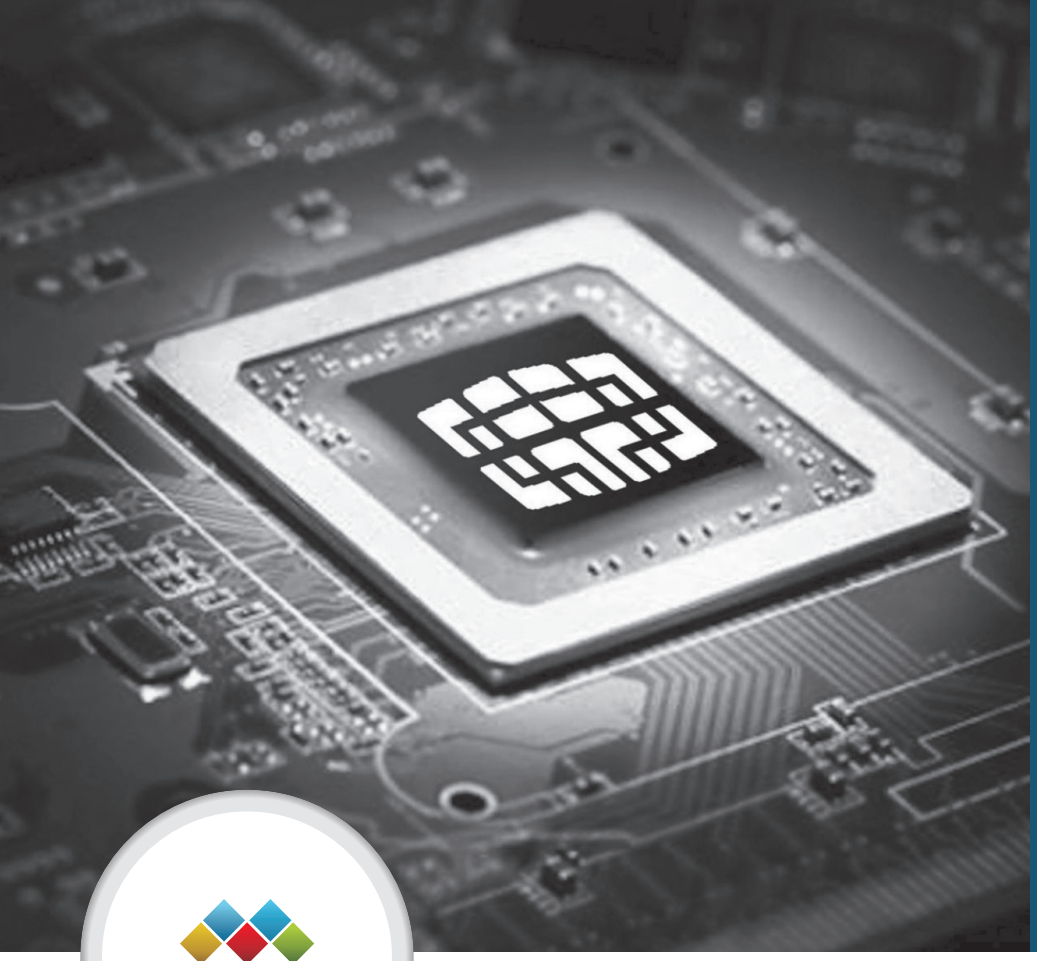


SEMICONDUCTOR & ELECTRONICS

ARTIFICIAL INTELLIGENCE MARKET

GLOBAL FORECAST TO 2020

MARKETSANDMARKETS

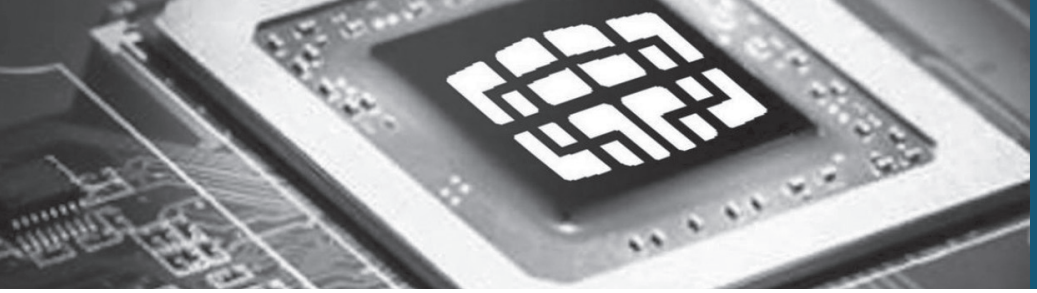
ARTIFICIAL INTELLIGENCE MARKET - GLOBAL FORECAST TO 2020

By Technology (Machine Learning, Natural Language Processing, Image Processing, and Speech Recognition), Application (Advertising & Media, Finance, RETAIL, and Others), & Geography

REPORT OVERVIEW

1.1 OBJECTIVES OF THE STUDY

- To define and measure the artificial intelligence market with respect to technology, hardware & services, applications, and geography
- To analyze the market structure by identifying various sub segments of the artificial intelligence market
- To project the size of the artificial intelligence market in terms of value and its submarkets with respect to four main regions: North America, Europe, Asia-Pacific (APAC), and Rest of the World (RoW)
- To identify the major market trends and factors driving or inhibiting the growth of the artificial intelligence market and its submarkets
- To analyze the market with the help of the Porter's five forces framework along with the value chain analysis of the artificial intelligence market
- To strategically analyze each submarket with respect to the individual growth trends and contribution to the overall artificial intelligence market
- To analyze the opportunities in the market for stakeholders by identifying high-growth segments of the artificial intelligence market
- To strategically profile key players in the artificial intelligence market and comprehensively analyze their market rank and core competencies1 in each segment
- To track and analyze strategic developments such as new product developments, alliances, joint ventures, and mergers and acquisitions in the global artificial intelligence market



1.2 MARKET DEFINITION

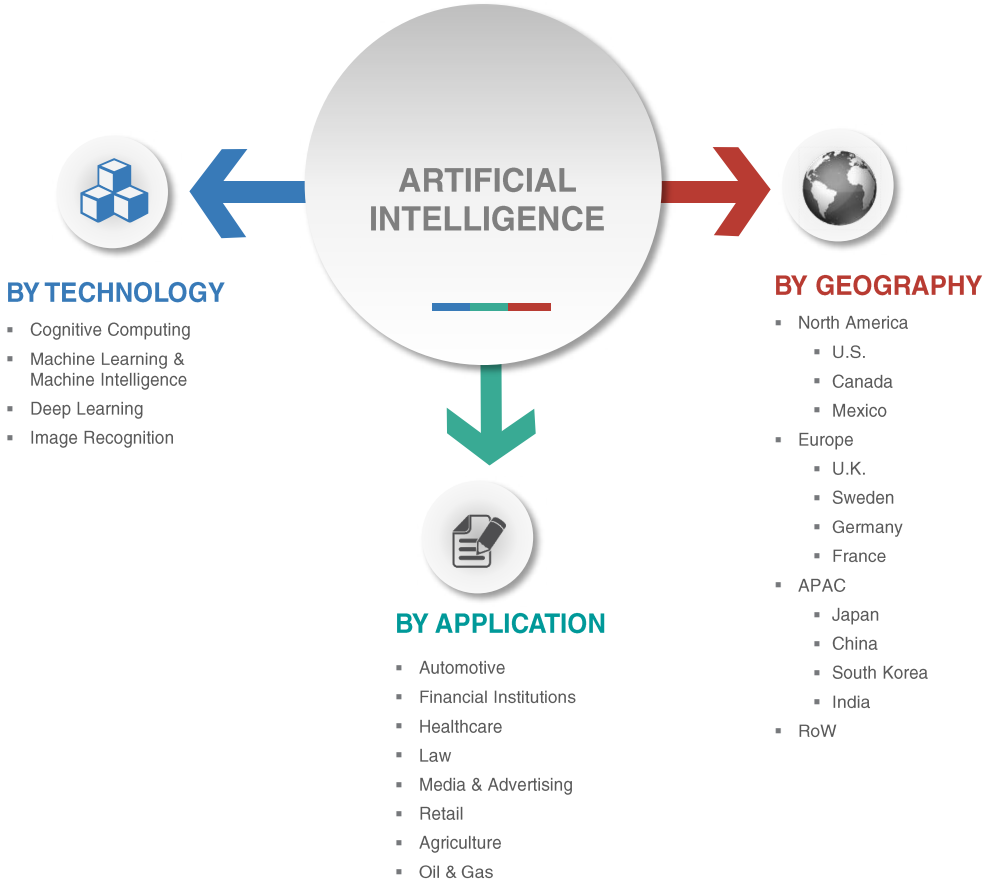
Artificial Intelligence (AI) is the theory and development of computer systems capable of performing tasks that require human intelligence. AI includes the study and synthesis of intelligent agents. The system perceives its environment and takes action to maximize its chance of success. The artificial intelligence technology is extensively used across media & advertising, finance, retail, healthcare, oil & gas, law, and automotive & transportation among few others.

This report covers several AI technologies as machine learning, cognitive computing, deep learning, and image recognition among others.

