



Information Industry Outlook 2018

Outperform and *Out Sell*

October 4, 2017

Outperform and Out Sell

Every day, Outsell researches, analyzes, and forecasts the trends and developments that help your business grow revenue. Celebrating our 20th edition, the Information Industry Outlook 2018 draws on the dedication and expertise of the entire Outsell team and delivers the best industry intelligence to support your mission-critical decisions.

At Outsell, we believe that information and knowledge are fuel for the human spirit. They foster understanding, discovery, enjoyment, learning, and commerce around the globe. We believe in a world where people always have access to the information they need, advancing their lives so they can advance the lives of others.

Our 2018 theme, **Outperform and Out Sell**, focuses on the imperatives industry leaders face today: innovation, consolidation, and execution. It offers a deep look at the possibilities and consequences of a world where our prior Outlook themes — convergence, growth in the machine age, and an industry at a tipping point — have all played out. See what's coming next!

As always, we're here to help you through your toughest challenges and celebrate your greatest achievements. Please reach out whenever we can be of service.

Our very best wishes,



A handwritten signature in black ink that reads "Anthea".

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As Chief Analyst and an early member of the Outsell team, Leigh Watson Healy has co-created and led all aspects of Outsell's activities in producing research, advisory, and consulting services for senior executives in data, information solutions, analytics, and media. She relies on her extensive experience in market and opportunity assessment, strategic and business planning, and product planning to serve as an executive-level advisor to a broad range of Outsell clients. As a primary spokesperson for Outsell, Leigh writes and speaks frequently about key trends and issues in the information industry. Today, she leads development of Outsell's long-term strategic relationships with Outsell's top clients in the industry and drives the delivery of trusted, value-add programs and thought leadership and analysis, that meet these clients' needs. Leigh has co-chaired Outsell's Leadership Community, an exclusive member service for CEOs and senior executives of firms in data, information and technology and is a member of the firm's executive team.



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Why This Topic

For 20 years now, we've prepared our annual Outlook on the trends and predictions that will shape the year ahead. It provides guidance and essential actions for data, information solutions, and media industry leaders, shaping their business plans for the coming year. Each year we also name our annual Companies to Watch — those that exemplify the coming year's key theme, selected from the Outsell 250 list of emerging companies and industry startups that we serve and track closely as leaders of innovation and change.

We continue to see our world rocked by tectonic shifts, discontent, and political, social, and economic volatility while more change continues to play out every day. The Brexit referendum and the US presidential election results were bombshells — and the fallout seemingly never-ending. Technology-driven structural change is afoot: driverless cars, robots at work, AI fueled investing, learning, decision-making. Millennials are taking charge as the largest generation in the workforce. These phenomena are no longer far out on the horizon but are here today.

Year over year, we've been predicting and then witnessing the unprecedented change impacting our industry, and our change forecasts have been pretty much right on. But with upheaval and change as the new normal, waiting to see what will happen after Brexit, after the election results, after the dust settles is no longer an option. It's time to make decisions, to set plans set in motion.

For industry leaders, it is now all about tactical execution when it comes to driving the growth engine with impeccable operating performance. Focus, gaining market share, building trust, innovating organically or through M&A, and execution against best practices and benchmark norms are the name of the game.

We publish this piece so leaders and their teams can use this as a backdrop to assess their 2018 plans and, in times when uncertainty is the norm, make informed decisions and seize opportunities. We provide essential industry statistics, focus on key trends in motion, and, most important, best practices for optimal performance. With this year and next all about execution, our mantra and mega-theme for 2018 is **Outperform and Out Sell.**

Read on for why.

Methodology

Each year, Outsell invests millions of dollars analyzing all sectors of the industry. We continue to cover the sectors and players driving growth in the business of data or using it to run their business. We track convergence of all forms of content, data, software, services, and platforms in 27 segments and monitor over 9,000 firms (increasing every day) within these segments. We provide coverage of major announcements, revenue and business model mix, and growth.

We couple this supply-side analysis with a demand-side perspective, conducting original research among marketers and advertisers, enterprise information buyers, and end-users (as professionals and consumers) to follow the money and track and forecast spending trends. We then take this fact-based underpinning and combine it with our daily dialogue conducted with decision-makers and our more than 20 years of tracking and analyzing the industry. Finally, our analytic team convenes to discuss and debate the forecasts, trends, and leading firms to watch.

This year we also surveyed CEOs and members of Outsell's Leadership Community and asked them to share their sentiments on business prospects.

Finally, we developed our **Outsell 250** and 30 Companies to Watch with a **rigorous methodology**, scoring these emerging companies on criteria that includes uniqueness of approach, innovation around use of data analytics, and overall potential for growth.

As a result, this year's mega-theme **Outperform and Out Sell** drives directly from our research and our key analytic takeaway: 2018 and beyond is about executing well and meeting Outsell's success criteria in order to do so.

Industry Growth & Performance

Now

\$1.6 Trillion

Our industry of information, media, and technology is a blend of fast-growing data and data analytics, software, services, tech companies, and moderate-growth publishers. Hot spots are workflow solutions providers and data analytics-intensive businesses, startups, and newcos that reflect the opportunities arising from our emergence into the third wave of computing, with intelligent and data-driven technologies sensing, predicting, and prescribing solutions born from the now “over and done” convergence of content, technology, software, devices, people, and workflows.

Martech, Adtech, and Health Information & Health IT are the growth frontrunners, with all expected to grow well over industry average growth of 4.6% during the forecast period. Along with other data-intensive segments — Supply Chain Automation and Procurement Solutions, Pharma Information and Solutions, and HR Services and Solutions — these hot spots will continue to drive industry growth in the next several years.

News and Yellow Pages continue to lag and drag industry performance. After a battering by the drop in global oil prices, we expect Geophysical & Geomapping to recover and return to growth in the forecast period.

