Tractica

10 Themes across the Artificial Intelligence Market 2017

Overarching Market Themes Based on Research of 215 Use Cases across 29 Industries

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PUBLISHED IN PARTNERSHIP WITH:

JESSICA GROOPMAN
Principal Analyst

CLINT WHEELOCK
Managing Director

SECTION 1

INTRODUCTION

1.1   **ARTIFICIAL INTELLIGENCE EXPANDS ACROSS INDUSTRIES**

From algorithmic news stories to autonomous robotics; from product recommendations to processing patient data; from virtual assistants to voice recognition and far beyond, artificial intelligence is slowly infusing all manner of industry, society, and life. AI is widely considered one of, if not the next big technological shifts, on par with the industrial revolution, the computer age, and the smartphone revolution—but it's not without diverse market dynamics.

First, defining artificial intelligence (AI) is a lot like defining intelligence; it is rarely agreed upon and manifests differently in different contexts. Tractica defines AI as an information system that is inspired by a biological system designed to give computers the human-like abilities of hearing, seeing, reasoning, and learning.

Although AI has been around for decades, it is the convergence of three independent trends that has brought about an explosion in the market. More data, faster hardware, and better algorithms are accelerating research, development, and commercial investment in AI applications at lightning speeds. Those sectors already leading in the digital space are accelerating in AI adoption, as the question of how to better use and monetize data persists. Indeed this question will drive adoption across virtually every industry over the next 10 years and beyond. Tractica's quantitative market assessment forecasts that annual revenue generated from the direct and indirect application of AI software will increase from $1.38 billion in 2016 to $59.75 billion by 2025.

While AI is not the tool for every job, its applications are vast; Tractica has identified some 215 commercial use cases across 29 industries. So many manifestations of AI are part of its impressive potential, but they also make it difficult for adopters and end users to understand what it is and is not, how it is different from other technologies and when it would be the right solution to their specific problem(s). In Tractica's analysis of 215 use cases, a number of overarching themes emerged, illustrating critical dynamics to watch across the broader AI market. What follows is a summary of these themes.

SECTION 2

KEY THEMES ACROSS ARTIFICIAL INTELLIGENCE USE CASES

As the scope and velocity of the AI market expands, it can be challenging for suppliers and adopters alike to keep up. Forces or developments in one sector or technology can influence another; opportunities for multi-disciplinary collaboration or risk mitigation are coalescing; and the very definition of digital transformation is evolving. In the age of colossal data and rapidly shifting customer expectations, companies must navigate the hype, adopt new capabilities, and adapt their strategies, all while proving efficiencies and new revenue.

Tractica's in-depth analysis of 215 use cases across industries from advertising to transportation highlights the emergence of a number of overarching themes, illustrating critical dynamics to watch across the broader AI market.

2.1 ALL AI FALLS INTO THREE MACRO CATEGORIES

Although most think AI is driven by Big Data analytics, the scope of the technology under the umbrella term that is artificial intelligence falls into three distinct categories: Big Data, Vision, and Language.

- **Big Data:** raw data such as sensor feeds, market indicators, patient data, or cybersecurity threats are analyzed to detect patterns, anomalies, surface correlations, and recommend actions and outcomes.

- **Vision/Perception-oriented**: Image or video-based applications recognize objects, people, faces, emotions, and other items in the physical world.

- **Language**: AI is used to process and understand human speech, text, and dynamics, syntax, and nuances of language itself.

In essence, vision and language are related to machines being able to imitate and enhance human attributes, while Big Data is related to how machines can analyze large amounts of data much quicker and more accurately than humans, find correlations, and even make predictions of how systems will behave in the future.

Chart 2.1   Top 15 Artificial Intelligence Use Cases by Category

Use Cases	Big Data	Vision	Language
Static image recognition		X	
Algorithmic trading	X		
Patient data processing	X		
Predictive maintenance	X		
Object identification from geospatial images		X	
Text query of images		X	X
Automated geophysical feature detection		X	
Content distribution on social media	X		
Object detection and classification		X	
Cybersecurity threat prevention	X		
Contract analysis			X
Text-based automated bots			X
Sensor data analysis (IoT)	X		
Sensor data fusion	X		
Human emotion analysis		X	

(Source: Tractica)

Table X shows that Big Data is driving the majority of use cases, where AI is being used to analyze large data sets. That said, vision and language are gaining ground and Tractica expects the larger growth areas for the technology will be driven by language and vision in the longer term. The first reason for this is because vision and language-based use cases are responsible for digitizing vast amounts of the physical world that have yet to be captured digitally at scale—how humans speak to each other, how machines or vehicles navigate different environments. Here the key goal is not necessarily the volume of data, but the fact that machines will be able to replicate and enhance human perception. Secondly, these areas are foundational for the development of strong AI, a future envisioned in which computers gain a general understanding of the world and the logic that drives it.