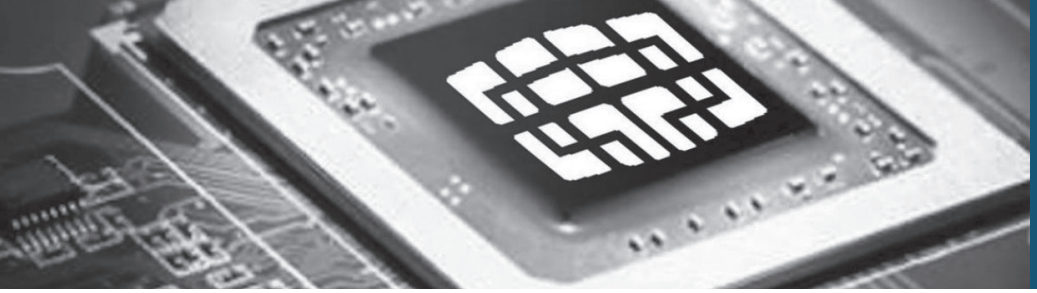
1.3 MARKET SCOPE

The report classifies the artificial intelligence market based on technology type, hardware & service, application, and geography. It entails the analyses and forecasts related to the artificial intelligence market.

1.3.1 MARKETS COVERED

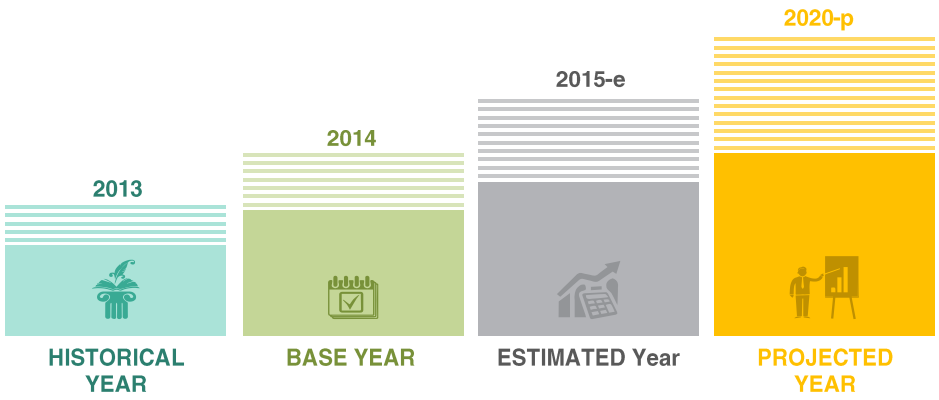


Source: Experts' Interviews, Company Websites, Secondary Literature, and MarketsandMarkets Analysis



1.3.2 YEARS CONSIDERED FOR THE STUDY

- Historical Year: 2013
- Base Year: 2014
- Forecast Years: 2015–2020
- The base year used in the company profile is 2014. Where the information was not available for the base year, the prior year has been considered.



Source: MarketsandMarkets Analysis

1.4 CURRENCY

The currency used in the report is U.S. dollars, with market size indicated only in million USD.

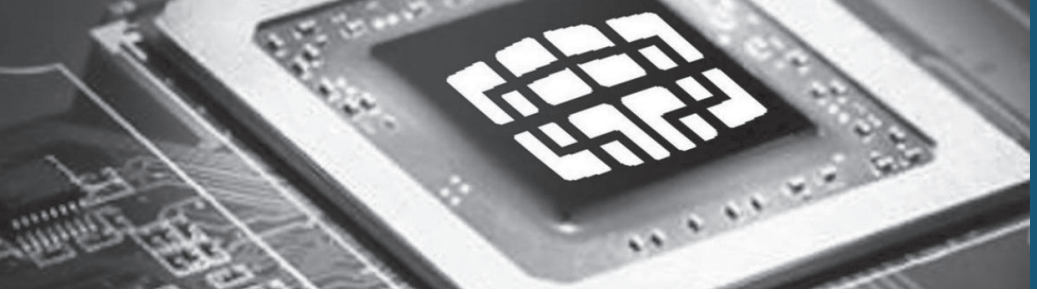
- For companies that reported their revenue in the U.S. dollars, respective annual reports were referred to for the required financial data.
- For companies that reported their revenue in other currencies, the average annual currency rate has been used for that particular year to convert the value into U.S. dollars.

1.5 LIMITATIONS

- The organizations involved in the design of artificial intelligence (AI) systems have only been considered in the report
- AI applications in the field of robotics, government projects, infrastructure are not considered

1.6 STAKEHOLDERS

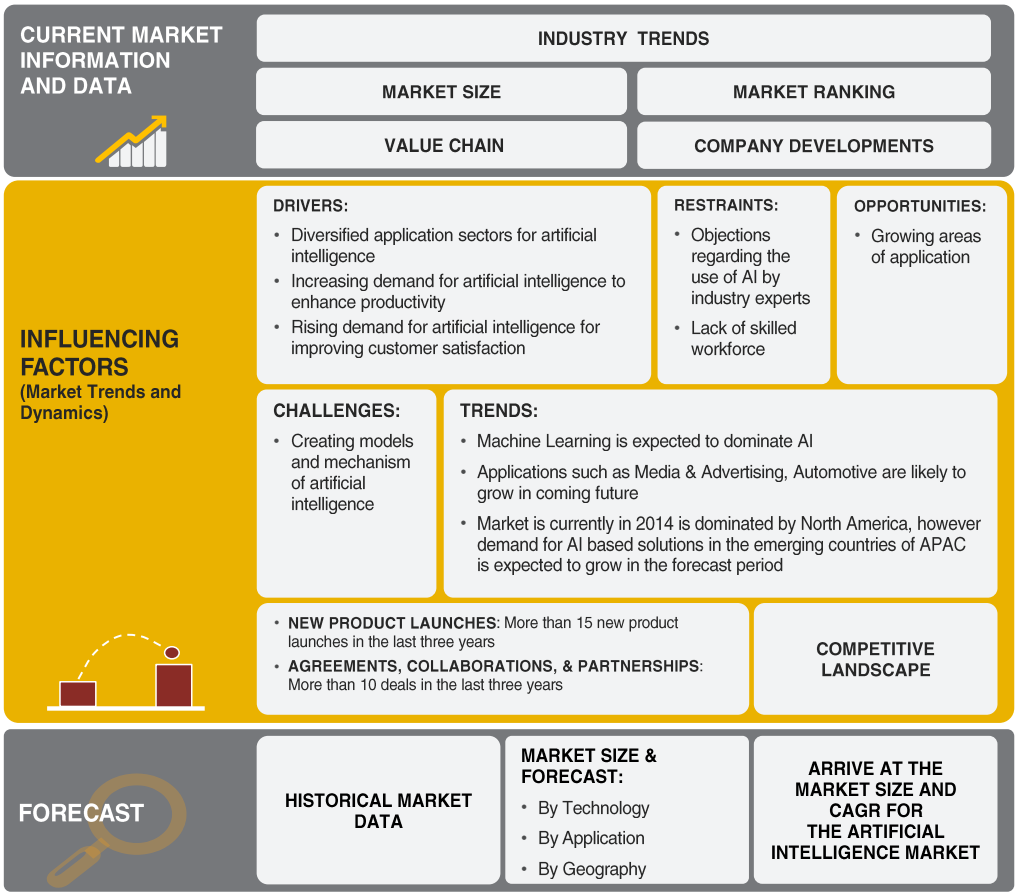
- End users of artificial intelligence
- Artificial intelligence solutions providers
- Technology providers
- Research organizations and consulting companies
- Associations, organizations, forums, and alliances related to artificial intelligence
- Venture capitalists, private equity firms, and startup companies



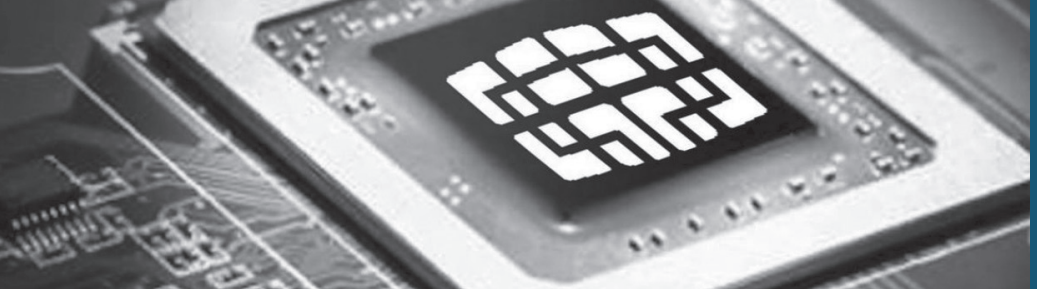
2.1 RESEARCH DATA

This research study incorporates the usage of extensive secondary sources, directories, and databases such as Factiva, BusinessWeek, OneSource, and Hoovers to identify and collect information useful for the extensive technical and commercial study of the artificial intelligence (AI) market. The primary sources such as experts from core and related industries, preferred suppliers, and service providers have been interviewed to obtain and verify the critical qualitative and quantitative information as well as assess future prospects. Key players in the artificial intelligence market have been identified through the secondary research and their revenue has been determined through primary and secondary research. The research also includes the study of annual reports of top players and interviews with key opinion leaders such as CEOs, directors, and marketing personnel among others. The following illustrative figure shows the research methodology applied in making this report on the global artificial intelligence market.