Geographic Distribution

2016 Estimated Global Revenue
(USD Billions)

US
\$817.9

Regional Share:
49.9%
YoY Growth:
6.6%

Other Americas
\$92.0
Regional Share:
5.6%
YoY Growth:
9.9%

EMEA
\$452.6

Regional Share:
27.6%
YoY Growth:
3.5%

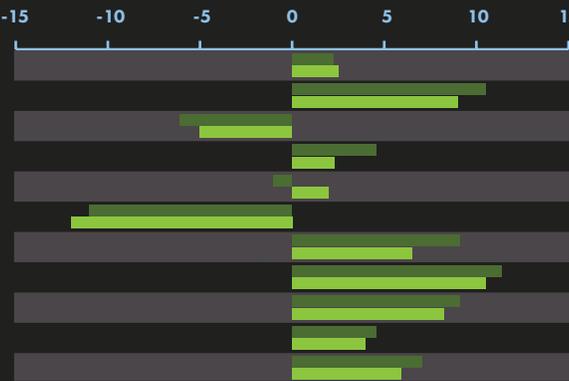
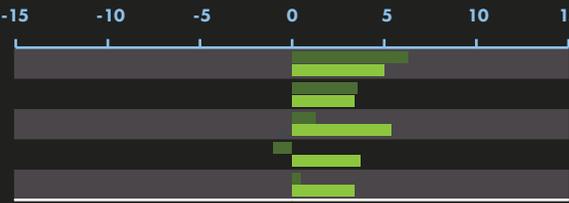
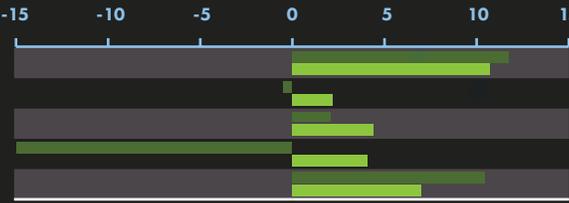
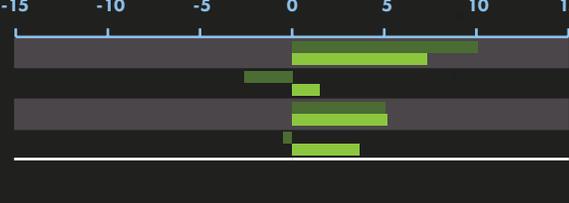
Asia Pacific
\$277.5
Regional Share:
16.9%
YoY Growth:
9.9%

Source: Outsell, Inc. Research & Analysis

Industry Ecosystem and Segments

2016 Revenue and Growth (USD Billions)

 CAGR 2014-16 Growth
 CAGR 2017-20 Forecast

	2015	2016	YoY	
Media, Marketing & Analytics		\$451.5		
Marketing Services	\$149.6	\$157.5	5.3%	
Adtech	\$72.2	\$78.9	9.2%	
News	\$67.5	\$65.4	-3.1%	
B2B Media & Business Information	\$38.2	\$39.4	3.1%	
Marketing Research	\$38.2	\$38.8	1.6%	
Yellow Pages	\$17.9	\$15.7	-12.3%	
CRM Solutions	\$13.4	\$14.4	7.5%	
Martech	\$12.8	\$14.3	11.7%	
Supply Chain Automation & Procurement Solutions	\$10.7	\$11.8	9.8%	
Company, Contact & Personal Information	\$10.0	\$10.9	8.6%	
IT Research	\$4.1	\$4.4	8.0%	
Financial, Credit, Legal, GRC, Tax & Accounting		\$168.1		
Financial Information & Solutions	\$57.9	\$63.8	10.2%	
Tax & Accounting Solutions	\$44.0	\$45.8	4.3%	
Governance, Risk & Compliance Solutions	\$21.8	\$22.9	4.9%	
Legal & Regulatory Solutions	\$22.0	\$22.7	3.1%	
Credit Information & Solutions	\$12.3	\$12.8	4.7%	
Science, Technology & Healthcare		\$137.4		
Health Information & Health IT	\$80.1	\$90.9	13.5%	
Scientific & Technical Information & Solutions	\$12.9	\$13.3	2.7%	
Medical Information	\$10.7	\$11.4	6.2%	
Geophysical & Geomapping	\$13.6	\$11.1	-18.4%	
Pharma Information & Solutions	\$9.4	\$10.8	15.2%	
Education, Training & Human Capital Management		\$150.1		
HR Services & Solutions	\$49.6	\$55.3	11.5%	
Teaching & Learning	\$52.8	\$53.3	0.8%	
Corporate Training	\$22.4	\$23.4	4.3%	
Education Management Solutions	\$18.0	\$18.1	0.7%	
Consumer Entertainment	\$605.4	\$652.9	7.8%	
Content Technology & Distribution Services	\$73.2	\$80.1	9.5%	
Total Industry	\$1.5T	\$1.6T	6.4%	

Source: Outsell, Inc. Research & Analysis

Outsell's 2018 Meta Theme

Outperform and **Out Sell**

On this 20th anniversary of Outsell's Information Industry Outlook, and 10 years since the start of the global financial crisis, it's worth a quick look back at our Outlook themes since the downturn and return to growth.

2009 No Guts, No Glory
2010 Age of Experience
2011 Looking for Revenue in All the Right Places
2012 Break and Reset
2013 The New Normal
2014 Convergence Now!
2015 Sensored World, Sensible Choices
2016 Tipping Point
2017 All Data, Nothing But Data

For years, we've seen companies battle for market share, look for new revenue sources, undergo digital transformation, and grapple with how to thrive and grow in our increasingly AI and data-driven world. We saw old models break and reset to a new normal, and we are witnessing our industry pass multiple tipping points in business models, user behaviors, the rise of smart machines, and decisions driven by algorithms, with secular change all around us. We are clearly past the tipping point on many trends that once loomed on the far horizon and suddenly are here, now, on horizon one.



We recently noted, with interest, Forrester's 2017 Predictions, and we didn't see anything particularly new. Millennial behaviors have gone mainstream. The customer is the fundamental driver of change. The four key technologies that will reshape how businesses operate and interact with customers — augmented and virtual reality, the internet of things, artificial intelligence, and cloud computing — are the same four technologies that have been on the march for years. As we look at how the industry is faring today, these trends are old news:

**The death of advertising,
The death of print,
The death of retail,
The retirement of boomers,
The rise of millennials,
The rise of AI and smart machines,
The end of work,
Brexit, the US election, daily escalation of
Geo-political tensions,
The end of days ...
Enough!**

Major transformative change has happened, tipping points passed, and the future is here — for now. With all these trends thoroughly discussed and debated, the focus must now be less about predicting that the sky is falling or the next big thing. Instead, focus must now be more on execution. As we have noted, success exists for companies that seize the moment, leverage the tipping point, and recognize how to extract value from the current situation. It's all about execution. Hence, our 2018 mega-theme of **Outperform and Out Sell**.