2.2   AI IS SHORTHAND FOR A COMBINATION OF TECHNOLOGIES

AI is a loose umbrella term for technologies inspired by biological systems. Under this umbrella one finds a variety of approaches to simulate cognitive functions. These include:

Machine learning (ML) is a type of AI that involves using computerized mathematical algorithms that can learn from data and can depart from strictly following rule-based, pre-programmed logic. Machine learning algorithms build a probabilistic model and then use it to make assumptions and predictions about similar sets of data.

Deep learning (DL) is a form of machine learning that uses the model of human neural nets to make its predictions about new data sets. Tractica believes this is currently the most promising of all AI technologies and is advancing other branches of the science, including cognitive computing, image recognition, and NLP.

Natural Language Processing (NLP) enables computers to understand human language as it is spoken and written and to produce human-like speech and writing. Machine

translation of one human language into another language is also a form of NLP.

Computer vision (CV) attempts to identify images of objects that can be seen. It can also include attempts to use the same technology to identify patterns in data, such as seismographic readings, that humans cannot see.

Machine reasoning (MR) attempts to simulate human thought processes by using a computerized model of language to acquire knowledge and then make decisions. Instead of being programmable in the traditional sense, expert systems are designed to build the model's own understanding of the world based on the relationships between words and concepts.

Strong AI (AGI) also referred to as artificial generalized intelligence attempts to simulate general human thought processes by using a computerized model of concepts to organize knowledge and then act on it. Instead of being programmable in the traditional sense, strong AI seeks to make sense of the world by relying on human language's inherent model of reality buttressed by the discipline of logic. Tractica also defines strong AI as the merging of different forms of other kinds of AI.

Although the term AI is used as a common catch-all, most commercial applications and use cases most often consist of multiple types of AI applied or configured in conjunction with one another and other technologies. For example, language translations are supported by a combination of NLP and DL; autonomous machines use localization and mapping powered by ML, CV and sensors. Tractica's forcast model tracks the following technology categories and common combinations.

Chart 2.2   AI Technology Categories and Combinations

Machine Learning
Deep Learning
Natural Language Processing
Computer Vision
Machine Reasoning
Strong AI
Computer Vision & Deep Learning
Computer Vision & Machine Learning
Deep Learning & Machine Learning
Deep Learning & NLP
Machine Learning, Deep Learning, & Computer Vision
Machine Learning, Deep Learning, & NLP
Machine Reasoning, Computer Vision, & Machine Learning
Machine Reasoning & Deep Learning
Machine Reasoning & Machine Learning
NLP & Machine Learning
Deep Learning, Machine Learning, & Machine Reasoning

(Source: Tractica)

2.3   AI CAN BE OVERT AND VISIBLE OR IMPLICIT AND INVISIBLE

Tractica's analysis of over 200 use cases for AI finds that the technology can take on or manifest in just about any form, including no form at all. While certain applications, such as robotics or autonomous vehicles, are overt, visible, and even tangible examples of AI in action, many other applications are implicit and invisible to end users and consumers. This is particularly true for applications that use AI as an invisible means of processing data.

- **Real-time responses** via chatbot or virtual assistant, which may go undetected as bot-driven interactions become indistinguishable from human agents

- **Systems management**, in which AI is used to continuously monitor for suspect behavior, anomalies, or threats; often preemptive measures are taken by the AI itself

- **Contextual intelligence** for mobile, in which AI supports collection and analysis across a wide and growing range of disparate datasets and input sources (e.g. third party data, other devices, APIs and integrations, historical data, real-time data; used in real-time and for predictive services

- **Sensor data fusion**, a technique that analyzes multiple sensor data feeds for insights no single feed could depict on its own; for example, using sensor data fusion to determine if a user is running from a threat, running for the bus, or running as a jog

Although brands may exploit the benefits of this to streamline UX or process optimization, this also introduces a number of issues around user awareness and consent, social norms, trust, and in many cases, questions around data protection, liability, or compliance.

