

Multimodal Al Market by Offering (Solutions & Services), Data Modality (Image, Audio), Technology (ML, NLP, Computer Vision, Context Awareness, IoT), Type (Generative, Translative, Explanatory, Interactive), Vertical and Region - Global Forecast to 2028

Market Report | 2023-11-20 | 381 pages | MarketsandMarkets

AVAILABLE LICENSES:

- Single User \$4950.00
- Multi User \$6650.00
- Corporate License \$8150.00
- Enterprise Site License \$10000.00

Report description:

The global multimodal AI market is valued at USD 1.0 billion in 2023 and is estimated to reach USD 4.5 billion by 2028, registering a CAGR of 35.0% during the forecast period. In today's data-driven world, an abundance of information is generated in unstructured formats such as text, images, and videos. This wealth of data is often rich in insights and valuable content, but its unstructured nature makes it challenging to process, analyze, and extract meaningful information using traditional analytics methods. Multimodal AI steps in as a transformative solution, allowing organizations to harness the riches concealed within unstructured data sources. With the capability to process and interpret information from videos, images, and text, multimodal AI surpasses the limitations of single-modal AI approaches, which are often confined to analyzing structured data or a single data type. This driver underscores the essential role of multimodal AI in addressing the increasing complexity of data analysis requirements in the digital age.

By solutions, the platform segment is projected to hold the largest market size during the forecast period Multimodal Al solutions in the form of platforms represent comprehensive systems designed to handle and process diverse types of data simultaneously, including text, images, audio, and video. These platforms typically incorporate a range of advanced technologies such as machine learning, deep learning, and natural language processing to enable a holistic understanding of multimodal information. In practical terms, a multimodal Al platform allows users to develop, deploy, and manage Al models capable of handling multiple data modalities in a unified manner. These platforms empower organizations to build intelligent systems that can interpret and respond to complex, real-world scenarios by integrating insights from different data sources. By data modality, Video Data segment is registered to grow at the highest CAGR during the forecast period

Scotts International. EU Vat number: PL 6772247784 tel. 0048 603 394 346 e-mail: support@scotts-international.com www.scotts-international.com

Video data consists of a sequence of frames, each containing visual content, and is a critical modality in multimodal Al applications. Video data allows Al systems to interpret dynamic scenes, track objects, recognize patterns, and understand temporal relationships, making it valuable in various domains such as surveillance, healthcare, and entertainment. The growing prevalence of video content on the internet, the increasing adoption of surveillance and monitoring systems, and the demand for more sophisticated video analytics in industries like retail and manufacturing drives the utilization of video data in multimodal Al. Asia Pacific is projected to witness the highest CAGR during the forecast period.

The Asia Pacific region emerges as a vibrant hub of economic prowess and technological progress, forecasted to contribute a substantial 70% of global growth in 2023, surpassing other regions. With over half of the world's population residing in this region, any technological shifts, particularly those driven by AI, are anticipated to significantly influence its future trajectory. Several Asian countries, including China, India, Japan, and others, are actively embracing information-intensive AI technologies, with conversational AI leading the technological forefront. Nations like China, Japan, South Korea, India, and Singapore are making substantial investments in artificial intelligence, positioning the APAC region as the fastest-growing AI market globally. Breakdown of primaries

In-depth interviews were conducted with Chief Executive Officers (CEOs), innovation and technology directors, system integrators, and executives from various key organizations operating in the multimodal Al market.

- -□By Company: Tier I: 35%, Tier II: 45%, and Tier III: 20%
- By Designation: C-Level Executives: 35%, Directors: 25%, and Others: 40%
- By Region: North America: 45%, Europe: 20%, Asia Pacific: 30%, RoW: 5%

Major vendors offering multimodal AI and services across the globe are Google (US), Microsoft (US), OpenAI (US), Meta (US), AWS (US), IBM (US), Twelve Labs (US), Aimesoft (US), Jina AI (Germany), Uniphore (US), Reka AI (US), Runway (US), Jiva.ai (UK), Vidrovr (US), Mobius Labs (US), Newsbridge (France), OpenStream.ai (US), Habana Labs (US), Modality.AI (US), Perceiv AI (Canada), Multimodal (US), Neuraptic AI (Spain), Inworld AI (US), Aiberry (US), One AI (US), Beewant (France), Owlbot.AI (US), Hoppr (US), Archetype AI (US), Stability AI (England).

Research Coverage

The market study covers multimodal Al across segments. It aims at estimating the market size and the growth potential across different segments, such as offering, data modality, technology, type, vertical, and region. It includes an in-depth competitive analysis of the key players in the market, along with their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.

Key Benefits of Buying the Report

The report would provide the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market for multimodal AI and its subsegments. It would help stakeholders understand the competitive landscape and gain more insights better to position their business and plan suitable go-to-market strategies. It also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

- Analysis of key drivers (The need to analyze unstructured data in multiple formats drives the multimodal AI market, The ability of multimodal AI to handle complex tasks and provide a holistic approach to problem-solving, Generative AI techniques to accelerate multimodal ecosystem development and The availability of large-scale machine learning models that support multimodality.), restraints (Susceptibility to bias in multimodal models and Processing and training multi-modal AI models demand extensive computational resources), opportunities (Rising demand for customized and industry-specific solutions, Enhanced adaptability to unseen data types propels multimodal AI forward, Data Management Services to empowering multimodal AI advancements), and challenges (Teaching AI to grasp nuance and context-dependent meanings poses complex linguistic challenges, Optimal data fusion presents complex challenges in multimodal AI integration, Limitations in transferability pose challenges for multimodal AI adaptation to diverse data types) influencing the growth of the multimodal AI market

- Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com www.scotts-international.com

product & service launches in the multimodal AI market.

- Market Development: Comprehensive information about lucrative markets the report analyses the multimodal AI market across varied regions.
- Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in multimodal AI market strategies; the report also helps stakeholders understand the pulse of the multimodal AI market and provides them with information on key market drivers, restraints, challenges, and opportunities.
- Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players such as Google (US), Microsoft (US), OpenAI (US), AWS (US), Meta (US) among others in the multimodal AI market.