Trends and Tipping Points

So, in a break with tradition, rather than focus on the “Top 10 Trends,” this year we provide a snapshot of trends and tipping points in motion, followed by a recap of what industry CEOs think will impact their businesses next year and beyond. Then, we offer our checklist of best practices as an aid to leaders to help them know if they are in good stead.

Forget Big Data, Focus on Good Data

“It doesn’t matter if one has the shiniest mainframe, coolest laptop, hippest social network, or Watson. If it’s crunching away on bad water, it’s going to yield information underload.”

Mike Caufield – [Information Underload](#)

Societal fragmentation has reached an all-time high.

Antifa, alt-right. Bro culture, gender uniformity. Tear it all down — rewrite history, cover it up, learn from it? Shades of Stalinist Soviet Union erasing photographs and all traces of the lives of people after death, making them unpersons disappeared from history. The daily list of offenses, attacks, vitriolic outbursts, and friends blocking friends on Facebook. Steven Stills’ lyrics resonate today as they did in 1967:

**“There’s something happening here
But what it is ain’t exactly clear
There’s a man with a gun over there
Telling me I got to beware
I think it’s time we stop
Children, what’s that sound?
Everybody look what’s going down
There’s battle lines being drawn
Nobody’s right if everybody’s wrong
Young people speaking their minds
Getting so much resistance from behind”**

An astounding amount of what’s going on with the seemingly overnight uprising of factions, emotions, and violent protests was predicted 20 years ago by Neil Howe in *The Fourth Turning*. As he and co-author William Strauss put forward in their generational theory, now is the time when generational shifts create a new normal of slower economic and population growth, broken trust and continuing distrust, and geopolitical and policy confusion.

Millennials and iGen in the throes of existential crisis are taking charge.

In the workplace and in the streets, their changing demographics and behaviors continue to affect spending and consumption patterns. Societal impacts are already evident: driving less and buying fewer cars, living in multigenerational households, moving to urban locations, delaying families. With these minimalist attitudes to consumption of material goods, “peak stuff” has arrived. In the workplace, millennials’ growing influence will continue to disrupt company cultures for the next 10 years. This *Millennial Mandate* — this generational talent shift as millennials have come of age — is the disruptive change that requires companies to have a culture adapted to the needs of each generation at work. Otherwise, they will experience increasing problems meeting goals and retaining talent.

Information, media, and publishing leadership remains male dominated.

Of 350 leading companies we researched to measure the current state of gender diversity in the corner office and their executive teams, only 22.2% of 3,220 executives are females. Only 22 companies have a woman in the highest leadership position (CEO), a paltry 6.3% of the industry’s top companies. Looking at just US-based companies, 23.8% of all the US-based executives are female. Of all the international companies, only 18.96% of executives are women. Our industry’s diversity does not match the markets we are serving.

Information industry credibility hits an all-time low.

Journalism continues to be under siege by fake news, with an entire industry shaken by its impact, particularly

during the US presidential election. Out of concern for brand safety, leaders in the industry began to move on the problem this year by investing in verification platforms, but credibility and trust won't regenerate overnight. The war against misinformation will take place on many fronts: at the browser level, within social platforms, and on branded news media websites.

Data has gone up in value tremendously in the past decade. Unauthorized parties will want to profit from it, and the only way to do so is to steal it.

Meanwhile, in the land of business information, Equifax has created a nightmare of epic proportions. One of the three largest providers of consumer credit information in the US, it experienced a cyberattack that impacted over 143 million people in the US (exposing their Social Security Numbers and other personal information that could lead to identity theft). For the greater industry, this is not just Equifax's problem. It is everyone's problem. From the data owners, to their curators, aggregators, seller/distributors, the story is the same: Data has gone up in value tremendously in the past decade. Unauthorized parties will want to profit from it, and the only way to do so is to steal it. Just as quickly as the information and data providers procure and monetize their data, data thieves improve their heisting capabilities. This will create an increasingly competitive market, driven

by enhancements in security and compliance. The result will be a society driven by the benefits of data or the fear of corruption. Equifax's delayed announcement about the breach, it's bungled handling of the situation, and the disastrous amount of information leaked takes industry cred to a whole new low. A wake-up call for every CEO in data, information, and analytics, the Equifax incident might just serve as a blessing, a reminder to take the responsibilities of data monetization seriously — both before and after these nightmares occur.

Disruptive technologies and Do-It-Yourself are undermining value propositions in multiple sectors.

We've noted how algorithms are replacing waves of financial analyst jobs and technology-driven, self-serve models are upending the value proposition in legal services. The World Economic Forum's recent report [Beyond Fintech: A Pragmatic Assessment Of Disruptive Potential In Financial Services](#) notes that fintech players are driving the pace of innovation but haven't yet realized their disruptive potential. In legal services, self-serve is on the disintermediation march. For example, Notarize supports DIY online video execution of documents that is legal in all 50 US states, and online court service Rechtwijzer can take a couple through an entire divorce for only €400 on average.

Do it for me/Need for speed — Instant delivery is the new norm.

Do it for me — Instacart, Favor, Lyft, Uber, car servicing and gas delivery in office parking lots — very west coast but indicative of the big technology firms and the mindset they engender. Amazon is and Foxconn exemplifies this trend, with Amazon adding 50,000 jobs at warehouses across the US and Foxconn building a factory in Wisconsin to bring manufacturing closer to its US customers.

AI and machine learning are smart but need to get smarter.