"We as consumers have this tendency to think robots and flying cars when we think AI. We want to put a body around it," explains the head of customer experience for a retail brand Tractica interviewed for this research. "But really, in the future AI will be anything with which we interact that is learning from and responding to not only our interactions, but everyone elses' and adapting based on that."

2.4   AI APPLICATIONS MARK THE NEXT EVOLUTIONARY STEP IN DIGITAL TRANSFORMATION

Driven by the rise of social, mobile, web, and cloud, Digital Transformation (DT) has for the most part been about using digital tools and platforms to enhance, expand, or streamling customer-facing programs. While there has been a B2B aspect of DT, in terms of improving workflows, processes, supply chains, and ecosystems, those aspects have taken relatively lower priority. Yet, while many businesses are underway with-- if still working to fully grasp— digital transformation efforts and implications, AI is neither synonymous nor distinct from DT, rather it introduces another evolutionary phase of DT.

Clearly, without digital it would be impossible to implement to AI, but AI is distinct. If a company is on a path to digital transformation, it should ensure that AI is part of the ongoing process, rather than something that is done subsequently. The key difference between AI and digital is that AI is purely driven by data and represents the intelligence that comes from data, while digital on represents the digization of information—which is the first step towards implementing AI. Furthermore, opportunities and use cases for AI underly every business function, every business type, and offer intriguiging promise in better leveraging existing enterprise data lakes and data warehouses which contain massive amounts of unstructured data but are largely 'dark' and unused.

2.5   **AI-DRIVEN PERSONALIZATION AND OPERATIONS AUTOMATION WILL BECOME INTERCONNECTED**

AI can help bridge "front-of-house"/consumer-facing insights with "back-of-house" operations. The status quo for optimizing functions like operations, merchandizing, supply chain, and product development is still largely analog and not directly driven by consumers. Companies may conduct market research and use basic analytics to track orders and seasonal fluctuations, but consumer-facing programs are rarely integrated, nevermind automated as an interconnected system.

For example, ML, DL, and NLP power all manner of chatbots, voice recognition, robots, etc. whose data are used to help brands triage, react, respond, and provide faster, more efficient, and personalized services. But it doesn't end there; data collected through or as a result of these interactions can also help organizations learn how to automate or optimize areas like in-store or online environments and layouts; labor allocations; product development and design; product sourcing; inventory replenishment; channel strategies; partnerships; etc.

This is an essential catalyst for DT because it both unites and automates business functions at the operational level, not just culturally or with dashboards and reporting. Over time, Tractica expects advanced AI deployments will be marked by the ability to infuse both user-facing services and interactions with back-end or enterprise process and supply chain optimization.

2.6   **AI MATURITY IS HIGHLY FRAGMENTED**

The maturity and the metric for success for AI vary widely from application to application. Relatively low-stakes applications, such as movie recommendations, are widely accepted and optimized. Product recommendations, social media feed curation, search engine queries, and a variety of other Consumer use cases have defined what maturity in AI (at scale) looks like today, thanks to deep pockets and development resources of companies like Google, Facebook, Netflix, and others.

That said, other use cases are far less mature insofar as they are not commercially deployed at scale nor generating revenues. Within this category there are a number of use cases such as machine/vehicular object recognition or medical image analysis which will enable broader industry adoption of AI, but remain under development given their high stakes applications. Then there are use cases such as medical treatment recommendations, credit scoring, or creation of synthetic life forms, which remain regulatory and ethical grey areas and face significant barriers to widespread adoption.

While maturity is highly fragmented today, industry adoption is more concentrated. Tractica's forecast finds consumer and defense were the two largest markets leading AI spending, representing some 38% of the market in 2016. That said, Tractica expects the market concentration will dissipate significantly over the coming decade with no single industry dominating revenues. As a wider range of use cases mature, particularly those involving perception and reliable big data analysis for regulated industries, industries like business, finance, advertising, healthcare, investment, media, automotive, and entertainment are expected to be leading AI application areas by 2025. The figure below depicts the top 10 use cases, measured by cumulative revenue accrued during the period from 2016 to 2025.