FIGURE 1 GLOBAL ARTIFICIAL INTELLIGENCE MARKET: RESEARCH DESIGN



In the secondary research process, various secondary sources have been referred to for identifying and collecting information important for this study. The secondary sources include annual reports, press releases and investor presentations of companies, white papers, certified publications, articles from recognized authors, directories, and databases.



The secondary research has mainly been carried out to obtain key information about the industry's supply chain, the market's value chain, the total pool of key players, and market segmentation according to the industry trends, geographic markets, and key developments from both market- and technology-oriented perspectives.

In the primary research process, various primary sources from both supply and demand sides have been interviewed to obtain the qualitative and quantitative information important for this report. The primary sources from the supply side include industry experts such as CEOs, vice presidents, marketing directors, technology and innovation directors, and related key executives from major companies and organizations operating in the artificial intelligence market.

After the complete market engineering (which includes calculations for market statistics, market breakdown, Data triangulation, market size estimation and market forecasting), an extensive primary research has been conducted to gather information and verify and validate the critical numbers arrived at.

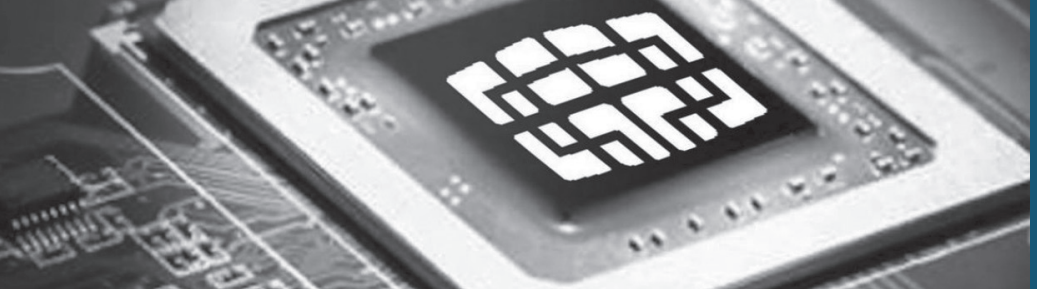
A primary research has also been conducted to identify the segmentation types, industry trends, and key players, as well as to analyze the competitive landscape; key market dynamics such as drivers, restraints, opportunities, industry trends, and key player strategies; Porter's five forces. In the complete market engineering process, both top-down and bottom-up approaches have been extensively used along with several data triangulation methods to estimate and forecast the size of all the market segments and subsegments listed in this report. An extensive qualitative and quantitative analysis has been performed on the complete market engineering process to obtain the key information/insights given in the report.

2.1.1 SECONDARY DATA

Secondary sources referred to for this study include government sources; corporate filings (such as annual reports, investor presentations, and financial statements); and trade, business, and professional associations among others. The secondary data has been collected and analyzed to arrive at the overall market size, which has further been validated through primary research.

2.1.1.1 KEY DATA FROM SECONDARY SOURCES

PARAMETER	SOURCE
MARKET SIZE (Value)	• Company Financials • Magazines • Journals • Press Releases • Paid Databases • The MarketsandMarkets Data Repository
COMPANY REVENUE	• Annual Reports • Company Website • Public Databases • The MarketsandMarkets Data Repository
QUALITATIVE INFORMATION (Market Dynamics, Market Trends)	• Company Website • Annual Reports • Press Releases • The MarketsandMarkets Data Repository



2.1.2 PRIMARY DATA

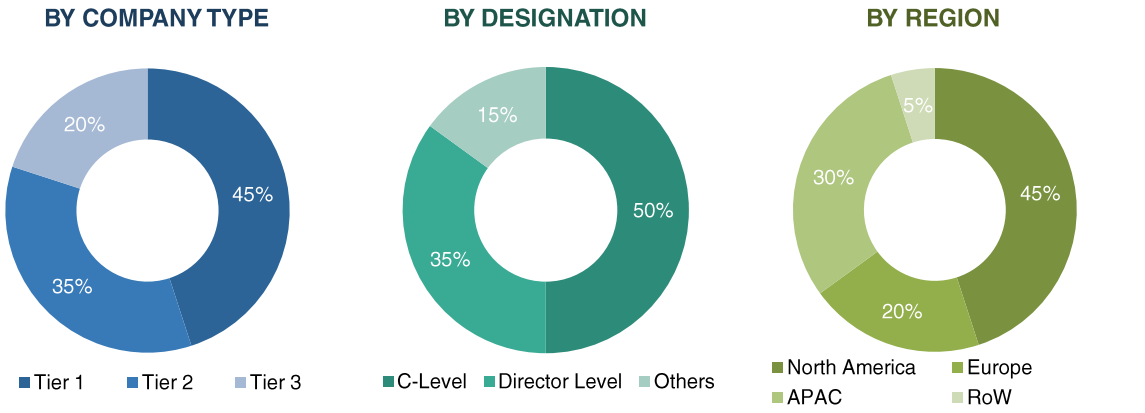
An extensive primary research has been conducted after acquiring knowledge about the global artificial intelligence market scenario through the secondary research. Several primary interviews with market experts from both demand side (artificial intelligence system manufacturers) and supply side (artificial intelligence system providers and distributors) have been conducted across four major regions: North America, Europe, APAC, and RoW (Latin America, the Middle East, and Africa). This primary data has been collected through questionnaires, mails, and telephonic interviews.

2.1.2.1 KEY DATA FROM PRIMARY SOURCES

TYPE	PARAMETERS	KEY DATA POINTS
GEOGRAPHIC SPLIT	▪ Overall market and sub-segments in 2014 ▪ CAGR of each region during the forecast period (2015 – 2020)	• The global artificial intelligence market, by geography – North America, Europe, APAC, and RoW
GLOBAL MARKET SIZE	▪ The global market size in 2014 ▪ CAGR for the forecast period (2015–2020)	• The global artificial intelligence market • The artificial intelligence market, by sub-segment
MARKET SPLIT	▪ Technology ▪ Application ▪ Geography	• Artificial intelligence market, by Technology • Artificial intelligence market, by Application • Artificial intelligence market, by Geography

2.1.2.2 KEY INDUSTRY INSIGHTS

2.1.2.3 BREAKDOWN OF PRIMARIES



*Note: *Others include sales managers, marketing managers, and product managers.*
Tier1: >USD 1 Billion; Tier 2: USD 0.5 Billion – USD 1.0 Billion; Tier 3: <USD 0.5 Billion

2.2 MARKET SIZE ESTIMATION

Both top-down and bottom-up approaches have been used to estimate and validate the size of the global market and various other dependent submarkets in the overall artificial intelligence market. The key players in the market have been identified through secondary research and their market shares in the respective regions have been determined through primary and secondary research. This entire procedure includes the study of annual and financial reports of the top market players as well as interviews with industry experts such as CEOs, vice presidents, directors, and marketing executives for key insights, both quantitative and qualitative. All percentage shares and breakdowns have been determined using secondary sources and verified through primary sources. All the possible parameters that affect the markets covered in this research study have been accounted for, viewed in detail, verified through primary research, and analyzed to obtain the final quantitative and qualitative data. This data has been consolidated and supplemented with detailed inputs and analysis from MarketsandMarkets and presented in this report.

The following figure shows an illustrative representation of the overall market size estimation process employed for the purpose of this study.