Table of Contents:

1∏INTRODUCTION∏33

- 1.1□STUDY OBJECTIVES□33
- 1.2 MARKET DEFINITION 33
- 1.2.1 □INCLUSIONS AND EXCLUSIONS □ 34
- 1.3 MARKET SCOPE 34
- 1.3.1 MARKET SEGMENTATION 35
- 1.3.2 REGIONS COVERED 36
- 1.4 YEARS CONSIDERED 36
- 1.5 CURRENCY CONSIDERED 37
- 1.6□STAKEHOLDERS□37
- 2 RESEARCH METHODOLOGY 38
- 2.1 RESEARCH DATA 38

FIGURE 1□MULTIMODAL AI MARKET: RESEARCH DESIGN□39

- 2.1.1 ☐ SECONDARY DATA ☐ 40
- 2.1.2 PRIMARY DATA 40

TABLE 1 PRIMARY INTERVIEWS 40

- 2.1.2.1 Breakup of primary profiles 41
- 2.1.2.2 Key industry insights 41
- 2.2 □ DATA TRIANGULATION □ 42

FIGURE 2□DATA TRIANGULATION□42

2.3 MARKET SIZE ESTIMATION 43

FIGURE 3 MULTIMODAL AI MARKET: TOP-DOWN AND BOTTOM-UP APPROACHES 43

- 2.3.1 TOP-DOWN APPROACH 43
- 2.3.2 BOTTOM-UP APPROACH 44

FIGURE 4 MARKET SIZE ESTIMATION METHODOLOGY - APPROACH 1 (SUPPLY-SIDE): FLOWCHART USING REVENUE FROM MULTIMODAL AI SOLUTIONS/SERVICES 44

FIGURE 5 MARKET SIZE ESTIMATION METHODOLOGY - APPROACH 2, BOTTOM-UP (SUPPLY-SIDE): COLLECTIVE REVENUE FROM ALL MULTIMODAL AI SOLUTION/SERVICE PROVIDERS 45

FIGURE 6 MARKET SIZE ESTIMATION METHODOLOGY - APPROACH 3, BOTTOM-UP (SUPPLY-SIDE): REVENUES OF TOP PLAYERS AND SOURCES OF DATA 146

FIGURE 7[MARKET SIZE ESTIMATION METHODOLOGY - APPROACH 4, BOTTOM-UP (DEMAND-SIDE): SHARE THROUGH OVERALL MULTIMODAL AI SPENDING[]46

2.4 MARKET FORECAST 147

TABLE 2 FACTOR ANALYSIS 47

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

2.5 RESEARCH ASSUMPTIONS 148

2.6 LIMITATIONS 50

2.7 IMPLICATIONS OF RECESSION ON MULTIMODAL AI MARKET 50

TABLE 3 | IMPACT OF RECESSION ON GLOBAL MULTIMODAL AI MARKET | 51

3∏EXECUTIVE SUMMARY∏52

TABLE 4 MULTIMODAL AI MARKET SIZE AND GROWTH RATE, 2017-2022 (USD MILLION, Y-O-Y) 53

TABLE 5 MULTIMODAL AI MARKET SIZE AND GROWTH RATE, 2023-2028 (USD MILLION, Y-O-Y) 53

FIGURE 8 SOLUTIONS TO HOLD LARGER MARKET IN 2023 53

FIGURE 9 PLATFORM SEGMENT TO ACCOUNT FOR LARGEST MARKET SHARE IN 2023 53

FIGURE 10 CLOUD DEPLOYMENT TO BE LARGER MARKET IN 2023 54

FIGURE 11 PROFESSIONAL SERVICES TO ACCOUNT FOR LARGER MARKET IN 2023 □ 54

FIGURE 12 CONSULTING TO ACCOUNT FOR LARGEST SHARE IN 2023 55

FIGURE 13 IMAGE DATA TO ACCOUNT FOR LARGEST MARKET IN 2023 55

FIGURE 14∏GENERATIVE MULTIMODAL AI TO ACCOUNT FOR LARGEST SHARE IN 2023∏55

FIGURE 15 NATURAL LANGUAGE PROCESSING TO ACCOUNT FOR LARGEST MARKET IN 2023 56

FIGURE 16 HEALTHCARE & LIFE SCIENCES TO ACCOUNT FOR LARGEST MARKET SHARE IN 2023 56

FIGURE 17 ASIA PACIFIC TO GROW AT HIGHEST CAGR IN MULTIMODAL AI MARKET 57

4□PREMIUM INSIGHTS□58

4.1 ATTRACTIVE OPPORTUNITIES IN MULTIMODAL AI MARKET 58

FIGURE 18 INCREASING NEED TO COMPREHEND AND PROCESS MULTIPLE DATA MODALITIES DRIVES MARKET GROWTH 58

4.2∏MULTIMODAL AI MARKET: SOLUTIONS∏58

FIGURE 19∏SOFTWARE SEGMENT TO GROW AT HIGHEST CAGR IN MULTIMODAL AI MARKET∏58

4.3∏MULTIMODAL AI MARKET, BY OFFERING & KEY VERTICAL∏59

FIGURE 20∏SOLUTIONS AND HEALTHCARE & LIFE SCIENCES VERTICAL TO ACCOUNT FOR LARGEST SHARES IN 2023∏59

4.4 MULTIMODAL AI MARKET, BY REGION 59

FIGURE 21 NORTH AMERICA TO ACCOUNT FOR LARGEST SHARE IN 2023 59

5 MARKET OVERVIEW AND INDUSTRY TRENDS 60

5.1□INTRODUCTION□60

5.2 MARKET DYNAMICS 60

FIGURE 22 MARKET DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES 60

5.2.1 DRIVERS 61

5.2.1.1 Need to analyze unstructured data in multiple formats to drive multimodal AI market 61

5.2.1.2∏Ability of multimodal AI to handle complex tasks and provide holistic approach to problem-solving to boost market∏61

5.2.1.3 Generative AI techniques to accelerate multimodal ecosystem development 62

5.2.1.4∏Availability of large-scale machine learning models that support multimodality to propel market growth ☐62

5.2.2 RESTRAINTS 63

5.2.2.1 Susceptibility to bias in multimodal models 63

5.2.2.2 Processing and training multimodal AI models to demand extensive computational resources 63

5.2.3 OPPORTUNITIES 63

5.2.3.1 Rising demand for customized and industry-specific solutions 63

5.2.3.2 Enhanced adaptability to unseen data types to propel multimodal Al forward 64

5.2.3.3 Data management services to empower multimodal Al advancements 64

5.2.4∏CHALLENGES∏65

5.2.4.1 Teaching AI to grasp nuance and context-dependent meanings to pose complex linguistic challenges ☐65

5.2.4.2 ☐ Optimal data fusion to present challenges in multimodal AI integration ☐ 65