Chart 2.6   *Cumulative Artificial Intelligence Software Revenue, Top 10 Use Cases, World Markets: 2016-2025*
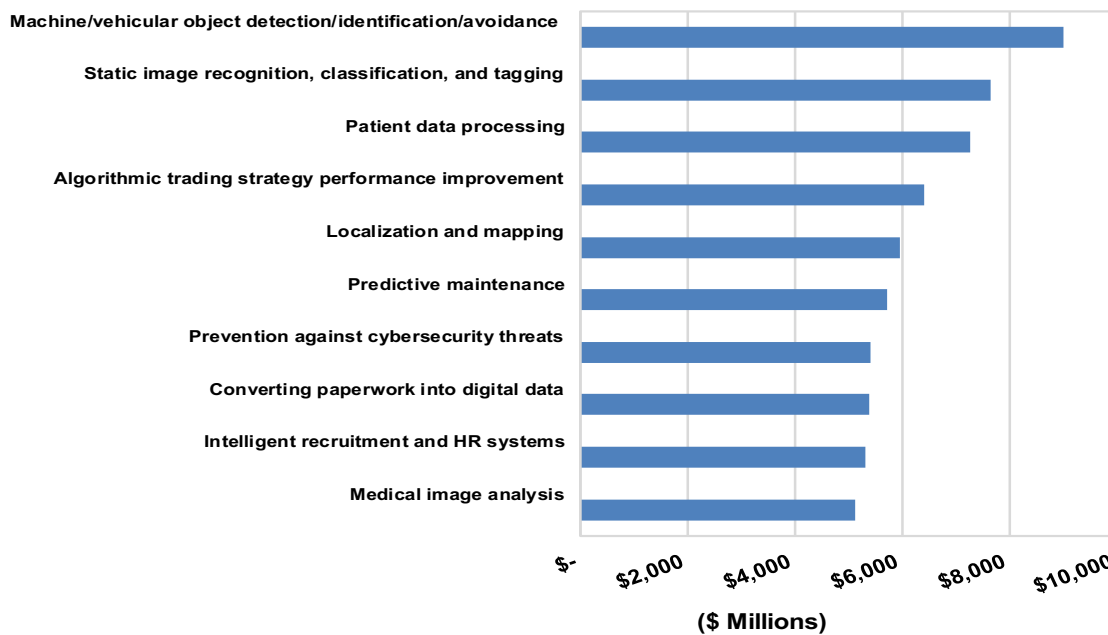
(Source: Tractica)

2.7   AI IS AN EXTENTION OF BRAND INTERACTIONS

As AI underlies various brand personifications and interactions, companies suddenly find themselves depending on AI to communicate and embody the character of their brand. This is, for the most part, unchartered territory for brands, but nevermore relevant as companies of all sorts are deploying chatbots, virtual avatars and assistants, conversational agents, robots, and other anthropomorphic brand extensions.

Perhaps the most common example of this today is found in the form of chatbots and other "faceless" digital agents designed to chat, triage, recommend, and sometimes enable purchase through branded or third party apps. Another example of AI powering brand interactions is using sentiment analysis, is a technique using ML and various configurations of NLP, CV, or DL to analyze all manner of user expressions—linguistic, tonal, vocal, facial, biometric—in order for brands to plan and act accordingly. Yet another example, customer service robots, are starting to crop up in retail environments to meet and greet shoppers, and assist with product search or recommendations.

While such humanoid extensions of brand are a nascent market today, more and more companies are deploying AI, specifically virtual agents to power consumer-facing functions, services, products, and touchpoints. Brands must balance unprecedented opportunities for personalization as well as significant risk of failure, faux pas, or backlash.

2.8 AI'S MANIFESTATION WILL SHIFT ALONGSIDE OTHER TECHNOLOGY MACROTRENDS

Artificial intelligence is not the only show in town; numerous other technologies will both leverage and influence AI's development, adoption, and regulation. Some immediate examples include:

- Connected devices comprising the Internet of Things (IoT)

- Augmented reality (AR), Virtual reality (VR), and Mixed Reality (MR)

- Blockchain and distributed ledger technologies

- Renewable energy and innovations in power generation

- Genomics and biotechnology

- Three-dimensional (3D) printing

- Cryptography and other cybersecurity advancements

- Digital identities

- High performance computing

This list is but a handful of technologies which will both influence, and be influenced by AI. For instance, blockchain's inherent immutability could play some role in creating greater transparency for AI-driven decision-making or transaction execution. The convergence of AI with genomics could unlock previously hidden trends or signals in disease contraction or treatment. If past is prologue, AI stands to be yet more disruptive not on its own, but when combined with other technologies.