FIGURE 2 ARTIFICIAL INTELLIGENCE MARKET SIZE ESTIMATION METHODOLOGY: BOTTOM-UP APPROACH

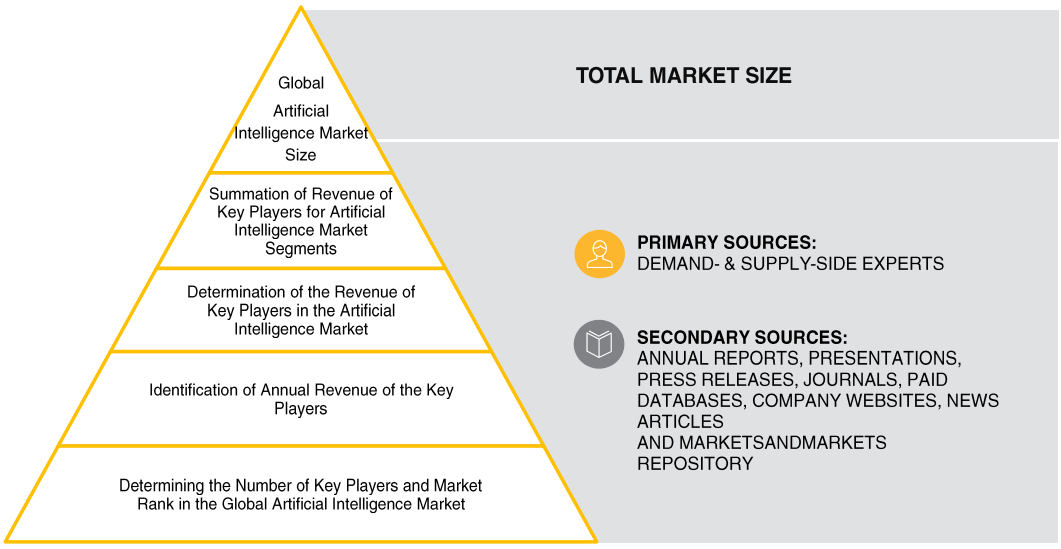
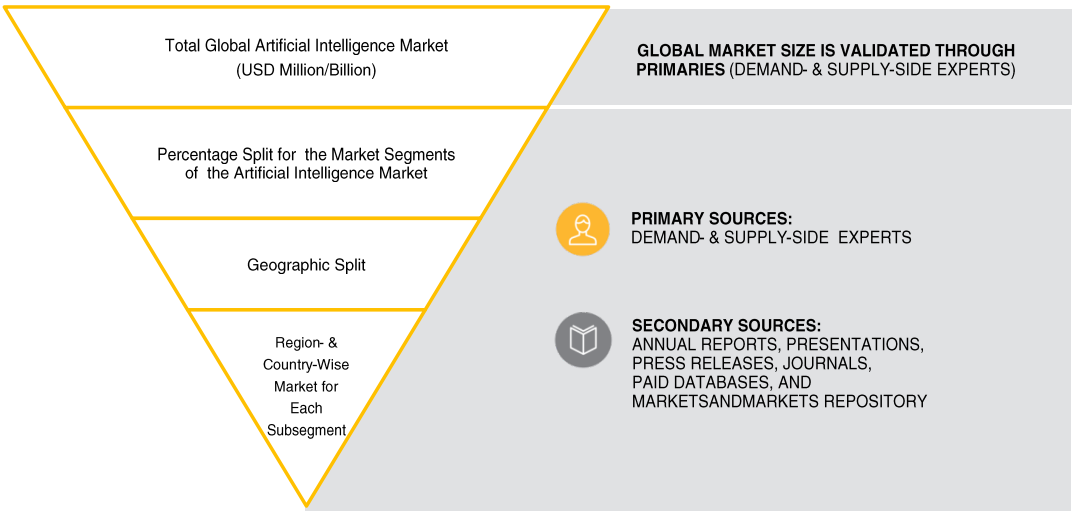


FIGURE 3 ARTIFICIAL INTELLIGENCE MARKET SIZE ESTIMATION METHODOLOGY: TOP-DOWN APPROACH



The bottom-up approach has been deployed to arrive at the overall size of the global artificial intelligence market from the revenue of the key players and their shares in the market. The overall market size has been calculated based on the revenues of key players identified in the market.

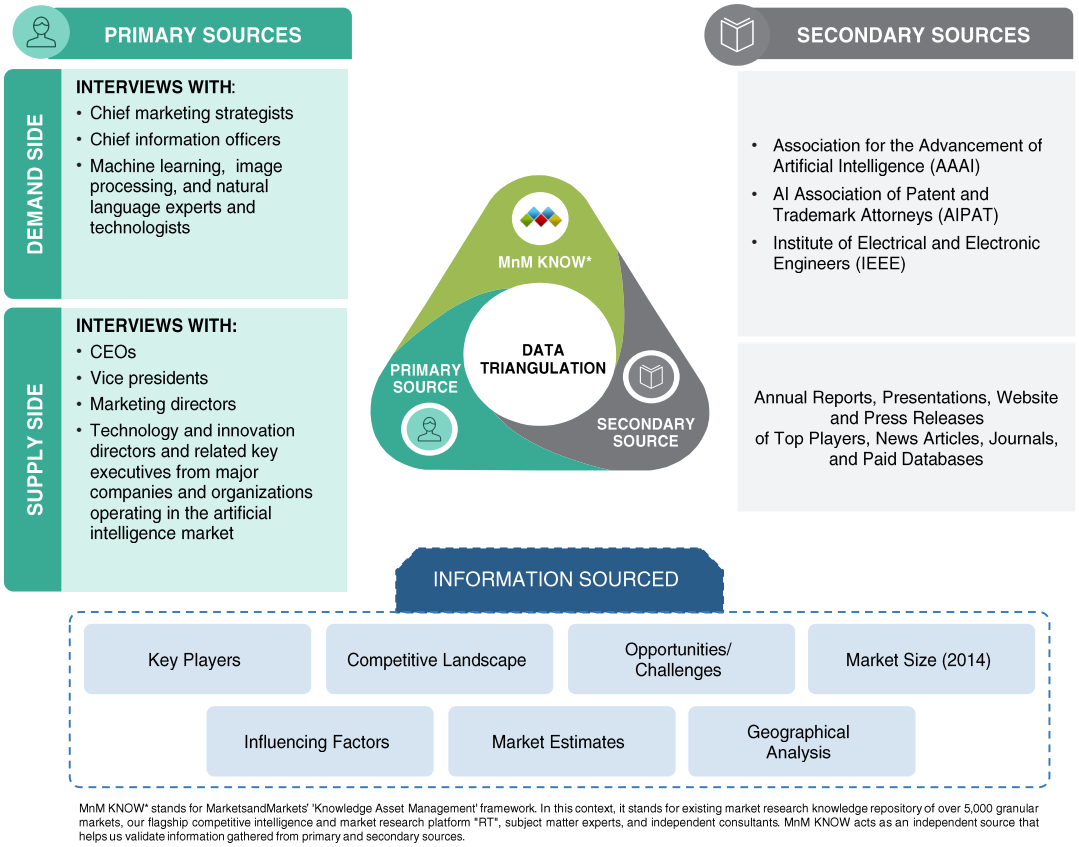
In the top-down approach, the overall market size has been used to estimate the size of the individual markets (mentioned in the market segmentation) through percentage splits from secondary and primary research. For the calculation of the specific market segments, the most appropriate immediate parent market size has been used to implement the top-down approach. The bottom-up approach has also been implemented for the data

obtained from the secondary research to validate the market size obtained. The market share of each company has been estimated to verify the revenue share used earlier in the bottom-up approach. With the data triangulation procedure and validation of data through primaries, the overall parent market size and each individual market size have been determined and confirmed in this study. The data triangulation procedure used for this study is explained in the next section.

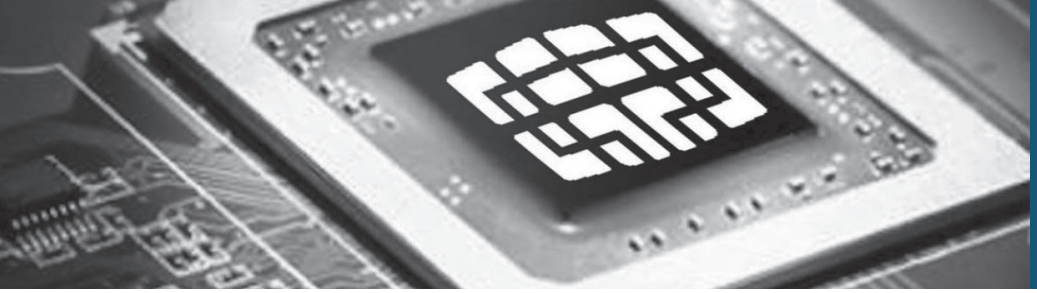
2.3 MARKET BREAKDOWN AND DATA TRIANGULATION

After arriving at the overall market size from the market size estimation process explained above, the total market has been split into several segments and subsegments. To complete the overall market engineering process and arrive at the exact statistics for all segments and subsegments, market breakdown and data triangulation procedures have been employed wherever applicable. The data has been triangulated by studying various factors and trends from both the demand and supply sides. Along with this, the market has been validated using both top-down and bottom-up approaches.

FIGURE 4 DATA TRIANGULATION



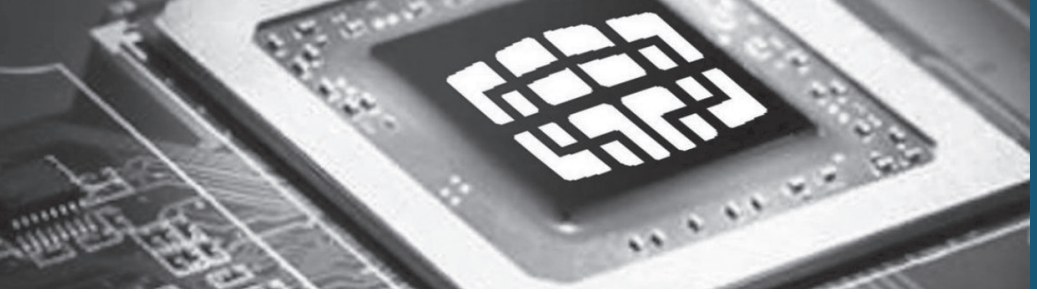
MnM KNOW* stands for MarketsandMarkets' 'Knowledge Asset Management' framework. In this context, it stands for existing market research knowledge repository of over 5,000 granular markets, our flagship competitive intelligence and market research platform "RT", subject matter experts, and independent consultants. MnM KNOW acts as an independent source that helps us validate information gathered from primary and secondary sources.