5.2.4.3 Limitations in transferability to pose challenges for multimodal AI adaptation to diverse data types 66

5.3 INDUSTRY TRENDS 66

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

5.3.1 | MULTIMODAL AI: ARCHITECTURE | 66

FIGURE 23 MULTIMODAL AI ARCHITECTURE 66

5.3.2 MULTIMODAL AI: EVOLUTION 68

FIGURE 24 MULTIMODAL AI MARKET EVOLUTION 68

5.3.3 VALUE CHAIN ANALYSIS 69

FIGURE 25[]MULTIMODAL AI MARKET: VALUE CHAIN ANALYSIS[]71

5.3.4 ECOSYSTEM/MARKET MAP 71

FIGURE 26 KEY PLAYERS IN MULTIMODAL AI MARKET ECOSYSTEM 71

TABLE 6[MULTIMODAL AI MARKET: ECOSYSTEM[]72

5.3.4.1 Solution Providers 72

5.3.4.2 Service Providers 73

5.3.4.3 | End Users | 73

5.3.4.4 Regulatory Bodies 73

5.3.5 PRICING ANALYSIS 74

5.3.5.1 Average Selling Price Trend of Key Players: Top 3 Data Modalities 74

FIGURE 27 AVERAGE SELLING PRICE TREND OF KEY PLAYERS: TOP THREE DATA MODALITIES 74

TABLE 7 | AVERAGE SELLING PRICE TREND OF KEY PLAYERS FOR TOP THREE DATA MODALITIES (USD) | 74

5.3.5.2 Indicative Pricing Analysis of Multimodal AI, By Solution 74

TABLE 8 MULTIMODAL AI: INDICATIVE PRICING LEVELS OF MULTIMODAL AI, BY SOLUTION 175

5.3.6 PORTER'S FIVE FORCES ANALYSIS 175

FIGURE 28 PORTER'S FIVE FORCES ANALYSIS 76

TABLE 9[MULTIMODAL AI MARKET: PORTER'S FIVE FORCES ANALYSIS[]76

5.3.6.1 Threat of new entrants 77

5.3.6.2 Threat of substitutes 77

5.3.6.3 Bargaining power of suppliers 77

5.3.6.4 Bargaining power of buyers 77

5.3.6.5 Intensity of competitive rivalry 77

5.3.7 TRENDS/DISRUPTIONS IMPACTING CUSTOMER'S BUSINESS 78

5.3.7.1 Trends/Disruptions impacting customer's business 78

FIGURE 29∏MULTIMODAL AI MARKET: TRENDS/DISRUPTIONS IMPACTING CUSTOMER'S BUSINESS∏78

5.3.8 TECHNOLOGY ANALYSIS 78

FIGURE 30∏MULTIMODAL AI MARKET: TECHNOLOGY ANALYSIS∏79

5.3.8.1 | Key Technologies | 79

5.3.8.1.1 Machine Learning 79

5.3.8.1.2 Natural Language Processing 80

5.3.8.1.3∏AR & VR∏80

5.3.8.1.4 Computer Vision 81

5.3.8.1.5∏loT∏82

5.3.8.2 Complementary Technologies 82

5.3.8.2.1 Cloud Computing 82

5.3.8.2.2 Data Mining 83

5.3.8.2.3 Biometric Authentication 83

5.3.8.3 \ Adjacent Technologies \ 84

5.3.8.3.1 Big Data 84

5.3.8.3.2 Predictive Analytics 84

5.3.8.3.3 Edge Computing 85

5.3.8.3.4 Knowledge Graph 85

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

- 5.3.9 CASE STUDY ANALYSIS 86
- 5.3.9.1 CASE STUDY 1: Associated Press revolutionized multimedia processing with Vidrovr 86
- 5.3.9.2 CASE STUDY 2: SceneXplain's innovative automation and tagging solution revolutionized European e-commerce platform 87
- 5.3.9.3 ☐ CASE STUDY 3: Global banking group transformed its operations with Uniphore's Al-driven compliance and monitoring solution ☐ 88
- 5.3.9.4 CASE STUDY 4: Uniphore's U-Assist solution transformed healthcare services company's agent guidance 89
- 5.3.9.5 CASE STUDY 5: Telecom leader enhanced efficiency and customer experience with Uniphore's AI-powered automation 90
- 5.3.10 PATENT ANALYSIS 91
- 5.3.10.1 Methodology 91
- 5.3.10.2 Patents Filed, By Document Type 91
- TABLE 10 PATENTS FILED, BY DOCUMENT TYPE 91
- 5.3.10.3∏Innovation and patent applications∏92
- FIGURE 31 NUMBER OF PATENTS GRANTED IN LAST 10 YEARS, 2013-2023 92
- 5.3.10.3.1 Top 10 applicants in multimodal Al market 92
- FIGURE 32 TOP 10 APPLICANTS IN MULTIMODAL AI MARKET, 2013-2023 92
- FIGURE 33 REGIONAL ANALYSIS OF PATENTS GRANTED, 2013-2023 93
- TABLE 11 TOP 20 PATENT OWNERS IN MULTIMODAL AI MARKET, 2013-2023 93
- TABLE 12 LIST OF PATENTS GRANTED IN MULTIMODAL AI MARKET, 2023 94
- 5.3.11 TRADE ANALYSIS 95
- 5.3.11.1 | Import scenario | 95
- FIGURE 34[COMPUTER SOFTWARE IMPORT, BY KEY COUNTRY, 2015-2022 (USD BILLION)[]96
- 5.3.11.2 Export scenario 96
- FIGURE 35∏COMPUTER SOFTWARE EXPORT, BY KEY COUNTRY, 2015-2022 (USD BILLION)∏97
- 5.3.12 KEY CONFERENCES & EVENTS, 2023-2025 97
- TABLE 13 MULTIMODAL AI MARKET: DETAILED LIST OF CONFERENCES & EVENTS, 2023-2025 P97
- 5.3.13 TARIFF AND REGULATORY LANDSCAPE 98
- 5.3.13.1 Tariff Related to Multimodal AI Solutions 98
- TABLE 14 TARIFF RELATED TO MULTIMODAL AI SOLUTIONS, 2022 98
- $5.3.13.2 \verb|| Regulatory Bodies, Government Agencies, and Other Organizations \verb|| 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100 || 100$
- TABLE 15 NORTH AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 100
- TABLE 16 EUROPE: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 101
- TABLE 17∏ASIA PACIFIC: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS∏103
- TABLE 18 MIDDLE EAST & AFRICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 104
- TABLE 19 LATIN AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 104
- 5.3.13.3 North America 105
- 5.3.13.3.1 US 105
- 5.3.13.3.2[Canada]105
- 5.3.13.4 Europe 105
- 5.3.13.5 Asia Pacific 106
- 5.3.13.5.1 | South Korea | 106
- 5.3.13.5.2 China 106
- 5.3.13.5.3 India 106
- 5.3.13.6 Middle East & Africa 106
- 5.3.13.6.1 UAE 106
- 5.3.13.6.2 KSA 106
- 5.3.13.6.3 Bahrain 106
- 5.3.13.7 Latin America 106