2.9 AI IS ALLURING, PARTICULARLY IN HYPERCOMPETITIVE MARKETS

Although the tech industry is famous for hyperbole and buzzwords, AI represents a particularly alluring technology. Despite, or perhaps *because* the technology is inspired by biological systems, AI is highly prone to inflated expectations and intrigue. As bright and shiny technologies go, it shimmers—not only for its cognitive simulation, but for its incredibly wide range of application.

In certain sectors with highly domain-specific with high-volume data needs and ontologies—financial services, healthcare, advertising— it is not just greater automation and operational efficiencies that AI suppliers promise adopters, it is the ability to illuminate hidden patterns and big "dark" unstructured data sets, to simulate scenarios for decision-making, and enable altogether new products.

Few would argue AI holds tremendous promise. Yet even as data and computing at scale reignite the decades-old dream of AI, the reality is the vast majority of AI in production today targets a very specific part of a very specific problem; what is known as 'narrow AI.' Domains are largely within the scope of the specific business, products, services, processes, customer problems, existing content, and internal datasets. All AI today is narrow AI; yet visions for AI, predictions around AI, and just about any science fiction treatment of AI is strong. Beware the many ways AI is oversold.

2.10   **AI PROMISES BOTH DIVERSE BENEFITS AND DIVERSE CHALLENGES**

Across use cases, profound opportunities lie in AI's application. Tractica's analysis of AI applications across 29 industries found a diverse array of benefits for both businesses and consumers. For businesses, AI systems are improving the status quo across the organization: operations automation, sales and marketing optimization, product optimization, better forecasting, streamlined recruitment, more empirical decision-making, and enhanced security. In certain cases, machine perception, autonomous navigation, and more automated service programs are impacting business models by driving costs down and revenues up.

For consumers, AI can help foster more autonomy. Personalized services and enhanced user experiences (UX) and interfaces will make devices and brands more useful as interaction is more tasteful and timely. In the case of personal assistant apps, as in healthcare, fitness, financial, AI offers users insights and recommendations that can save time and money. Perhaps more interestingly, AI also shows significant promise for societal good, improving areas such as public health, medical breakthroughs, translation, access to quality education, environmental sustainability, and domestic security.

Simultaneously, this technology poses urgent challenges. Businesses developing AI solutions face a range of practical limitations, some classic of technology, others altogether unprecedented:

- Access to quality training data
- Significant time required for data cleaning and processing, ensuring data integrity
- Access to energy to power rapid computation
- Access to limited pool of talent
- Re-skilling workforces
- Lack of algorithmic standards
- Unclear ethical standards
- Unchartered legal/liability and regulatory questions or standards
- Uncertainty around compliance with existing regulations
- Lack of interoperability across protocol, device types, data types, and data sets
- Constraints in "edge-level" processing power
- Risks of algorithmic explainability and compliance in highly regulated industries
- Lack of industry-specific best practices

These forces will signficantly influence adoption, as will the evolving scope of AI itself. While certain jobs will become automated, AI is more often poised to augment human labor and decision-making. Longer-term, many applications will be designed to empower humans with non-human capabilities, memory, experiences, and knowledge. Many ethical, philosophical, cultural, societal, and business norms will be forced into re-assessment.

Ultimately, this technology—a biomimicry of our own [imperfect] intelligence—will play a dynamic role as we negotiate the benefits and risks of efficiency, convenience, health, surveillance, and automation.

SECTION 3

RECOMMENDATIONS AND CONCLUSIONS

3.1   RECOMMENDATIONS

AI has the potential to disrupt numerous industries, workflows, jobs, and mechanisms for machine control, knowledge generation and sharing. Tractica recommends that businesses interested in exploring AI begin piloting projects. Begin with the following steps:

- **Invest in Understanding**: Invest in time, guidance, and talent to educate internal stakeholders and leadership about AI, particularly areas of application, differentiation, cost efficiencies, new revenue opportunities, security, overhype, controversy, and risk.

- **Define the Problem**: Begin not with AI, but with current pain points and problems. Know your highest-impact decision bottlenecks. AI and DL, in particular, are best applied to very specific questions and scoped problems, rather than general issues or experiments.

- **Prioritize Data Integrity**: Regardless of familiarity with AI, all enterprises should be prioritizing data cleansing, standardizing, consolidation, and formalizing processes to maintain and optimize data integrity across internal and external data sources. Part of this can and sometimes should involve user engagement, as users themselves can help train AI models.

- **Prioritize Algorithmic Innovation and Integrity**: While data is the fuel for AI, algorithms have equal, if not greater value. Continuous algorithmic testing, performance tweaking, and development are essential for successful outcomes and mitigating unintended ethical consequences. AI leaders and developers should also be constantly monitoring the open-source community for algorithmic advancements.