2.4 ASSUMPTIONS

PARAMETERS	ASSUMPTIONS
Exchange Rates and Currency Conversion	For the conversion of various currencies to the USD, the average historical exchange rates have been used according to the year specified. For all the historical and current exchanged rates required for calculations and currency conversions, the OANDA website has been considered.
Global Economic Downturns	The global economy has a direct impact on any market. Regarding the global economy landscape, no macroeconomic collapses have been considered while forecasting the market size in this research study.
Qualitative Analysis	All the qualitative analysis done from the quantitative data is based on the understanding of the market and its trends by the team of experts involved in making this report.
Market Size	The market size of each segment has been estimated based on the market understanding and expert interviews.
Market Rank Analysis, by Key Player	The base year considered for market rank analysis, by key player, is 2014.

Note: The market values have been rounded off to the second decimal. Due to this, there may be a slight difference between the actual total and the total mentioned in the table.



MARKETSANDMARKETS

TABLE OF CONTENTS

1 INTRODUCTION 17

1.1 OBJECTIVES OF THE STUDY 13

1.2 MARKET DEFINITION 13

1.3 MARKET SCOPE 14

1.3.1 MARKETS COVERED 14

1.3.2 YEARS CONSIDERED FOR THE STUDY 15

1.4 CURRENCY 15

1.5 LIMITATIONS 15

1.6 STAKEHOLDERS 16

2 RESEARCH METHODOLOGY 17

2.1 RESEARCH DATA 17

2.1.1 SECONDARY DATA 19

2.1.1.1 KEY DATA FROM SECONDARY SOURCES 19

2.1.2 PRIMARY DATA 20

2.1.2.1 KEY DATA FROM PRIMARY SOURCES 20

2.1.2.2 KEY INDUSTRY INSIGHTS 21

2.1.2.3 BREAKDOWN OF PRIMARIES 21

2.2 MARKET SIZE ESTIMATION 22

2.3 MARKET BREAKDOWN AND DATA TRIANGULATION 24

2.4 ASSUMPTIONS 25

3 EXECUTIVE SUMMARY 26

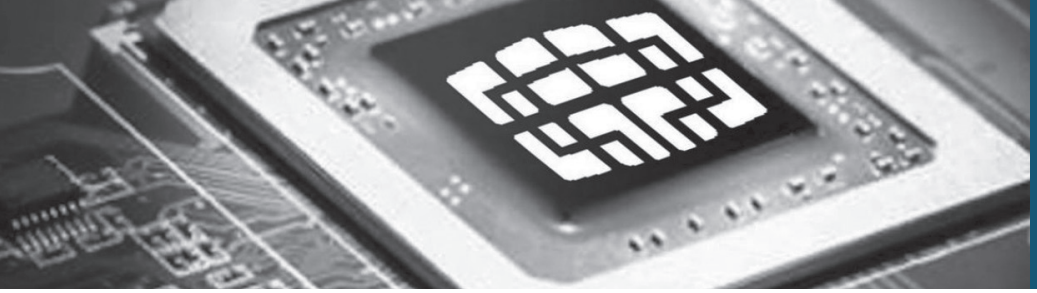
4 PREMIUM INSIGHTS 30

4.1 ATTRACTIVE OPPORTUNITIES IN THE ARTIFICIAL INTELLIGENCE MARKET 30

4.2 ARTIFICIAL INTELLIGENCE MARKET, BY TECHNOLOGY 30

4.3 ARTIFICIAL INTELLIGENCE MARKET, BY APPLICATION 31

4.4 ARTIFICIAL INTELLIGENCE MARKET, BY REGION 32



MARKETSANDMARKETS

TABLE OF CONTENTS

5 MARKET OVERVIEW 33

5.1 INTRODUCTION 34

5.2 MARKET DYNAMICS 34

5.2.1 DRIVERS 35

5.2.1.1 DIVERSIFIED APPLICATION SECTORS FOR ARTIFICIAL INTELLIGENCE 35

5.2.1.2 INCREASING DEMAND FOR ARTIFICIAL INTELLIGENCE TO ENHANCE PRODUCTIVITY 35

5.2.1.3 RISING DEMAND FOR ARTIFICIAL INTELLIGENCE FOR IMPROVING CUSTOMER SATISFACTION 36

5.2.2 RESTRAINTS 37

5.2.2.1 OBJECTIONS REGARDING THE USE OF AI BY INDUSTRY EXPERTS 37

5.2.2.2 LACK OF SKILLED WORKFORCE 37

5.2.3 OPPORTUNITIES 38

5.2.3.1 GROWING AREAS OF APPLICATIONS FOR ARTIFICIAL INTELLIGENCE 38

5.2.4 CHALLENGES 39

5.2.4.1 CREATING MODELS AND MECHANISM OF ARTIFICIAL INTELLIGENCE 39

6 INDUSTRY TRENDS 40

6.1 INTRODUCTION 40

6.2 VALUE CHAIN ANALYSIS 40

6.2.1 KEY INFLUENCERS 41

6.3 PORTER'S FIVE FORCES MODEL 41

6.3.1 THREATS OF NEW ENTRANTS 43

6.3.2 THREATS OF SUBSTITUTES 44

6.3.3 BARGAINING POWER OF SUPPLIERS 45

6.3.4 INDUSTRY RIVALRY 46

6.3.5 BARGAINING POWER OF BUYERS 47

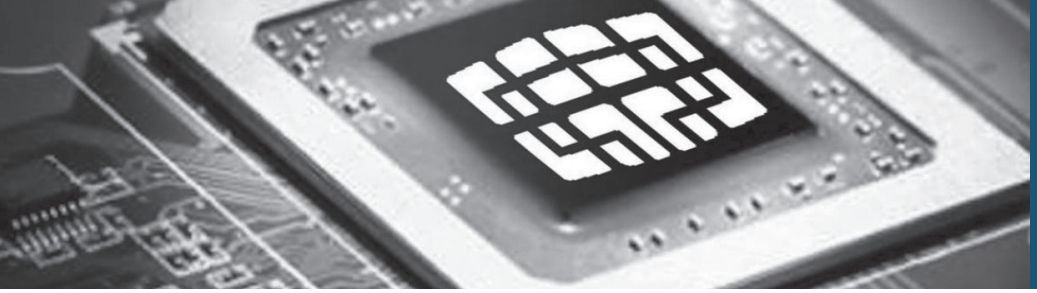
7 ARTIFICIAL INTELLIGENCE MARKET, BY TECHNOLOGY 48

7.1 INTRODUCTION 49

7.2 MACHINE LEARNING 51

7.2.1 DEEP LEARNING 51

7.3 NATURAL LANGUAGE PROCESSING (NLP) 53



MARKETSANDMARKETS

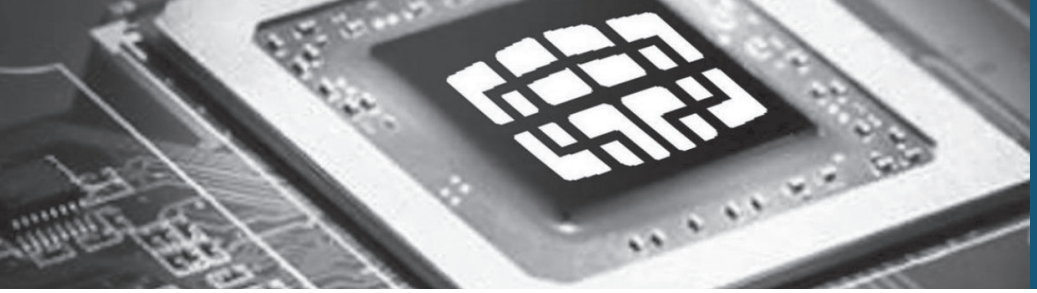
TABLE OF CONTENTS

7.4 IMAGE PROCESSING 54
7.5 SPEECH RECOGNITION 56

8 ARTIFICIAL INTELLIGENCE BY HARDWARE & SERVICE 57
8.1 ARTIFICIAL INTELLIGENCE BY HARDWARE 58
8.1.1 COMPUTER / GPU CHIP 58
8.1.2 CLOUD 58
8.1.3 OTHERS 59
8.2 ARTIFICIAL INTELLIGENCE BY SERVICE 59
8.2.1 INSTALLATION 59
8.2.2 TRAINING 60
8.2.3 SUPPORT & MAINTENANCE 60

9 ARTIFICIAL INTELLIGENCE MARKET, BY APPLICATION 61
9.1 INTRODUCTION 62
9.1.1 MEDIA & ADVERTISING 64
9.1.2 FINANCE 65
9.1.3 RETAIL 67
9.1.4 HEALTHCARE 69
9.1.5 AUTOMOTIVE & TRANSPORTATION 71
9.1.6 AGRICULTURE 72
9.1.7 LAW 73
9.1.8 OIL & GAS 75
9.1.9 OTHERS 77

10 ARTIFICIAL INTELLIGENCE MARKET, BY GEOGRAPHY 78
10.1 INTRODUCTION 79
10.2 NORTH AMERICA 81
10.2.1 U.S. 89
10.2.2 CANADA 90
10.2.3 MEXICO 91