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

5.3.13.7.1 Brazil 107

5.3.13.7.2 Mexico 107

5.3.14 KEY STAKEHOLDERS AND BUYING CRITERIA 107

5.3.14.1 Key Stakeholders in Buying Process 107

FIGURE 36 | INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE VERTICALS | 107

TABLE 20 | INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE VERTICALS | 107

5.3.14.2 Buying Criteria 108

FIGURE 37 KEY BUYING CRITERIA FOR TOP THREE VERTICALS 108

TABLE 21 KEY BUYING CRITERIA FOR TOP THREE VERTICALS 108

5.3.15 BEST PRACTICES IN MULTIMODAL AI MARKET 108

5.3.16 TECHNOLOGY ROADMAP OF MULTIMODAL AI MARKET 110

TABLE 22 SHORT-TERM ROADMAP, 2023-2025 110

TABLE 23 MID-TERM ROADMAP, 2026-2028 110

TABLE 24 LONG-TERM ROADMAP, 2029-2030 111

5.3.17 BUSINESS MODELS OF MULTIMODAL AI MARKET 111

5.3.17.1 SaaS (Software as a Service) Platforms 111

5.3.17.2 Pay-Per-Use or Consumption-Based Pricing 111

5.3.17.3 ☐ APIs and SDKs (Software Development Kits) ☐ 112

5.3.17.4 Data Annotation and Labeling Services 112

5.3.17.5 Consulting and Integration Services 112

6 MULTIMODAL AI MARKET, BY OFFERING 113

6.1□INTRODUCTION□114

6.1.1 OFFERING: MULTIMODAL AI MARKET DRIVERS 114

FIGURE 38 SERVICES SEGMENT TO WITNESS HIGHER CAGR DURING FORECAST PERIOD 115

TABLE 25 MULTIMODAL AI MARKET, BY OFFERING, 2017-2022 (USD MILLION) 115

TABLE 26 MULTIMODAL AI MARKET, BY OFFERING, 2023-2028 (USD MILLION) 115

6.2□SOLUTIONS□116

6.2.1□GROWING DEMAND FOR SEAMLESS INTEGRATION OF DIVERSE DATA SOURCES TO DRIVE MULTIMODAL AI SOLUTIONS MARKET GROWTH□116

FIGURE 39 PLATFORM SEGMENT TO HOLD LARGEST MARKET SIZE DURING FORECAST PERIOD 116

TABLE 27 MULTIMODAL AI MARKET, BY SOLUTION, 2017-2022 (USD MILLION) 116

TABLE 28 MULTIMODAL AI MARKET, BY SOLUTION, 2023-2028 (USD MILLION) 117

TABLE 29 SOLUTIONS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 117

TABLE 30 SOLUTIONS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 117

6.2.2 PLATFORM 118

 $6.2.2.1 \\ \square Increasing need for unified solutions within single ecosystem to drive platform segment \\ \square 118$

TABLE 31 PLATFORM: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2017-2022 (USD MILLION) 118

TABLE 32∏PLATFORM: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2023-2028 (USD MILLION)∏118

6.2.3□SOFTWARE□119

6.2.3.1 ☐ Advanced AI solutions offered by software to fuel market growth ☐ 119

TABLE 33∏SOFTWARE: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2017-2022 (USD MILLION)∏119

TABLE 34 SOFTWARE: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2023-2028 (USD MILLION) 119

 $6.2.4 \square FRAMEWORK \square 120$

 $6.2.4.1 \\ \square \text{Multimodal AI frameworks to empower developers with open-source and cloud-native solutions} \\ \square 120$

TABLE 35 FRAMEWORK: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2017-2022 (USD MILLION) 120

TABLE 36 \square FRAMEWORK: MULTIMODAL AI SOLUTIONS MARKET, BY REGION, 2023-2028 (USD MILLION) \square 120

6.3 SOLUTIONS, BY DEPLOYMENT MODE 121

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

6.3.1□ADAPTABILITY TO CHOOSE BETWEEN CENTRALIZED CLOUD-BASED PROCESSING OR LOCALIZED, SECURE ON-PREMISES DEPLOYMENTS□121

FIGURE 40 CLOUD SEGMENT TO WITNESS HIGHER CAGR DURING FORECAST PERIOD 121

TABLE 37∏MULTIMODAL AI MARKET, BY DEPLOYMENT MODE, 2017-2022 (USD MILLION)∏121

TABLE 38 MULTIMODAL AI MARKET, BY DEPLOYMENT MODE, 2023-2028 (USD MILLION) 122

 $6.3.2 \verb||CLOUD|| 122$

6.3.2.1 Cloud to help reduce burden of infrastructure management and overhead costs 122

TABLE 39[CLOUD: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)[122

TABLE 40 CLOUD: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 123

6.3.3 ON-PREMISES 123

6.3.3.1 Stringent data governance and security requirements to propel market 123

TABLE 41∏ON-PREMISES: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏123

TABLE 42 ON-PREMISES: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 124

6.4□SERVICES□124

6.4.1 SERVICES TO ENABLE ORGANIZATIONS TO EFFECTIVELY IMPLEMENT AND MAINTAIN MULTIMODAL AI SOLUTIONS 124

FIGURE 41∏PROFESSIONAL SERVICES TO HOLD LARGER MARKET SIZE DURING FORECAST PERIOD∏124

TABLE 43 MULTIMODAL AI MARKET, BY SERVICE, 2017-2022 (USD MILLION) 125

TABLE 44 MULTIMODAL AI MARKET, BY SERVICE, 2023-2028 (USD MILLION) 125

6.4.2 PROFESSIONAL SERVICES 125

6.4.2.1 Requirement of expert guidance and support in implementing multimodal AI solutions to drive segment's growth 125

FIGURE 42 MULTIMODAL DATA ANNOTATION SEGMENT TO WITNESS HIGHEST CAGR DURING FORECAST PERIOD 126

TABLE 45 PROFESSIONAL SERVICES: MULTIMODAL AI MARKET, BY TYPE, 2017-2022 (USD MILLION) 126

TABLE 46∏PROFESSIONAL SERVICES: MULTIMODAL AI MARKET, BY TYPE, 2023-2028 (USD MILLION)∏127

TABLE 47 PROFESSIONAL SERVICES: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 127