Outsell lead analyst Randy Giusto notes that there isn't a discussion in adtech and martech today that doesn't include AI and machine learning. These discussions focus on how they are going to reduce mundane tasks and add spice to how analytics assess the performance of campaign efforts. Right now, there is a tendency in the industry to call things AI that are just algorithmic work, but once these are integrated into SaaS platforms and tools in the marketing stack by players like Adobe, Salesforce, Oracle, and adtech players, these smart technologies will be used more and go beyond advanced personalization and campaign measurement. Elsewhere, in fintech, AI has met blockchain. Together, they have the potential to deliver new insights into cryptocurrency performance (see Insights, [AI Meets Blockchain](#), August 24, 2017). But this summer, [a judge trusted an algorithm that calculated a violent offender as a "medium" public safety risk](#), and the criminal's release resulted in the tragic murder of a citizen. The [San Francisco Chronicle sums up our sentiment](#), "We're trying to use a method that hedge funds use to make money to make a determination of whether someone should be in custody or not. The problem is if a hedge fund makes a mistake, they lose money. If we make a mistake, someone dies." Until AI gets a lot smarter, the overlay of human judgment and decision-making will remain a necessity, and it's imperative that the government forces putting this technology to work [understand what they're doing](#).

Cryptocurrency bubble may burst, but the blockchain revolution will continue.

In August, Bitcoin prices frothed to a record-breaking high of \$4,500. People are taking second mortgages to buy Bitcoin, betting it will go to the moon. Others are using Bitcoin to make down payments on mortgages.

Can cryptocurrency prices continue to rise? They can, if people think they have value. But even if the bubble bursts, the underlying technology — the blockchain — remains a powerful force for innovation wherever data and transactions need to meet for secure, instantaneous, and permanent recording in an open and distributed ledger. Innovations built on blockchain will continue to accelerate across the industry (see Insights, [SPECIAL EDITION: Blockchain Evolves from Hype to Reality](#), November 29, 2016).

Forget Big Data, focus on Good Data.

For years, Outsell has been talking about IT and IC — information technology and information content. In most instances, they're now one — software intertwined with content to make sure decisions get made at the right time, for the right people, with the right information. We've heard that before right? But what we learned with the [IBM Watson situation at MD Anderson](#), and what we've referred to as "feeding the beast," it's all about what Outsell calls Pipes and Water. It's okay to have the shiniest new pipes. But if what's running through them is polluted, not treated properly, or just not ample enough to flow through the pipes, it's a desert out there. Mike Caulfield summed up the ["Information Underload" issue](#) on his website nicely.

It doesn't matter if one has the shiniest mainframe, coolest laptop, hippest social network, or Watson. If it's crunching away on bad water — bad data, misinformation, fake news — it's going to yield information underload. In many ways, this bodes opportunity for our industry's players. People are now beginning to realize quality matters. Given our need for instant everything, quality has to be delivered in real-time, in digestible nuggets, and at the point of workflow.

And that's where better execution comes in ...

CEO Sentiment

What Executives Think about the Current and Future Business Outlook

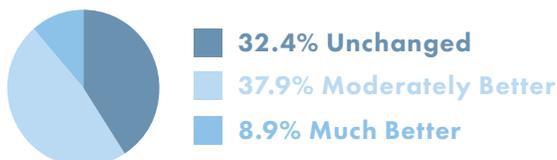
In light of these market dynamics, Outsell asked industry CEOs for their views on top trends and issues impacting their business and key initiatives in motion to drive business performance. Here's what 145 executives told us, responding to our survey in July 2017.

The Geo-Political Climate and Overall Business Conditions

Political uncertainty in the US is the top issue. Nearly half (44.8%) of executives believe it will have the most impact on their businesses. The potential impact of Brexit concerned 29.7% of CEOs. Although if the UK leaves the single market following Brexit, 74.5% of all respondents expect to do business as usual. North Korea and political uncertainty as well as the growth and influence of China also concern executives, as do global terrorism and overall non-economic uncertainty, climate change, and sustainability.



Compared to six months ago, executives said they felt business conditions and prospects for their business are:



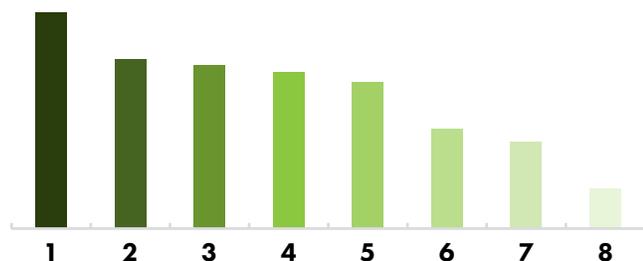
Growth Outlook and Top Initiatives

Far from doom and gloom, CEOs are actually fairly bullish, with 37.1% expecting over 10% organic growth this year, and another 24.3% predicting growth between 6-10%. And it's all about sales, sales, sales, with 73.9% of executives saying that improved new business sales are the biggest operational driver of growth for their business. Next in importance is expanding marketing efforts, according to 42.8% of respondents. Not surprisingly, improving sales performance will be a top initiative for 53.6% of executives in the coming year.

Also, building muscle in data and analytics is top on the minds of executives, with 46.4% of CEOs focusing on enhancing data and analytics in product and services and another 16.4% planning to enhance data and analytics to the benefit of operating the business.

On tap but farther down the list of priorities for execs — developing and executing a platform strategy (29.3%). While the perennial issue of hiring and retaining talent will be a focus for 25%.

A number of areas concern executives as the biggest gaps or blind-spots in their market-facing data and analytics operations. Again, ramping up a better performing sales operation is right at the top of the list, followed by user-centric pricing and experience.



1. **Improving sales performance (47.8%)**
2. **User experience (37.5%)**
3. **Setting value-based pricing (36.0%)**
4. **Enhancing data breadth and depth (34.6%)**
5. **Predictive analytics (32.4%)**
6. **Hiring and retaining talent (22.1%)**
7. **Usage (19.1%)**
8. **Prescriptive analytics (8.8%)**

Talent

Execution ultimately comes down to talent, with hiring and retaining the right talent another perennial issue on executives' minds. And again, it's all about data, data, data, and sales, sales, sales. The top skill sets execs are seeking to invest in or emphasize moving forward are:

- Data Science/AI
- Sales

In looking at the leadership mix, we asked CEOs whether their company has an executive gender equity plan? Only 16.7% say their business has a plan in place, with two-thirds

(63.8%) saying, "We don't have a plan." This painfully bears out the statistics of the gender make-up of our industry's executive ranks.

