deep data analysis and autonomous response is driving the cognitive computing market to grow to \$REDACTED billion by 2022 at a compound annual growth rate (CAGR) of REDACTED% for 2017-2022. The market was \$REDACTED billion in 2016 and grew to \$REDACTED billion in 2017. With a foundation in expert systems the market can be segmented into expert systems, machine learning and natural language processing.

North America is the leading market with a REDACTED% share, followed by Europe at REDACTED% and Asia-Pacific at REDACTED%. While enterprise is a wide adopter of cognitive computing, governments with the highest growth rates and applications are pioneering cognitive computing in education and healthcare. Within enterprise applications and financial services, operations and marketing are gaining traction.



Summary Table:  
Global Market for Cognitive Computing, by Region, Through 2022  
(\$ Billions)

Region	2016	2017	2022	CAGR% 2017-2022
North America	2.0			
Latin America	0.3			
Europe	1.2			
Middle East and Africa	0.4			
Asia-Pacific	0.8			
Rest of World	0.2			
Total	4.9			

Source: BCC Research

Summary Figure:  
Global Market for Cognitive Computing, by Region, 2016-2022  
(\$ Billions)



Source: BCC Research

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