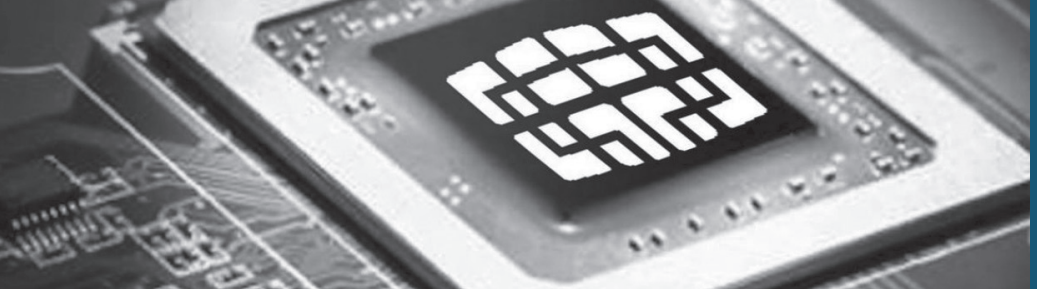


MARKETSANDMARKETS

TABLE OF CONTENTS

10.3 APAC 91
10.3.1 JAPAN 94
10.3.2 CHINA 95
10.3.3 SOUTH KOREA 96
10.3.4 INDIA 97
10.3.5 REST OF APAC 98
10.4 EUROPE 98
10.4.1 U.K. 101
10.4.2 SWEDEN 102
10.4.3 GERMANY 103
10.4.4 FRANCE 104
10.5 REST OF THE WORLD 104

11 COMPETITIVE LANDSCAPE 108
11.1 OVERVIEW 108
11.2 MARKET RANKING ANALYSIS: ARTIFICIAL INTELLIGENCE MARKET 109
11.3 STARTUP SCENARIO 111
11.3.1.1 STARTUP COMPANIES VS. VENTURE CAPITALIST: 2014 111
11.4 COMPETITIVE SITUATION 113
11.4.1 NEW PRODUCT LAUNCHES 114
11.4.2 MERGERS & ACQUISITIONS 116
11.4.3 EXPANSIONS, JOINT VENTURES, CONTRACTS, AND PARTNERSHIPS 117



MARKETSANDMARKETS

TABLE OF CONTENTS

12 COMPANY PROFILES....118

*(Overview, Products and Services, Financials, Strategy & Development)**

12.1 INTRODUCTION....118

12.2 GOOGLE INC....119

12.3 IBM CORP....123

12.4 MICROSOFT CORP....128

12.5 IPSOFT....132

12.6 ROCKET FUEL INC....134

12.7 FINGENIUS LTD....136

12.8 KENSHO TECHNOLOGIES, INC....137

12.9 MOBILEYE N.V....138

12.10 SENTIENT TECHNOLOGIES....140

12.11 ZEPHYR TECHNOLOGY....141

**Details on Overview, Products and Services, Financials, Strategy & Development might not be Captured in case of Unlisted Companies.*

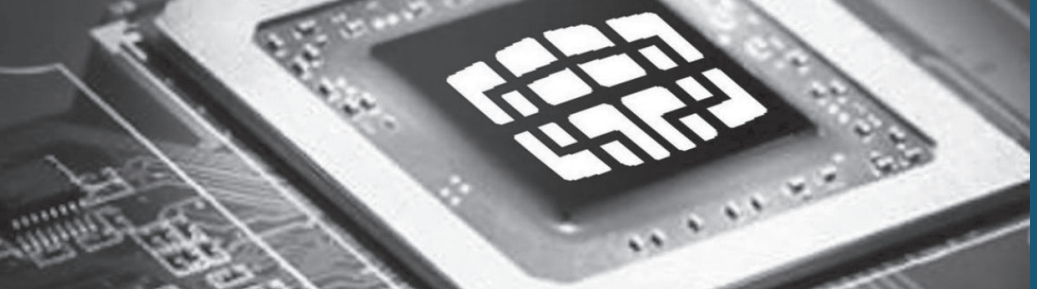
13 APPENDIX....143

13.1 INSIGHTS OF INDUSTRY EXPERTS....143

13.3 INTRODUCING RT: REAL TIME MARKET INTELLIGENCE....146

13.4 AVAILABLE CUSTOMIZATIONS....148

13.5 RELATED REPORTS....148



MARKETSANDMARKETS

LIST OF TABLES

TABLE 1 ARTIFICIAL INTELLIGENCE : DRIVER ANALYSIS 32

TABLE 2 ARTIFICIAL INTELLIGENCE: RESTRAINTS ANALYSIS 33

TABLE 3 ARTIFICIAL INTELLIGENCE: OPPORTUNITY ANALYSIS 34

TABLE 4 ARTIFICIAL INTELLIGENCE: CHALLENGE ANALYSIS 35

TABLE 5 ARTIFICIAL INTELLIGENCE MARKET SIZE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 46

TABLE 6 MACHINE LEARNING TECHNOLOGY MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 48

TABLE 7 NATURAL LANGUAGE PROCESSING TECHNOLOGY MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 49

TABLE 8 IMAGE PROCESSING TECHNOLOGY MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 51

TABLE 9 SPEECH RECOGNITION TECHNOLOGY MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 52

TABLE 10 ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 59

TABLE 11 ARTIFICIAL INTELLIGENCE MARKET FOR MEDIA & ADVERTISING, BY TECHNOLOGY, 2013–2020 (USD MILLION) 60

TABLE 12 ARTIFICIAL INTELLIGENCE MARKET FOR MEDIA & ADVERTISING , BY GEOGRAPHY, 2013–2020 (USD MILLION) 61

TABLE 13 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR FINANCE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 62

TABLE 14 ARTIFICIAL INTELLIGENCE MARKET FOR FINANCE, BY GEOGRAPHY, 2013–2020 (USD MILLION) 63

TABLE 15 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR RETAIL, BY TECHNOLOGY, 2013–2020 (USD MILLION) 64

TABLE 16 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR RETAIL, BY GEOGRAPHY, 2013–2020 (USD MILLION) 64

TABLE 17 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR HEALTHCARE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 66

TABLE 18 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR HEALTHCARE, BY GEOGRAPHY, 2013–2020 (USD MILLION) 66

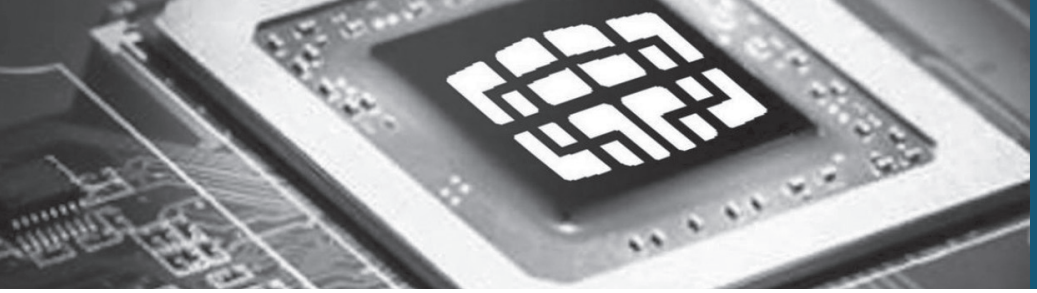
TABLE 19 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR AUTOMOTIVE & TRANSPORTATION, BY TECHNOLOGY, 2013–2020 (USD MILLION) 67

TABLE 20 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR AUTOMOTIVE & TRANSPORTATION, BY GEOGRAPHY 2013–2020 (USD MILLION) 68

TABLE 21 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR AGRICULTURE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 68

TABLE 22 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR AGRICULTURE, BY GEOGRAPHY, 2013–2020 (USD MILLION) 69

TABLE 23 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR LAW, BY TECHNOLOGY, 2013–2020 (USD MILLION) 70



MARKETSANDMARKETS

LIST OF TABLES

TABLE 24 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR LAW, BY GEOGRAPHY, 2013–2020 (USD MILLION) 71

TABLE 25 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR OIL & GAS, BY TECHNOLOGY, 2013–2020 (USD MILLION) 71

TABLE 26 OIL & GAS MARKET SIZE, BY GEOGRAPHY 2013–2020 (USD MILLION) 72

TABLE 27 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR OTHERS, BY TECHNOLOGY, 2013–2020 (USD MILLION) 73

TABLE 28 ARTIFICIAL INTELLIGENCE MARKET SIZE FOR OTHERS, BY GEOGRAPHY, 2013–2020 (USD MILLION) 73

TABLE 29 ARTIFICIAL INTELLIGENCE MARKET SIZE, BY GEOGRAPHY, 2013–2020 (USD MILLION) 76

TABLE 30 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY COUNTRY, 2013–2020 (USD MILLION) 79

TABLE 31 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 79

TABLE 32 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 80

TABLE 33 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, MEDIA & ADVERTISING, BY COUNTRY, 2013–2020 (USD MILLION) 80

TABLE 34 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, FINANCE, BY COUNTRY, 2013–2020 (USD MILLION) 81

TABLE 35 NORTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, HEALTHCARE, BY COUNTRY, 2013–2020 (USD MILLION) 81

TABLE 36 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, RETAIL, BY COUNTRY, 2013–2020 (USD MILLION) 82