- **Build Talent and Collaborations**: Tap into open-source communities, consortia, partnerships, universities, etc., in order to foster collaborative ideation and development for AI initiatives.

- **Monitor, Manage, and Secure**: Enterprises must constantly monitor and provide ongoing maintenance to AI models, as well as to other relevant operational analytics. For applications, set, monitor, and evolve KPIs, and assess risks. Formalize relevant security requirements, such as identity authentication, access controls, auditing, and privacy assessments, related to both model development and performance.

- **Provide Training, Support, and Communications**: It is also essential to coordinate necessary training and communications plans for the role of ML in employee, partner, and end-user workflows and experiences.

3.2   CONCLUSION

AI and the combination of technologies therein enable new capabilities and ways of thinking, both for machines and humans. Despite its potential, and perhaps because of its nature, the technology is also subject to overhype, oversell, under-delivery, and controversy. As we teach machines to perceive and think, it is critical that we design, build, apply, and scale mindfully, with individual and institutional regard for risks, unintended consequences, societal benefits, and human empowerment.

SECTION 4

ACRONYM AND ABBREVIATION LIST

Artificial Intelligence	AI
Artificial Generalized Intelligence	AGI
Augmented Reality	AR
Business-to-Business	B2B
Computer Vision	CV
Deep Learning	DL
Digital Transformation	DT
Internet of Things	IoT
Machine Learning	ML
Machine Reasoning	MR
Natural Language Processing	NLP
Return on Investment	ROI
Three-Dimensional	3D
User Experience	UX
Virtual Reality	VR

SECTION 5

TABLE OF CONTENTS

SECTION 6

SCOPE OF STUDY

This white paper presents 10 overarching trends that characterize the entire AI market. These trends are based on extensive qualitative and quantitative research Tractica has conducted across 215 use cases spanning some 29 industries. These trends were collated from a larger report published by Tractica *Use Cases for Artificial Intelligence* which substantiates these findings with real-world examples, industry context, and current and cumulative revenues associated with each use case. The white paper also includes strategic recommendations for anyone looking to take advantage of the artificial intelligence market opportunity.
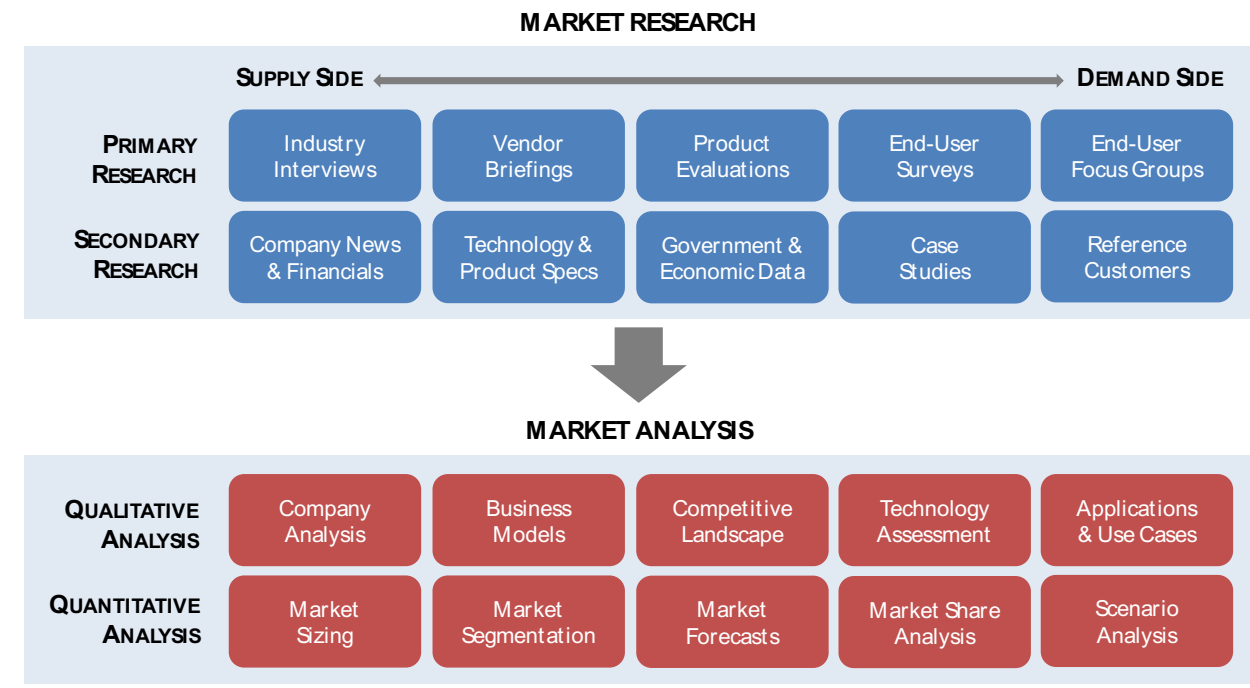
SOURCES AND METHODOLOGY