TABLE 48 PROFESSIONAL SERVICES: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 127

6.4.2.2 Consulting 128

TABLE 49∏CONSULTING: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏128

TABLE 50∏CONSULTING: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)∏128

6.4.2.3 Training & Workshops 128

TABLE 51 TRAINING & WORKSHOPS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) T129

TABLE 52 TRAINING & WORKSHOPS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 129

6.4.2.4 | Multimodal Data Integration | 129

TABLE 53∏MULTIMODAL DATA INTEGRATION: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏130

TABLE 54 MULTIMODAL DATA INTEGRATION: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 130

6.4.2.5 Custom Multimodal AI Development 130

TABLE 55 CUSTOM MULTIMODAL AI DEVELOPMENT: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 131

TABLE 56 CUSTOM MULTIMODAL AI DEVELOPMENT: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 131

6.4.2.6 Multimodal Data Annotation 131

TABLE 57 \square MULTIMODAL DATA ANNOTATION: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) \square 132

TABLE 58 MULTIMODAL DATA ANNOTATION: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 132

6.4.2.7 Support & Maintenance 132

TABLE $59 \square SUPPORT \& MAINTENANCE$: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) $\square 133$

TABLE 60 SUPPORT & MAINTENANCE: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 133

6.4.3 MANAGED SERVICES 133

6.4.3.1∏Increasing complexity of AI implementation to foster multimodal AI adoption ☐133

TABLE 61 MANAGED SERVICES: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 134

TABLE 62☐MANAGED SERVICES: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)☐134

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

7 MULTIMODAL AI MARKET, BY DATA MODALITY 135

7.1 INTRODUCTION 136

7.1.1 DATA MODALITY: MULTIMODAL AI MARKET DRIVERS 136

FIGURE 43 VIDEO DATA SEGMENT TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD 136

TABLE 63∏MULTIMODAL AI MARKET, BY DATA MODALITY, 2017-2022 (USD MILLION)∏137

TABLE 64 MULTIMODAL AI MARKET, BY DATA MODALITY, 2023-2028 (USD MILLION) 137

7.2□IMAGE DATA□137

7.2.1∏INCREASING NEED FOR ADVANCED VISUAL UNDERSTANDING TO FUEL MARKET FOR IMAGE DATA∏137

TABLE 65[IMAGE DATA: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)[138]

TABLE 66 IMAGE DATA: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 138

7.2.2∏IMAGE RECOGNITION∏138

7.2.3 □ OBJECT DETECTION □ 139

7.2.4 IMAGE CAPTIONING I 139

7.2.5 IMAGE GENERATION 140

7.2.6 OTHERS 140

7.3□TEXT DATA□141

7.3.1 TEXT DATA TO REVOLUTIONIZE TEXT ANALYSIS AND INFORMATION EXTRACTION 141

TABLE 67 TEXT DATA: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 141

TABLE 68 TEXT DATA: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 141

7.3.2 NATURAL LANGUAGE UNDERSTANDING 142

7.3.3 SENTIMENT ANALYSIS 142

7.3.4 TEXT GENERATION 143

7.3.5 LANGUAGE TRANSLATION 143

7.3.6 OTHERS 144

7.4 SPEECH AND VOICE DATA 144

7.4.1□SPEECH & VOICE DATA TO DRIVE ADVANCEMENTS IN VOICE ASSISTANTS, VOICE BIOMETRICS, AND USER EXPERIENCES□144

TABLE 69 SPEECH & VOICE DATA: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 145

TABLE 70∏SPEECH & VOICE DATA: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)∏145

7.4.2 SPEECH AND VOICE RECOGNITION 146

7.4.3 \ VOICE ASSISTANTS \ 146

7.4.4 VOICE BIOMETRICS 147

7.4.5 SPEECH SYNTHESIS 148

7.4.6□OTHERS□148

7.5∏VIDEO DATA∏149

7.5.1∏SURGE IN VIDEO-BASED CONTENT CONSUMPTION AND DEMAND FOR ENHANCED VIDEO ANALYTICS TO PROPEL MARKET∏149

TABLE 71 UIDEO DATA: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 149

TABLE 72[VIDEO DATA: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)[150]

7.5.2 VIDEO ANALYSIS 150

7.5.3 VIDEO CAPTIONING 151

7.5.4 VIDEO GENERATION 151

7.5.5 OTHERS 151

7.6 AUDIO DATA 152

7.6.1 RISING ADOPTION OF VOICE-ENABLED DEVICES AND PERSONALIZED AUDIO EXPERIENCES TO ENHANCE AUDIO DATA

TABLE 73∏AUDIO DATA: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏152

TABLE 74 AUDIO DATA: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 153

7.6.2 AUDIO PROCESSING 153

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

7.6.3 MUSIC ANALYSIS 153

7.6.4□SOUND CLASSIFICATION□154

7.6.5 OTHERS 154

7.7 OTHER DATA MODALITIES 155

TABLE 75[OTHER DATA MODALITIES: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)[]155 TABLE 76[OTHER DATA MODALITIES: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)[]155 8[MULTIMODAL AI MARKET, BY TECHNOLOGY[]156

8.1□INTRODUCTION□157

8.1.1 TECHNOLOGY: MULTIMODAL AI MARKET DRIVERS 157

FIGURE 44 NATURAL LANGUAGE PROCESSING TO HOLD LARGEST MARKET SIZE DURING FORECAST PERIOD 157

TABLE 77 MULTIMODAL AI MARKET, BY TECHNOLOGY, 2017-2022 (USD MILLION) 158

TABLE 78[]MULTIMODAL AI MARKET, BY TECHNOLOGY, 2023-2028 (USD MILLION)[]158

8.2 MACHINE LEARNING 158

8.2.1∏CONTINUOUS EVOLUTION OF ALGORITHMS AND MODELS IN MACHINE LEARNING TO SHAPE MARKET∏158

TABLE 79∏MACHINE LEARNING: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏159