TABLE 37 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, AUTOMOTIVE & TRANSPORTATION, BY COUNTRY, 2013–2020 (USD MILLION) 82

TABLE 38 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, AGRICULTURE, BY COUNTRY, 2013–2020 (USD MILLION) 83

TABLE 39 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, LAW, BY COUNTRY, 2013–2020 (USD MILLION) 83

TABLE 40 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, OIL & GAS, BY COUNTRY, 2013–2020 (USD MILLION) 84

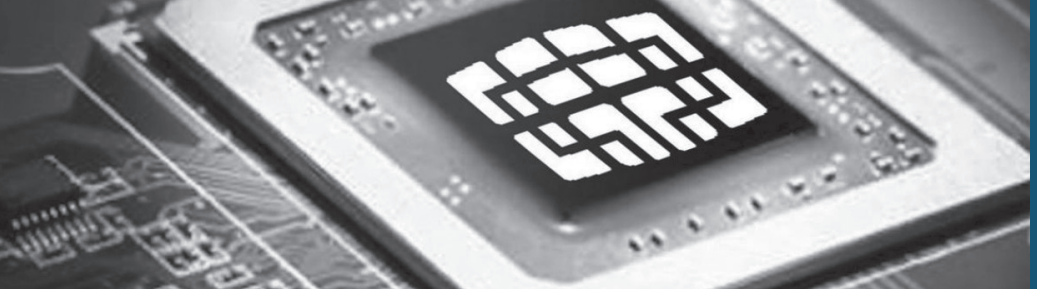
TABLE 41 NORTH AMERICA ARTIFICIAL INTELLIGENCE MARKET SIZE, OTHERS, BY COUNTRY, 2013–2020 (USD MILLION) 84

TABLE 42 U.S.: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 85

TABLE 43 CANADA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 86

TABLE 44 MEXICO: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 87

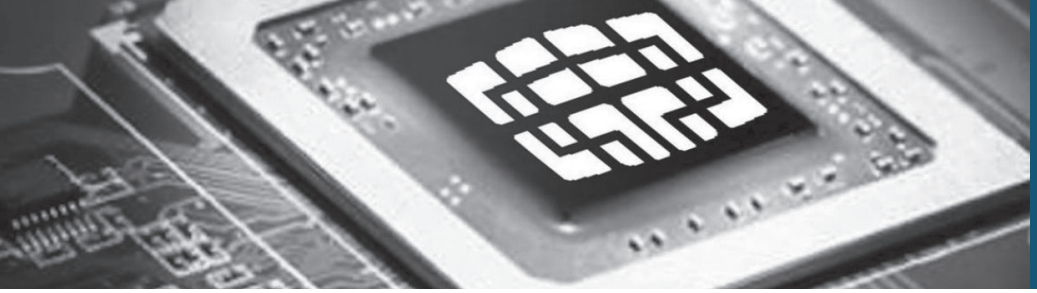
TABLE 45 APAC: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY COUNTRY, 2013–2020 (USD MILLION) 89



MARKETSANDMARKETS

LIST OF TABLES

TABLE 46 APAC: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 89
TABLE 47 JAPAN: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 90
TABLE 48 CHINA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 91
TABLE 49 SOUTH KOREA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 92
TABLE 50 INDIA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 93
TABLE 51 REST OF APAC: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 94
TABLE 52 EUROPE: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY COUNTRY, 2013–2020 (USD MILLION) 96
TABLE 53 EUROPE: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 96
TABLE 54 U.K.: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 97
TABLE 55 SWEDEN: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 98
TABLE 56 GERMANY: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 99
TABLE 57 FRANCE: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 100
TABLE 58 ROW: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY REGION, 2013–2020 (USD MILLION) 100
TABLE 59 ROW: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 101
TABLE 60 ROW: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY TECHNOLOGY, 2013–2020 (USD MILLION) 101
TABLE 61 SOUTH AMERICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 102
TABLE 62 MIDDLE EAST & AFRICA: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY APPLICATION, 2013–2020 (USD MILLION) 103
TABLE 63 NEW PRODUCT LAUNCHES, 2014–2015 110
TABLE 64 MERGERS & ACQUISITIONS, 2012–2015 112
TABLE 65 EXPANSIONS, JOINT VENTURES, CONTRACTS, AND PARTNERSHIPS, 2012-2015 113



MARKETSANDMARKETS

LIST OF FIGURES

FIGURE 1 GLOBAL ARTIFICIAL INTELLIGENCE MARKET: RESEARCH DESIGN 15

FIGURE 2 ARTIFICIAL INTELLIGENCE MARKET SIZE ESTIMATION METHODOLOGY: BOTTOM-UP APPROACH 20

FIGURE 3 ARTIFICIAL INTELLIGENCE MARKET SIZE ESTIMATION METHODOLOGY: TOP-DOWN APPROACH 21

FIGURE 4 DATA TRIANGULATION 22

FIGURE 5 MACHINE LEARNING EXPECTED TO DOMINATE THE ARTIFICIAL INTELLIGENCE MARKET DURING THE FORECAST PERIOD 25

FIGURE 6 ARTIFICIAL INTELLIGENCE SNAPSHOT (2014–2020): HEALTHCARE SEGMENT EXPECTED TO GROW AT THE HIGHEST CAGR DURING THE FORECAST PERIOD 26

FIGURE 7 NORTH AMERICA ACCOUNTED FOR THE LARGEST SHARE OF ARTIFICIAL INTELLIGENCE MARKET IN 2015 27

FIGURE 8 THE ARTIFICIAL INTELLIGENCE MARKET EXPECTED TO GROW AT HIGH CAGR DURING THE FORECAST PERIOD 28

FIGURE 9 NATURAL LANGUAGE PROCESSING TECHNOLOGY EXPECTED TO WITNESS THE HIGHEST GROWTH RATE DURING THE FORECAST PERIOD 28

FIGURE 10 MEDIA & ADVERTISING: THE LARGEST APPLICATION SECTOR FOR ARTIFICIAL INTELLIGENCE IN 2015 29

FIGURE 11 GROWTH IN APAC EXPECTED TO BE DRIVEN BY EMERGING ECONOMIES SUCH AS CHINA & INDIA 30

FIGURE 12 NORTH AMERICA EXPECTED TO HOLD THE LARGEST SHARE OF THE GLOBAL ARTIFICIAL INTELLIGENCE MARKET, BASED ON APPLICATION, DURING THE FORECAST PERIOD 30

FIGURE 13 DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES FOR THE ARTIFICIAL INTELLIGENCE MARKET 32

FIGURE 14 VALUE CHAIN ANALYSIS: MAJOR VALUE ADDITION IS DONE DURING THE SOFTWARE DEVELOPMENT PHASE 38

FIGURE 15 PORTER'S FIVE FORCES ANALYSIS: ARTIFICIAL INTELLIGENCE 39

FIGURE 16 PORTERS ANALYSIS: ARTIFICIAL INTELLIGENCE 40

FIGURE 17 ARTIFICIAL INTELLIGENCE : THREATS OF NEW ENTRANTS 41

FIGURE 18 ARTIFICIAL INTELLIGENCE : THREATS OF SUBSTITUTES 42

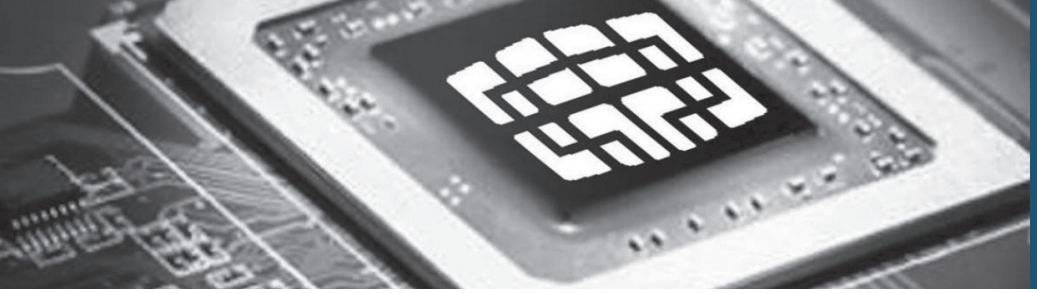
FIGURE 19 ARTIFICIAL INTELLIGENCE : BARGAINING POWER OF SUPPLIERS 43

FIGURE 20 ARTIFICIAL INTELLIGENCE : INDUSTRY RIVALRY 44

FIGURE 21 ARTIFICIAL INTELLIGENCE : BARGAINING POWER OF BUYERS 45

FIGURE 22 ARTIFICIAL INTELLIGENCE MARKET SEGMENTATION 47

FIGURE 23 MACHINE LEARNING TECHNOLOGY HELD THE LARGEST MARKET FOR ARTIFICIAL INTELLIGENCE IN 2015 AND EXPECTED TO CONTINUE ITS DOMINANCE DURING THE FORECAST PERIOD 49