Tractica is an independent market research firm that provides industry participants and stakeholders with an objective, unbiased view of market dynamics and business opportunities within its coverage areas. The firm's industry analysts are dedicated to presenting clear and actionable analysis to support business planning initiatives and go-to-market strategies, utilizing rigorous market research methodologies and without regard for technology hype or special interests including Tractica's own client relationships. Within its market analysis, Tractica strives to offer conclusions and recommendations that reflect the most likely path of industry development, even when those views may be contrarian.

The basis of Tractica's analysis is primary research collected from a variety of sources including industry interviews, vendor briefings, product demonstrations, and quantitative and qualitative market research focused on consumer and business end-users. Industry analysts conduct interviews with representative groups of executives, technology practitioners, sales and marketing professionals, industry association personnel, government representatives, investors, consultants, and other industry stakeholders. Analysts are diligent in pursuing interviews with representatives from every part of the value chain in an effort to gain a comprehensive view of current market activity and future plans. Within the firm's surveys and focus groups, respondent samples are carefully selected to ensure that they provide the most accurate possible view of demand dynamics within consumer and business markets, utilizing balanced and representative samples where appropriate and careful screening and qualification criteria in cases where the research topic requires a more targeted group of respondents.

Tractica's primary research is supplemented by the review and analysis of all secondary information available on the topic being studied, including company news and financial information, technology specifications, product attributes, government and economic data, industry reports and databases from third-party sources, case studies, and reference customers. As applicable, all secondary research sources are appropriately cited within the firm's publications.

All of Tractica's research reports and other publications are carefully reviewed and scrutinized by the firm's senior management team in an effort to ensure that research methodology is sound, all information provided is accurate, analyst assumptions are carefully documented, and conclusions are well-supported by facts. Tractica is highly responsive to feedback from industry participants and, in the event errors in the firm's research are identified and verified, such errors are corrected promptly.

Chart 6.1   Tractica Research Methodology

MARKET RESEARCH

SUPPLY SIDE ←					→ DEMAND SIDE
PRIMARY RESEARCH	Industry Interviews	Vendor Briefings	Product Evaluations	End-User Surveys	End-User Focus Groups
SECONDARY RESEARCH	Company News & Financials	Technology & Product Specs	Government & Economic Data	Case Studies	Reference Customers

MARKET ANALYSIS

QUALITATIVE ANALYSIS	Company Analysis	Business Models	Competitive Landscape	Technology Assessment	Applications & Use Cases
QUANTITATIVE ANALYSIS	Market Sizing	Market Segmentation	Market Forecasts	Market Share Analysis	Scenario Analysis

(Source: Tractica)

NOTES

CAGR refers to compound average annual growth rate, using the formula:

CAGR = (End Year Value ÷ Start Year Value)$^{(1/steps)}$ – 1.

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenues, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2017 U.S. dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

SECTION 7

ADDITIONAL READING

Tractica's Artificial Intelligence advisory service examines use cases and business models for the application of artificial intelligence technologies in enterprise, consumer, and government markets. Research focus includes analysis of technology trends that are driving the development of more robust cognitive technologies, the use cases and value propositions for artificial intelligence in specific industries, and the key industry players who are shaping the next stage of market evolution. Granular market sizing, segmentation, and forecasting models provide industry participants with an objective assessment of the business opportunity for artificial intelligence software, as well as the hardware and professional services that will enable the software deployments.

Artificial Intelligence Use Cases
215 Use Case Descriptions, Examples, and Market Sizing and Forecasts Across Enterprise, Consumer, and Government Markets

Published Q3 2017

https://www.tractica.com/research/artificial-intelligence-use-cases/

This Tractica report provides a comprehensive examination of more than 200 discrete AI use cases across the consumer, enterprise, and government markets. The report defines, contextualizes, and offers real-world examples and revenue forecasts for each use case, organized by industry sector. It serves as a referential compendium to Tractica's ongoing market forecasting of the AI space, offering an overview and analysis for each use case included in the model. As applications are analyzed in depth, the report also identifies common themes across the broader AI market.