TABLE 80 MACHINE LEARNING: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 159

8.3 NATURAL LANGUAGE PROCESSING 159

8.3.1 ONLP TO REVOLUTIONIZE COMMUNICATION AND COMPREHENSION IN VARIOUS INDUSTRIES AND APPLICATIONS 159
TABLE 81 NATURAL LANGUAGE PROCESSING: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 160
TABLE 82 NATURAL LANGUAGE PROCESSING: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 160
8.4 COMPUTER VISION 160

8.4.1 Computer vision to transform industries through enhanced image and video analysis functions 160 table 83 computer vision: Multimodal ai Market, by Region, 2017-2022 (USD Million) 161

TABLE 84 \square COMPUTER VISION: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) \square 161

8.5 CONTEXT AWARENESS 161

8.5.1 ABILITY OF AI SYSTEMS TO INTERPRET DATA BASED ON SITUATIONAL CONTEXT TO DRIVE SEGMENT'S GROWTH 161 TABLE 85 CONTEXT AWARENESS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 162

TABLE 86 \square CONTEXT AWARENESS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) \square 162

8.6□INTERNET OF THINGS□162

8.6.1 SURGE IN INTERCONNECTED DEVICES GENERATING DIVERSE DATA STREAMS TO BOOST MARKET 162

TABLE 87□INTERNET OF THINGS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)□163

TABLE 88∏INTERNET OF THINGS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)∏163

9□MULTIMODAL AI MARKET, BY TYPE□164

9.1 INTRODUCTION 165

9.1.1 TYPE: MULTIMODAL AI MARKET DRIVERS 165

FIGURE 45∏INTERACTIVE MULTIMODAL AI TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD∏165

TABLE 89 MULTIMODAL AI MARKET, BY TYPE, 2017-2022 (USD MILLION) 166

TABLE 90 MULTIMODAL AI MARKET, BY TYPE, 2023-2028 (USD MILLION) 166

9.2□GENERATIVE MULTIMODAL AI□166

9.2.1 Transformative power of generative multimodal at to extend beyond content generation 166

TABLE 91∏GENERATIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏167

TABLE 92 GENERATIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 167

9.3∏TRANSLATIVE MULTIMODAL AI∏167

9.3.1□ABILITY TO TRANSLATE AND INTERPRET INFORMATION ACROSS DIFFERENT DATA MODALITIES TO DRIVE SEGMENT'S GROWTH□167

TABLE 93[TRANSLATIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)[168 TABLE 94[TRANSLATIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)[168

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

9.4 EXPLANATORY MULTIMODAL AI 169

9.4.1□INCREASING DEMAND FOR AI SYSTEMS THAT OFFER TRANSPARENT INSIGHTS INTO DECISION-MAKING PROCESSES TO DRIVE SEGMENT'S GROWTH□169

TABLE 95∏EXPLANATORY MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏169

TABLE 96□EXPLANATORY MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)□170

9.5∏INTERACTIVE MULTIMODAL AI∏170

9.5.1∏INTERACTIVE MULTIMODAL AI TO REDEFINE HUMAN-MACHINE INTERACTIONS ACROSS INDUSTRIES∏170

TABLE 97□INTERACTIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)□171

TABLE 98 INTERACTIVE MULTIMODAL AI: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 171

10 MULTIMODAL AI MARKET, BY VERTICAL 172

10.1∏INTRODUCTION∏173

10.1.1 | VERTICAL: MULTIMODAL AI MARKET DRIVERS | 173

FIGURE 46⊓AUTOMOTIVE, TRANSPORTATION & LOGISTICS VERTICAL TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD∏173

TABLE 99 MULTIMODAL AI MARKET, BY VERTICAL, 2017-2022 (USD MILLION) 174

TABLE 100 MULTIMODAL AI MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 174

10.2 ☐ HEALTHCARE AND LIFE SCIENCES ☐ 175

TABLE 101 ⊓HEALTHCARE & LIFE SCIENCES: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) □175

TABLE 102 ☐ HEALTHCARE & LIFE SCIENCES: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) ☐ 175

10.2.1 MEDICAL IMAGING AND DIAGNOSTICS 176

10.2.2 PRECISION MEDICINE 176

10.2.3 LIFESTYLE MANAGEMENT & MONITORING, AND WEARABLES 176

10.2.4 MEDICAL RESEARCH 177

10.2.5 ROBOTIC SURGERY ASSISTANCE 177

10.2.6 PATIENT DATA RISK ANALYSIS 177

10.2.7 OTHER APPLICATIONS 177

10.3 BANKING, FINANCIAL SERVICES, AND INSURANCE 178

TABLE 103∏BFSI: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏179

TABLE 104∏BFSI: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION)∏179

10.3.1 FRAUD DETECTION 179

10.3.2∏RISK ASSESSMENT∏180

10.3.3 CUSTOMER SERVICE 180

10.3.4∏INSURANCE UNDERWRITING∏181

10.3.5 FINANCIAL PLANNING & WEALTH MANAGEMENT 181

10.3.6 PERSONALIZATION OF FINANCIAL PRODUCT RECOMMENDATIONS 181

10.3.7 OTHER APPLICATIONS 182

10.4∏RETAIL & E-COMMERCE∏182

TABLE 105 RETAIL & E-COMMERCE: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 182

TABLE 106 | RETAIL & E-COMMERCE: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) | 183

10.4.1 MULTIMODAL SEARCH AND PERSONALIZED RECOMMENDATION 183

10.4.2 SUPPLY CHAIN OPTIMIZATION 183

10.4.3 PRICE OPTIMIZATION 184

10.4.4 CHATBOT & VIRTUAL ASSISTANTS 184

10.4.5 \ VIRTUAL STORE MANAGEMENT & CUSTOMER ASSISTANT \ 185

10.4.6 AUGMENTED REALITY SHOPPING EXPERIENCES 185

10.4.7 OTHER APPLICATIONS 186

10.5 AUTOMOTIVE, TRANSPORTATION, AND LOGISTICS 186

TABLE 107 AUTOMOTIVE, TRANSPORTATION, AND LOGISTICS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 186

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

TABLE 108 AUTOMOTIVE, TRANSPORTATION, AND LOGISTICS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 187

- 10.5.1 SEMI-AUTONOMOUS & AUTONOMOUS VEHICLES 187
- 10.5.2 ROUTE OPTIMIZATION 187
- 10.5.3 SMART LOGISTICS AND WAREHOUSING 188
- 10.5.4 SUPPLY CHAIN VISIBILITY AND TRACKING 188
- 10.5.5 TRAFFIC PATTERN ANALYSIS 188
- 10.5.6 DRIVER MONITORING SYSTEM 189
- 10.5.7 OTHER APPLICATIONS 189
- 10.6 TELECOMMUNICATIONS 189