"Everything will change. Nothing will remain the same."

The Long View

When asked what societal trend CEOs think will have the greatest impact on the information industry in the next 10 years, this is what we heard most often in rank order:

1. Accessibility of data.
2. Attention economy — expectation of immediate answers, decline of reading.
3. Decrease in ownership and shift toward low cost subscriptions such as Netflix and Spotify.
4. Trust of information and data/mistrust of information, release of information and disinformation.
5. Job loss — AI will replace humans in base level jobs, Squeeze of middle class, middle class expansion globally.
6. Increased dumbing down of the population.

And finally, AI is here. CEOs think AI is the emerging technology that will have the greatest impact on the information industry in the next 10 years. One exec summed it up this way: "Everything will change. Nothing will remain the same."

To execute on opportunities and address challenges in their markets, successful companies looking for growth will pay close attention to the **key funding sources** for our industry.

The three stakeholder groups controlling or influencing the money flows that fuel industry growth remain: **marketers and advertisers** who decide the spending allocation for their marketing mix, **enterprise data and information managers** who spend for paid content, and **end-users** who buy and consume content directly.

Marketers & Advertisers

\$489 Billion

3.4% Total Growth Expected Over 2016

Top Five Barriers and Problems

Marketers' top problems and barriers represent a challenge and opportunity for martech, adtech, marketing services, company contact and personal information vendors, marketing research companies, and B2B and consumer media. Companies who serve the marketing function will improve their client relationships by focusing more on solving the day-to-day problems that marketers face.

1. Identifying and engaging with the right prospects at the right time
2. Media companies and vendors not solutions-oriented
3. Creating compelling content
4. Staff's analytical experience
5. Agencies not solutions-oriented

Trends That Matter

Cross Screen Experiences Gel

With most marketing largely automated and major cloud platform vendors providing cross-channel campaign management workflows, marketers begin to connect the media and the message. This happens across multiple screens to deliver content and messages to prospects and customers that are more personalized and contextual.

Mobile Rockets to No. 3 in Terms of Spending

Today, many marketers no longer treat mobile as a separate channel. Instead, they see it as the primary destination for content and advertising. Marketing organizations have started to reorganize around customer life-cycle stages rather than by channels because of this.

Acquisition, Engagement, ABM, People-Based Marketing, and New Skills are Key

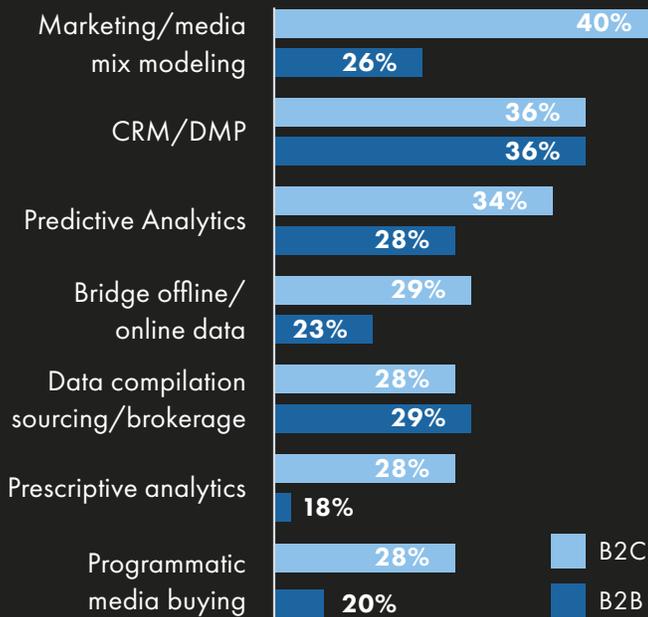
Marketers pinpoint several areas of focus ahead. Consumer-facing ones will increase efforts around marketing/media mix modeling, customer experience, and mobile content optimization. B2B marketers will focus on account-based marketing and client retention. First-party data becomes key for both.

2013-17 Total Spending (USD Billions)



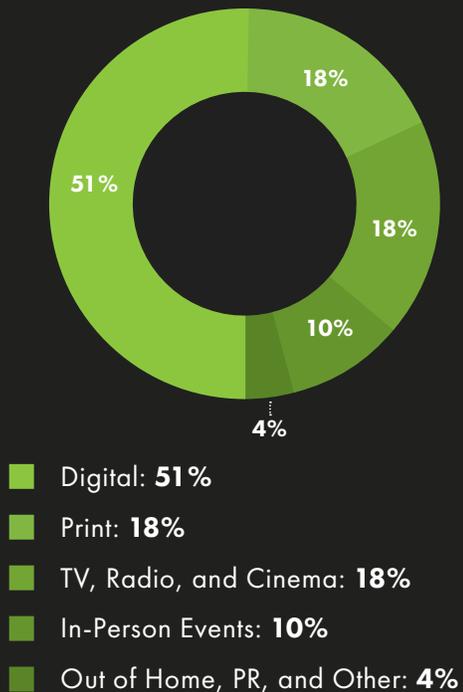
Source: Outsell, Inc. Research & Analysis

Data Efforts – Increasing



Source: Outsell, Inc. Research & Analysis

Budget Allocation by Category



*Numbers rounded to nearest percent

Information Management & Libraries

\$29.2 Billion

Forecast for 2017: \$29.2 Billion

Total library content spend in 2017 is flat, compared to 2016. The corporate library market performed more strongly than the academic, K-12, and public library markets. Content price increases continued to outpace corporate budgets, while higher education information budgets lacked buying power due to tightening finances, lower-than-expected enrollments, and competing new resources.

Trends that Matter

Doing More with Less

- Content fee increases were often 5% or more (and in several reported cases, 17%, 40%, and 1,000%), giving IM functions less and less buying power. Outsell advises information managers to examine subscriptions with a critical eye toward end users' key needs and work to creatively identify new and lower-cost resources.
- Reduced staff numbers — several libraries reported cuts of 75% over the last five years — means information professionals increasingly serve their organizations by wearing multiple hats, taking over tasks from others (including lower level staff) and outsourcing some library functions.