Artificial Intelligence for Consumer Applications
Image Recognition, Speech Recognition, Recommendation Engines, Personalization Services, Search Tools, Virtual Assistants, and Other Consumer AI Use Cases: Global Market Analysis and Forecasts

Published Q3 2017

https://www.tractica.com/research/artificial-intelligence-for-consumer-applications/

This Tractica report provides a detailed examination of the market opportunity for AI hardware, software, and services in the consumer sector during the period from 2016 to 2025. Tractica's analysis and forecasting of the AI market finds that consumer AI now accounts for the largest portion of AI software, hardware, and services revenue, representing approximately $1.86 billion in 2016, greater than any other industry segment. The analysis and forecasts in this report cover the top 23 use cases for consumer AI based on revenue, investment, and market activity. Profiles are also included for 20 key participants in the emerging consumer AI market ecosystem.

Artificial Intelligence for Enterprise Applications
Deep Learning, Machine Learning, Natural Language Processing, Computer Vision, Machine Reasoning, and Strong AI: Global Market Analysis and Forecasts

Published 3Q 2016

https://www.tractica.com/research/artificial-intelligence-for-enterprise-applications/

This Tractica report examines the market trends and technology issues surrounding video analytics technologies and presents forecasts for hardware, software, and services during the period from 2015 through 2022. The report presents in-depth analysis of market drivers, market barriers, application markets, and technology issues, in addition to detailed profiles of 20 key industry players. Key application markets covered include retail, transportation, consumer, city, critical infrastructure, and enterprise. Market forecasts, segmented by world region, include hardware unit shipments as well as hardware, software, and services revenue.

Artificial Intelligence Market Forecasts
154 Consumer, Enterprise, and Government Use Cases for Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Machine Reasoning, and Strong AI Across 29 Industry Sectors

Published Q2 2017

https://www.tractica.com/research/artificial-intelligence-market-forecasts/

This Tractica report provides a quantitative assessment of the market opportunity for AI across the consumer, enterprise, and government sectors. The report includes market sizing, segmentation, and forecasts for 154 specific AI use cases and the 29 industries in which they will play a role. The market forecasts span the period from 2016 through 2025 and include segmentation by the six fundamental AI technologies: machine learning, deep learning, computer vision, NLP, machine reasoning, and strong AI. Revenue forecasts are further segmented by software, hardware, and services, in addition to segmentation by world region.
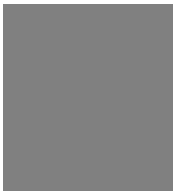
Deep Learning
Enterprise, Consumer, and Government Applications for Deep Learning Software, Hardware, and Services: Market Analysis and Forecasts for 112 Use Cases

Published Q2 2017

https://www.tractica.com/research/deep-learning/

This Tractica report examines the practical application of deep learning within consumer, enterprise, and government markets. The report provides strategic analysis and market forecasts for 112 deep learning use cases within 28 industry sectors, including an assessment of benefits and implementation considerations along with a quantification of the market opportunity for each use case. Market forecasts include deep learning software, hardware, and services revenue, segmented by world region, for the period from 2016 through 2025. The report also includes profiles of 26 key players within the evolving deep learning market ecosystem.

SECTION 8

AI SUMMIT SAN FRANCISCO

At a time when AI conferences were geared towards research & academia, AI Business launched The AI Summit; the first-ever conference & exhibition globally to explore what AI practically means for enterprises. The AI Summit brings together over 4000 delegates of the world's leading organisations engaging in meaningful conversations on how to prepare for an AI-powered future.

Now part of KNECT365, informa, AI Business run the world's foremost shows on AI with annual events in London, San Francisco, Tokyo, Hong Kong, New York, Singapore and Zurich. AI Business is the leading global media & events organisation specialising in the impact of Artificial Intelligence in business. We focus on the practical applications of how AI technologies are drastically transforming the future of work in a positive way – we champion AI 24/7.

For more information, visit www.theaisummit.com or send questions to https://theaisummit.com/contact/.

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© 2017 Tractica LLC

1111 Pearl Street, Suite 201

Boulder, CO 80302

Tel: +1.303.248.3000

Email: info@tractica.com

www.tractica.com