TABLE 109 TELECOMMUNICATIONS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 190

TABLE 110 TELECOMMUNICATIONS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 190

- 10.6.1 | NETWORK OPTIMIZATION | 190
- 10.6.2 NETWORK SECURITY 191
- 10.6.3 CUSTOMER SERVICE SUPPORT 191
- 10.6.4 NETWORK FAULT PREDICTION 191
- 10.6.5 UIRTUAL NETWORK ASSISTANT 192
- 10.6.6 INTELLIGENT CALL ROUTING 192
- 10.6.7 OTHER APPLICATIONS 193
- 10.7 GOVERNMENT AND PUBLIC SECTOR 193

TABLE 111∏GOVERNMENT & PUBLIC SECTOR: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION)∏193

TABLE 112 GOVERNMENT & PUBLIC SECTOR: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 194

- 10.7.1 AUTONOMOUS SURVEILLANCE & MONITORING SYSTEM 194
- 10.7.2 DISASTER RESPONSE & DISCOVERY ASSISTANT 194
- 10.7.3 E-GOVERNANCE & DIGITAL CITY SERVICES 195
- 10.7.4□LAW ENFORCEMENT□195
- 10.7.5 TRANSPORTATION MANAGEMENT 196
- 10.7.6 ENVIRONMENTAL MONITORING 196
- 10.7.7 OTHER APPLICATIONS 196
- 10.8 MANUFACTURING 197

TABLE 113 MANUFACTURING: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 197

TABLE 114 MANUFACTURING: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 197

- 10.8.1 □ PREDICTIVE MAINTENANCE □ 198
- 10.8.2□OUALITY CONTROL□198
- 10.8.3∏INVENTORY MANAGEMENT∏198
- 10.8.4 COST OPTIMIZATION 199
- 10.8.5 SUPPLY CHAIN OPTIMIZATION 199
- 10.8.6 PRODUCTION LINE OPTIMIZATION 200
- 10.8.7 OTHER APPLICATIONS 200
- 10.9 MEDIA AND ENTERTAINMENT 201

TABLE 115 MEDIA & ENTERTAINMENT: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 201

TABLE 116 | MEDIA & ENTERTAINMENT: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) | 201

- 10.9.1 PERSONALIZED CONTENT RECOMMENDATIONS 202
- 10.9.2 CONTENT CREATION AND GENERATION 202
- 10.9.3 CONTENT COPYRIGHT PROTECTION 202
- 10.9.4

 ☐ AUDIENCE ANALYTICS AND SEGMENTATION

 ☐ 203
- 10.9.5 PERSONALIZED ADVERTISING 203
- 10.9.6 SOCIAL MEDIA ANALYSIS 203

Scotts International, EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

```
10.9.7 OTHER APPLICATIONS 204
```

10.10 OTHER VERTICALS 204

TABLE 117 OTHER VERTICALS: MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 205

TABLE 118 OTHER VERTICALS: MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 205

11 MULTIMODAL AI MARKET, BY REGION 206

11.1 INTRODUCTION 207

FIGURE 47 SOUTH AFRICA TO WITNESS HIGHEST CAGR DURING FORECAST PERIOD 207

FIGURE 48 ASIA PACIFIC TO ACCOUNT FOR HIGHEST CAGR DURING FORECAST PERIOD 208

TABLE 119 MULTIMODAL AI MARKET, BY REGION, 2017-2022 (USD MILLION) 208

TABLE 120 MULTIMODAL AI MARKET, BY REGION, 2023-2028 (USD MILLION) 208

11.2 NORTH AMERICA 209

11.2.1 NORTH AMERICA: MULTIMODAL AI MARKET DRIVERS 209

11.2.2 NORTH AMERICA: RECESSION IMPACT 210

FIGURE 49 NORTH AMERICA: MARKET SNAPSHOT 210

TABLE 121 NORTH AMERICA: MULTIMODAL AI MARKET, BY COUNTRY, 2017-2022 (USD MILLION) 1211

TABLE 122 NORTH AMERICA: MULTIMODAL AI MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 211

TABLE 123 NORTH AMERICA: MULTIMODAL AI MARKET, BY OFFERING, 2017-2022 (USD MILLION) 211

TABLE 124 \square NORTH AMERICA: MULTIMODAL AI MARKET, BY OFFERING, 2023-2028 (USD MILLION) \square 211

TABLE 125 NORTH AMERICA: MULTIMODAL AI MARKET, BY SOLUTION, 2017-2022 (USD MILLION) 1212 TABLE 126 NORTH AMERICA: MULTIMODAL AI MARKET, BY SOLUTION, 2023-2028 (USD MILLION) 1212

TABLE 12-TENOPTH AMERICA, MULTIMORAL ALCOHITIONS MARKET, BY DEPLOYMENT MODE, 2017, 2022 (USD MULLS

TABLE 127 NORTH AMERICA: MULTIMODAL AI SOLUTIONS MARKET, BY DEPLOYMENT MODE, 2017-2022 (USD MILLION) 212

TABLE 129 NORTH AMERICA: MULTIMODAL AI MARKET, BY SERVICE, 2017-2022 (USD MILLION) 213

TABLE 130 NORTH AMERICA: MULTIMODAL AI MARKET, BY SERVICE, 2023-2028 (USD MILLION) 213

TABLE 131 NORTH AMERICA: MULTIMODAL AI MARKET, BY PROFESSIONAL SERVICE, 2017-2022 (USD MILLION) 1213

TABLE 132∏NORTH AMERICA: MULTIMODAL AI MARKET, BY PROFESSIONAL SERVICE, 2023-2028 (USD MILLION)∏214

TABLE 133 NORTH AMERICA: MULTIMODAL AI MARKET, BY DATA MODALITY, 2017-2022 (USD MILLION) 1214

TABLE 134 NORTH AMERICA: MULTIMODAL AI MARKET, BY DATA MODALITY, 2023-2028 (USD MILLION) 1214

TABLE 135 NORTH AMERICA: MULTIMODAL AI MARKET, BY TYPE, 2017-2022 (USD MILLION) 215

TABLE 136 NORTH AMERICA: MULTIMODAL AI MARKET, BY TYPE, 2023-2028 (USD MILLION) ☐ 215

TABLE 137 NORTH AMERICA: MULTIMODAL AI MARKET, BY TECHNOLOGY, 2017-2022 (USD MILLION) 215

TABLE 138 NORTH AMERICA: MULTIMODAL AI MARKET, BY TECHNOLOGY, 2023-2028 (USD MILLION) ☐ 216

TABLE 139 NORTH AMERICA: MULTIMODAL AI MARKET, BY VERTICAL, 2017-2022 (USD MILLION) 216

TABLE 140 NORTH AMERICA: MULTIMODAL AI MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 217