- Demonstrating the ROI of the library or information center is as important as ever. Effective information managers will clearly communicate to executives the value of their skills and information functions.

New Roles for Information Managers

- Those information managers who identify and acquire future-oriented skills — such as data licensing, visualization, UX design, and cognitive search management — will drive their organizations' success and extend their own positions.
- Information managers alert to change will find opportunities to adopt new roles: for example, archiving government data in case the US government does not preserve it. Efforts are already underway at dozens of universities and libraries across the US and Canada.
- Entrepreneurial information managers can leverage their skills and add value to their organizations by pointing out new opportunities for business development.
- Acquiring a deeper understanding of data-oriented copyright restrictions and contract terms will ensure professionals are not inadvertently misusing licensed data.

Continued Change and Opportunity

- Regular mergers and acquisitions and a continuous stream of emerging companies mean information professionals must monitor the landscape closely to uncover innovative new businesses and negotiate contracts and pricing terms from an informed position.
- Global political upheaval has brought turmoil around funding for libraries. Information managers will need to remain both agile and vocal to respond to these external challenges.

Connecting with End Users

- With many libraries moving mainly to digital services, conducting detailed needs assessments will be more important than ever to ensure that information centers' resources and services are on-target.
- Queries from clients have become more challenging as end users answer easier questions online. This means information managers need to prioritize end user training in general research, product usage, and tools like data visualization software.
- Outsell research reveals that 37% of researchers are unaware of the specifics of their company's copyright policies, and only 14% turn to information management professionals as their main source of copyright expertise. Information managers will need to ensure their end users understand their usage rights.

Knowledge Workers

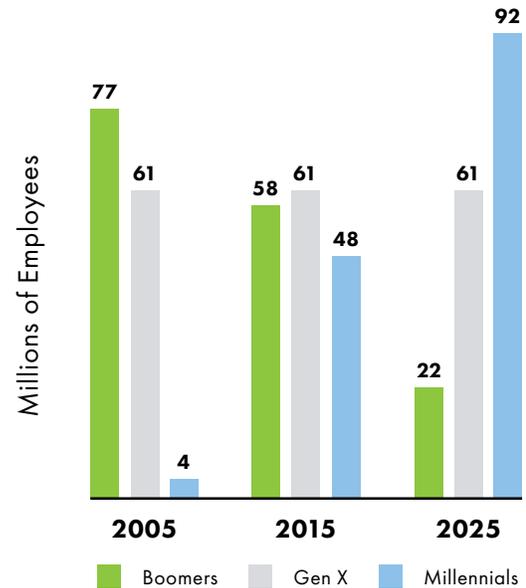
The consumerization of professional content markets continues at a rapid pace. End users increasingly demand the same ease of use, flexibility, speed, and adaptability regardless of whether consuming content in their professional roles as they expect at home. In response, we see five key themes emerge that are critical for product development today that span nearly every content type:

- **Getting the UI and UX Right:** Content delivery must integrate with workflow.
- **(Usage) Data Driven Insight:** Observing user behaviors, rather than asking about it is the new path to understanding and feature prioritization.
- **Google-ization of Discovery:** Providing quick and easy access to required content, as well as serendipitous discovery.
- **API Driven Distribution:** At the same time, ongoing extension into the user workflow to support users on an integrated and end-to-end basis.
- **Targets of One:** Enabling personalized, tailored offerings that truly place content and data in context by aggregating user statistics and identifying individual needs.

By 2025, millennials will comprise the majority of the workforce, and as they grow in positions of influence, the nature of work and the workplace will continue to change based on their needs and preferences.

Fueling and perhaps accelerating these trends is the emergence of the millennial knowledge worker as Early Career Researchers. This is a group that relies on social media for communication, discovery, and sharing information and prefers free services to publisher platforms and will turn to Google before using a library system.

Organization Performance



Within individual professions, we also see a few other critical trends emerge that compound the challenges of meeting their specific needs. These are:

Engineers

- Up to 50% of engineers are due to retire in the next few years. In five years' time, millennials will form more than 50% of the management buying group and providers will need to have found a way to meet their needs and requirements else others pass them by.
- Engineers suffer from information overload. Some estimates suggest that engineers need 13 different information sources in order to solve a problem.

Education and Training Professionals

- Education markets have seen a strong push towards improved user experience.
- Employees are looking for a corporate learning experience akin to the ways Netflix or YouTube delivers content.

Corporate Finance, Risk & Compliance, and Tax & Accounting Professionals

- Corporate financial professionals desire to have access to real-time information so that they can address deadlines.
- Mobile devices are merely facilitators of workflow. When corporate finance professionals make decisions, they use mobile devices to enable execution but the actual work requires the full “real-estate” of a screen that only a desktop computer provides.
- When it comes to sharing information, nearly 75% of corporate finance millennials (those raised to do just about everything, electronically) prefer to do so in person.

Legal Professionals

- In-house lawyers within corporations are gaining power and greater influence on strategic decisions. A key driver for this increase in power is the growing number of legal and regulatory risks, such as privacy laws, and a dramatic increase in the amount that authorities are fining corporations for non-compliance of regulations.
- Overall greater automation is reshaping legal services sector. Technologies, such as artificial intelligence, data analytics, and blockchain are coming together and making it easier to automate legal processes.

Sales Professionals

- Sales professionals’ information needs are very specific and tend to be immediate. This specificity is related to their mission: finding and qualifying prospects, preparing proposals, and developing account and territory plans.
- From a behavioral perspective, sales professionals’ primary motivation is to achieve their targets by closing deals. This is how they earn their pay and keep their jobs. Everything else is considered secondary, including accessing the information that is often required to perform their primary functions. This paradox means that sales professionals tend to search for information while in the midst of more immediate, high pressure activities. They may be better served by routinely searching for information that would likely help them in the near future, but in the hectic routine of a sales professional, this is not always feasible.