MARKETSANDMARKETS

LIST OF FIGURES

FIGURE 24 THE FINANCE SECTOR DOMINATED THE AI MARKET FOR NATURAL LANGUAGE PROCESSING TECHNOLOGY IN 2015 52

FIGURE 25 ARTIFICIAL INTELLIGENCE MARKET SEGMENTATION, BY SERVICE 57

FIGURE 26 ARTIFICIAL INTELLIGENCE MARKET: SEGMENTATION 60

FIGURE 27 THE AI MARKET FOR THE HEALTHCARE SECTOR EXPECTED TO WITNESS THE HIGHEST GROWTH RATE DURING THE FORECAST PERIOD 61

FIGURE 28 NATURAL LANGUAGE PROCESSING LIKELY TO EXHIBIT HIGHEST GROWTH RATE IN THE ARTIFICIAL INTELLIGENCE MARKET FOR THE FINANCE SECTOR 64

FIGURE 29 THE MACHINE LEARNING MARKET FOR THE HEALTHCARE SECTOR EXPECTED TO DOMINATE THE OVERALL AI MARKET 67

FIGURE 30 THE NATURAL LANGUAGE PROCESSING MARKET FOR THE LAW SECTOR EXPECTED TO GROW AT HIGH CAGR DURING THE FORECAST PERIOD 72

FIGURE 31 GEOGRAPHIC SNAPSHOT (2014): RAPIDLY GROWING MARKETS SUCH AS CHINA AND INDIA ARE EMERGING AS THE NEW HOT SPOTS 77

FIGURE 32 APAC EXPECTED TO BE THE FASTEST GROWING MARKET FOR ARTIFICIAL INTELLIGENCE MARKET DURING THE FORECAST PERIOD 78

FIGURE 33 ARTIFICIAL INTELLIGENCE MARKET SNAPSHOT FOR NORTH AMERICA: DEMAND EXPECTED TO BE DRIVEN BY THE MEDIA & ADVERTISING SECTOR 80

FIGURE 34 ARTIFICIAL INTELLIGENCE MARKET SNAPSHOT FOR APAC: DEMAND EXPECTED TO BE DRIVEN BY THE MACHINE LEARNING TECHNOLOGY 90

FIGURE 35 EUROPE ARTIFICIAL INTELLIGENCE MARKET SNAPSHOT: DEMAND EXPECTED TO BE DRIVEN BY THE ADVERTISING SECTOR 97

FIGURE 36 COMPANIES ADOPTED NEW PRODUCT DEVELOPMENTS AND MERGERS & ACQUISITIONS AS THE KEY GROWTH STRATEGIES (2013 –2015) 106

FIGURE 37 ARTIFICIAL INTELLIGENCE MARKET: MARKET RANKING ANALYSIS 107

FIGURE 38 STARTUP COMPANY FUNDING: 2014 109

FIGURE 39 MARKET EVOLUTION FRAMEWORK: SIGNIFICANT NEW PRODUCT LAUNCHES FUELED GROWTH AND INNOVATION FROM 2014 TO 2015 111

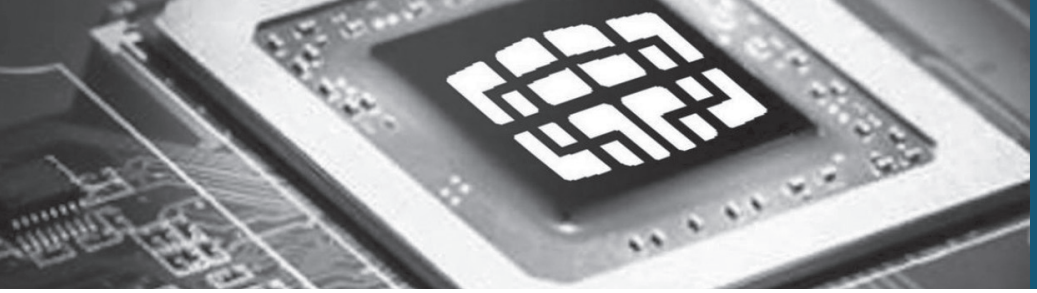
FIGURE 40 BATTLE FOR MARKET SHARE: NEW PRODUCT LAUNCHES WAS THE KEY STRATEGY FROM 2013 TO 2015 112

FIGURE 41 GOOGLE INC.: COMPANY SNAPSHOT 118

FIGURE 42 GOOGLE INC.: SWOT ANALYSIS 120

FIGURE 43 IBM CORP.: COMPANY SNAPSHOT 121

FIGURE 44 IBM CORP.: SWOT ANALYSIS 125



MARKETSANDMARKETS

LIST OF FIGURES

FIGURE 45 MICROSOFT CORP.: COMPANY SNAPSHOT 127

FIGURE 46 MICROSOFT CORP.: SWOT ANALYSIS 129

FIGURE 47 ROCKET FUEL INC.: COMPANY SNAPSHOT 132

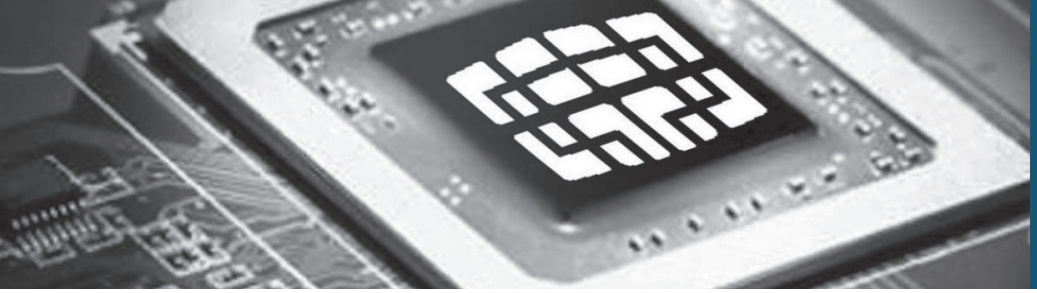


TABLE 1 ARTIFICIAL INTELLIGENCE MARKET SIZE, BY GEOGRAPHY, 2013–2020 (USD MILLION)

REGION	2013	2014	2015	2016	2018	2020	CAGR (2015-2020)
North America	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Europe	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
APAC	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
RoW	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
TOTAL	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x%**

Source: Secondary Literature, Experts' Interviews, and MarketsandMarkets Analysis

TABLE 2 APAC: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY TECHNOLOGY, 2013–2020 (USD MILLION)

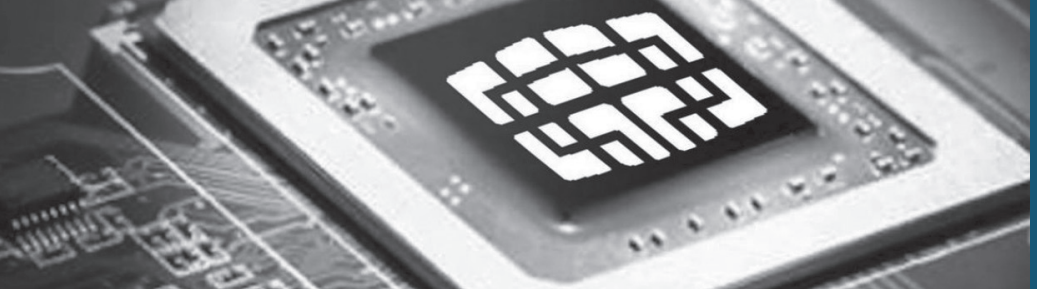
TECHNOLOGY	2013	2014	2015	2016	2018	2020	CAGR (2015-2020)
Machine Learning	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Natural Language Processing	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Image Processing	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Speech Recognition	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
TOTAL	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x%**

Source: Secondary Literature, Experts' Interviews, and MarketsandMarkets Analysis

TABLE 3 EUROPE: ARTIFICIAL INTELLIGENCE MARKET SIZE, BY COUNTRY, 2013–2020 (USD MILLION)

COUNTRY	2013	2014	2015	2016	2018	2020	CAGR (2015-2020)
U.K.	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Sweden	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Germany	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
France	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
Others	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x	xx.x%
TOTAL	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x**	**xx.x%**

Source: Secondary Literature, Experts' Interviews, and MarketsandMarkets Analysis



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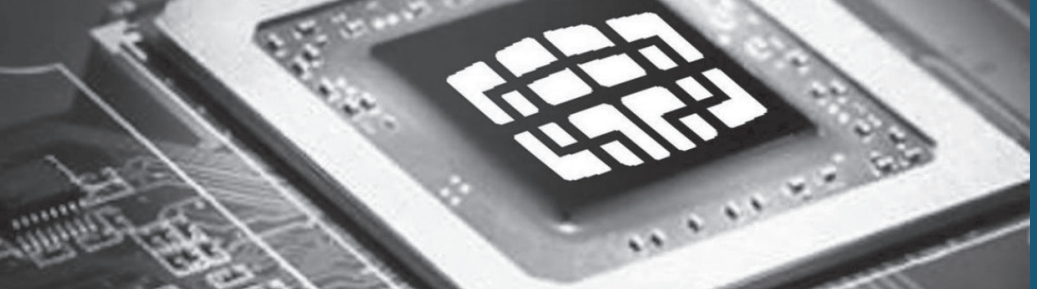

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