11.2.3 US 217

11.2.3.1 Presence of significant number of top-tier AI researchers in US institutions to drive market growth 1217

11.2.4 CANADA 218

11.2.4.1 Robust Canadian commitment to AI innovation to propel multimodal AI sector 218

11.3□EUROPE□218

11.3.1∏EUROPE: MULTIMODAL AI MARKET DRIVERS∏219

11.3.2 EUROPE: RECESSION IMPACT 219

TABLE 141□EUROPE: MULTIMODAL AI MARKET, BY COUNTRY, 2017-2022 (USD MILLION)□220

TABLE 142 EUROPE: MULTIMODAL AI MARKET, BY COUNTRY, 2023-2028 (USD MILLION) 220

TABLE 143 TEUROPE: MULTIMODAL AI MARKET, BY OFFERING, 2017-2022 (USD MILLION) T220

TABLE 144 \square EUROPE: MULTIMODAL AI MARKET, BY OFFERING, 2023-2028 (USD MILLION) \square 221

TABLE 145 EUROPE: MULTIMODAL AI MARKET, BY SOLUTION, 2017-2022 (USD MILLION) 221

TABLE 146 EUROPE: MULTIMODAL AI MARKET, BY SOLUTION, 2023-2028 (USD MILLION) 221

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

- TABLE 147 \square EUROPE: MULTIMODAL AI SOLUTIONS MARKET, BY DEPLOYMENT MODE, 2017-2022 (USD MILLION) \square 221
- TABLE 148 EUROPE: MULTIMODAL AI SOLUTIONS MARKET, BY DEPLOYMENT MODE, 2023-2028 (USD MILLION) 222
- TABLE 149 EUROPE: MULTIMODAL AI MARKET, BY SERVICE, 2017-2022 (USD MILLION) 222
- TABLE 150 EUROPE: MULTIMODAL AI MARKET, BY SERVICE, 2023-2028 (USD MILLION) 222
- TABLE 151 EUROPE: MULTIMODAL AI MARKET, BY PROFESSIONAL SERVICE, 2017-2022 (USD MILLION) 222
- TABLE 152 EUROPE: MULTIMODAL AI MARKET, BY PROFESSIONAL SERVICE, 2023-2028 (USD MILLION) 223
- TABLE 153 EUROPE: MULTIMODAL AI MARKET, BY DATA MODALITY, 2017-2022 (USD MILLION) 223
- TABLE 154 EUROPE: MULTIMODAL AI MARKET, BY DATA MODALITY, 2023-2028 (USD MILLION) 223
- TABLE 155 EUROPE: MULTIMODAL AI MARKET, BY TYPE, 2017-2022 (USD MILLION) 224
- TABLE 156 EUROPE: MULTIMODAL AI MARKET, BY TYPE, 2023-2028 (USD MILLION) 224
- TABLE 157 TEUROPE: MULTIMODAL AI MARKET, BY TECHNOLOGY, 2017-2022 (USD MILLION) T224
- TABLE 159 TEUROPE: MULTIMODAL AI MARKET, BY VERTICAL, 2017-2022 (USD MILLION) T225
- TABLE 160 EUROPE: MULTIMODAL AI MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 225
- 11.3.3∏UK∏226
- 11.3.3.1 \ Vast repository of health records to serve as substantial asset and advantage for UK's multimodal Al market 226
- 11.3.4 | GERMANY | 226
- 11.3.4.1 □ Dedicated financial commitment and strategic investments in infrastructure to drive adoption of Al and ML technologies □ 226
- 11.3.5 | FRANCE | 227
- 11.3.5.1 Strategic focus on open-source Al initiatives in France to boost multimodal Al development 227
- 11.3.6 | SPAIN | 227
- 11.3.6.1 ☐ Active support and initiatives from Spanish government to accelerate growth of AI ☐ 227
- 11.3.7□ITALY□228
- 11.3.7.1∏Implementation of three-year Strategic Plan for AI to expand Italian market ☐228
- 11.3.8 REST OF EUROPE 228



To place an Order with Scotts International:

 $\hfill \Box$ - Complete the relevant blank fields and sign

 $\hfill \square$ - Send as a scanned email to support@scotts-international.com

☐ - Print this form

Multimodal Al Market by Offering (Solutions & Services), Data Modality (Image, Audio), Technology (ML, NLP, Computer Vision, Context Awareness, IoT), Type (Generative, Translative, Explanatory, Interactive), Vertical and Region - Global Forecast to 2028

Market Report | 2023-11-20 | 381 pages | MarketsandMarkets

| Select license | License | Price | |
|---|--|---|--|
| | Single User | \$4950.00 | |
| | Multi User | | |
| | Corporate License | | |
| | Enterprise Site License | | |
| | | VAT | |
| | | Total | |
| | | t support@scotts-international.com or 0048 603 394 346. EU based companies who are unable to provide a valid EU Va | |
| | at 23% for Polish based companies, individuals and I | EU based companies who are unable to provide a valid EU Vat | |
| | | EU based companies who are unable to provide a valid EU Val | |
| ** VAT will be added | at 23% for Polish based companies, individuals and I | EU based companies who are unable to provide a valid EU Val | |
|]** VAT will be added | at 23% for Polish based companies, individuals and I | EU based companies who are unable to provide a valid EU Va | |
| ** VAT will be added Email* First Name* | Phone* | EU based companies who are unable to provide a valid EU Val | |

Page 15/16

tel. 0048 603 394 346 e-mail: support@scotts-international.com www.scotts-international.com

Scotts International. EU Vat number: PL 6772247784

| Zip Code* | Country* | |
|-----------|-----------|------------|
| | Date | 2025-05-21 |
| | Signature | |
| | | |