Organization Performance

Shift in Approach Required for Millennials



Transactional Approach to Employees

Organization-centric
Factory Orientation
Pay-for-Performance/
Profit Driven



Relational Approach to Employees

Talent-centric
Community/Culture
Orientation
Purpose Driven



Analysts' Views on 2018 and Beyond

Our analysts weighed in on the critical trends going forward and what our Outperform and Out Sell meta-theme means to their specific sectors and players.

We take a look at each in the following pages.

Media, Marketing & Analytics

Media, Marketing & Analytics covers the broad spectrum of media types today, supported by a range of marketing, data, and research services for both consumer and business audiences. This includes emphasis on adtech and martech providers as the framework used to connect marketers and publishers.

Trends and Hot Spots

Bridging Data and Insights Gaps Brings Ecosystem Players Closer

Bridging attitudinal and behavioral data with offline sales data, customer insights with audience targeting efforts, and making segmentation data available within data marketplaces will continue to bring marketing research providers and adtech and martech vendors closer together. With survey panels hitting their limits of usefulness, research companies will look for ways to get at better data by leveraging the data exhaust from advertising ecosystem providers.

AI Blossoms to Simplify Tasks and Make Content Smarter

AI will impact several market segments going forward. It will help tailor creative and messaging in real-time, limit ad saturation, and deliver personalized mobile, video, and messaging experiences. In marketing services, it will help tag, manage, and search through images and video, as well as automate manual, time-consuming tasks like media execution, optimization, and analysis.

New Digital Giants Begin to Emerge

Big telecom providers will become the latest issue for news

publishers. The rollback of US consumer privacy laws opens the door for [AT&T](#), [Comcast](#), [Verizon](#), and others to collect browsing activity data from leading media sites, create insights from it, and sell them directly to marketers, bypassing publishers in the process.

Video's Rise Will Drive New Investments

The use of video will grow as video-focused M&A and partnership activity continues at a brisk pace. According to Outsell's 2017 Advertising and Marketing Study, video spending will grow 27% in 2017, and marketers will look to fold video content creation, management, and measurement more easily into their marketing workflows.

Blockchain in Advertising

Over time, more blockchain activity around advertising will emerge as marketers increasingly look for ways to address big industry problems through secure, digital ledger solutions. In its wake, a consolidated adtech market will leave stronger technology companies more committed to marketer's businesses and willing to pursue blockchain-like opportunities. Marketers and publishers will see an increasing number of blockchain solutions with which to pick from, eventually. Until then, watch this space as competitive blockchain developments evolve.

Three Execution Essentials

Embrace AI to unlock greater business value

Artificial intelligence's use will increase exponentially in adtech, martech, and salestech. Identifying and engaging with prospects along the path to purchase and creating compelling personalized content at each touch point addresses leading sales and marketing pain points. For marketers and publishers, AI shows promise in the areas of customer identification, content personalization, predictive analytics and optimizing marketer workflows.

Invest in quality content and data

Ad fraud, viewability, brand safety, fake news, and misinformation concerns have pushed marketers to demand higher quality content and data from adtech providers and publishers. Marketers will not tolerate bad data any more than they will tolerate their own data breach. Vendors need to focus on quality data, and

publishers on premium content, otherwise marketers will move their budgets elsewhere.

Focus on customer-centric strategies

People-based marketing puts customers first and brings more change to advertising. Adtech providers will need to reduce media buying complexity. Martech vendors will need to integrate cross platform campaign management into marketer workflows. Marketing services providers will need to offer CRM and marketing data planning as a managed service. Agencies will need to provide full visibility on fees and 100% viewability on ads delivered. Marketing research firms will need to deliver data that's more digestible. Publishers will need to join PMPs, publisher co-ops, and invest in agency services.

Media, Marketing & Analytics

Geographic Distribution

2016 Estimated Revenue
(USD Billions)



Companies to Watch

AdBrain

\$1.0M est. revenue

Clarifai

\$3.0M est. revenue

ditto Labs

\$2.0M est. revenue

Drawbridge

\$100M est. revenue

iQ Media

\$7.0M est. revenue

MadHive

\$0.5M est. revenue

Persado

\$18M est. revenue

Pilot AI Labs

(pre-revenue)

Sentiance

\$6.0 est. revenue

Survata

\$8.0M est. revenue

Market Ecosystem and Segments

2016 Estimated Global Revenue (USD Billions)

Adtech

\$78.9B

9.2% YoY Growth

Segment Leaders

- Criteo
- Google

B2B Media & Business Information

\$39.4B

3.1% YoY Growth

Segment Leaders

- RELX
- Alibaba

Martech

\$14.3B

11.2% YoY Growth

Segment Leaders

- Adobe
- Salesforce

Marketing Services

\$157.5B

5.3% YoY Growth

Segment Leaders

- Omnicom
- WPP

News

\$65.4B

-3.1% YoY Growth

Segment Leaders

- News Corp.
- Asahi Shimbun

Marketing Research

\$38.8B

1.6% YoY Growth

Segment Leaders

- Nielsen
- Kantar

Supply Chain Automation & Procurement Solutions

\$11.7B

9.8% YoY Growth

Segment Leaders

- SAP
- Oracle

Yellow Pages

\$15.7B

-12.3% YoY Growth

Segment Leaders

- YP
- hibu

Company, Contact & Personal Information

\$10.9B

8.6% YoY Growth

Segment Leaders

- Dun & Bradstreet
- LinkedIn

CRM Solutions

\$14.4B

7.5% YoY Growth

Segment Leaders

- Salesforce
- SAP

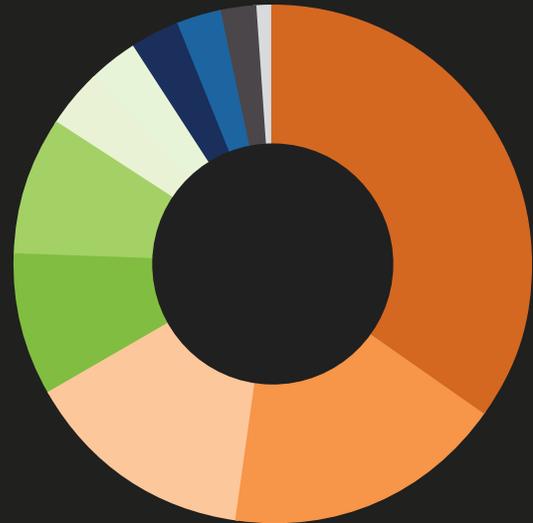
IT Research

\$4.4B

8.0% YoY Growth

Segment Leaders

- Gartner
- IDC



Source: Outsell, Inc. Research & Analysis

B2B Media, Business & Company Information

B2B Media, Business & Company Information includes companies serving business professionals with targeted vertical media, events, and market information, and those serving advertisers and exhibitors with targeted B2B audiences. Company Information includes data and related services used primarily to identify and target sales and marketing prospects. It also includes rich company profiles and data management services.

Trends and Hot Spots

Contact Information and Marketing Platforms Collide with Media

With improvements in intent and behavioral information, programmatic advertising, and contact data, company and contact information vendors approach the capabilities of traditional media. Meanwhile, media gets better at selling leads and account information. B2B media will address this issue by improving the depth and delivery of their leads information and by providing more sophisticated marketing services to clients.

B2B Marketing and Sales Start Converging

Account-based marketing (ABM) is driving a closer relationship between marketing and sales teams, and it's even bringing some marketing team members into sales. ABM requires close coordination between the teams, followed by building marketing campaigns targeted to pipeline positions and sales relationships. Company and contact information vendors report that they've been spending more time talking to their sales counterparts than to marketing.

Events Remain a Critical Component

Events continue to be an important and growing element of B2B marketing. Millennial marketers' enthusiasm for events, as Outsell's advertising and marketing study suggests, is likely to continue for the foreseeable future, setting longer-term growth prospects for the events industry. Events businesses have also changed their attitude and thoughts about Digital Transformation in that it's not a one-off investment anymore. They will look for ways to create holistic Digital Transformation strategies that integrate into company culture, product offerings, and workflows.

Companies Seek a Unified View

B2B companies will move to a unified view of their audiences across their media, events, data, and other properties. This enables them to market smarter and provide better audience information to their clients.

Three Execution Essentials

Explore a differentiated service offering

For B2B media, services represent a new revenue opportunity on top of existing publishing, events, and data activities. This includes information services with paid content subscription models, and marketing services a long-standing growth opportunity. Except for information services, these services do not scale like media businesses. Expenses increase as revenue grows, and they require a solutions-focused sales organization, rather than a transactional-focused one that sells media placements.

Invest in data management

Organizations are struggling to manage disparate information generated by multiple internal systems and streaming in from third-party applications. Whether

in support of customer single source of truth, ad fraud or product quality, the time for a prescriptive data management program is now. This problem will get worse before it gets better and those that fall further behind are at risk.

Address organizational gaps to capitalize on the business of data

The new world data order requires a rethinking of legacy skills and org charts. Companies seeking to monetize information assets need product leaders who can synthesize compelling offers from a deep understanding of market needs in partnership with solutions rather than transaction oriented sales organizations.

Platforms Rule

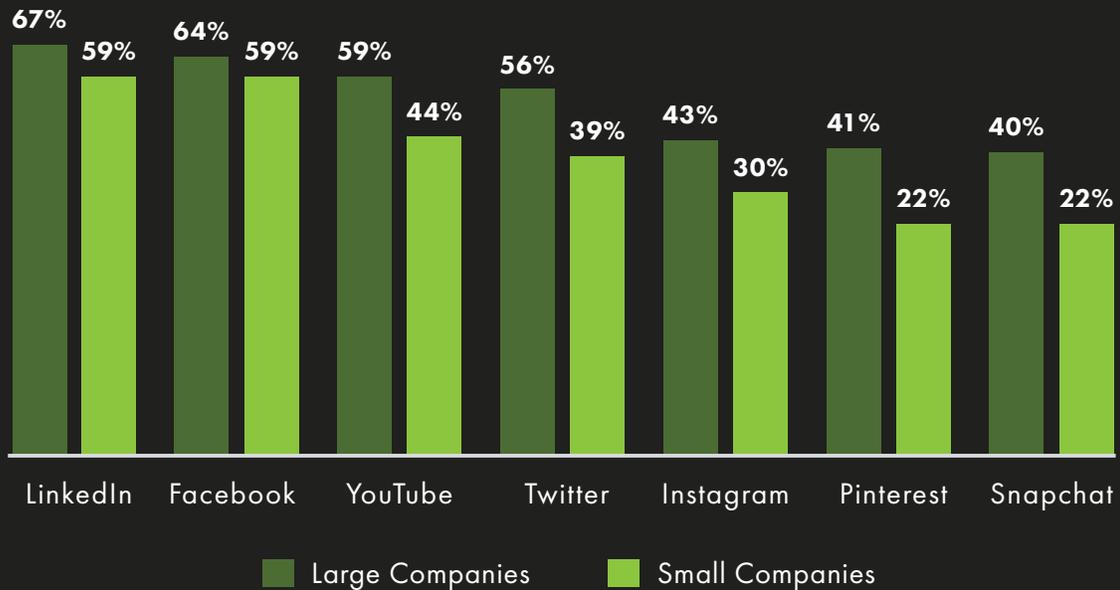
Platforms not only store and act on data, they are also the base on which third-party software and data providers plug in. Platforms are rapidly adding capabilities offered by third parties (ABM in Marketo, AI in Salesforce) and building partnerships (Oracle and Demandbase) that leave point source solutions behind.

Sales Acceleration Goes Full-Stack

Sales and marketing stacks are still too complex. Eventually, simplification comes, and it could come fast. Expect customers to reduce the number of tools in their sales stack or to rely on a single vendor to manage everything (except the CRM itself), from master data management to predictive analytics and mobile apps for reps.

B2B Media, Business & Company Information

Most Effective Social Media



Companies to Watch

Airmap

\$1.0M est. revenue

Aviso

\$2.0M est. revenue

Cannabiz

\$0.5M est. revenue

Dataiku

\$1.0M est. revenue

Dawex

\$2.0M est. revenue

DISCREN

\$0.5M est. revenue

Headset

\$2.0M est. revenue

INDIX

\$3.0 est. revenue

Thoughtspot

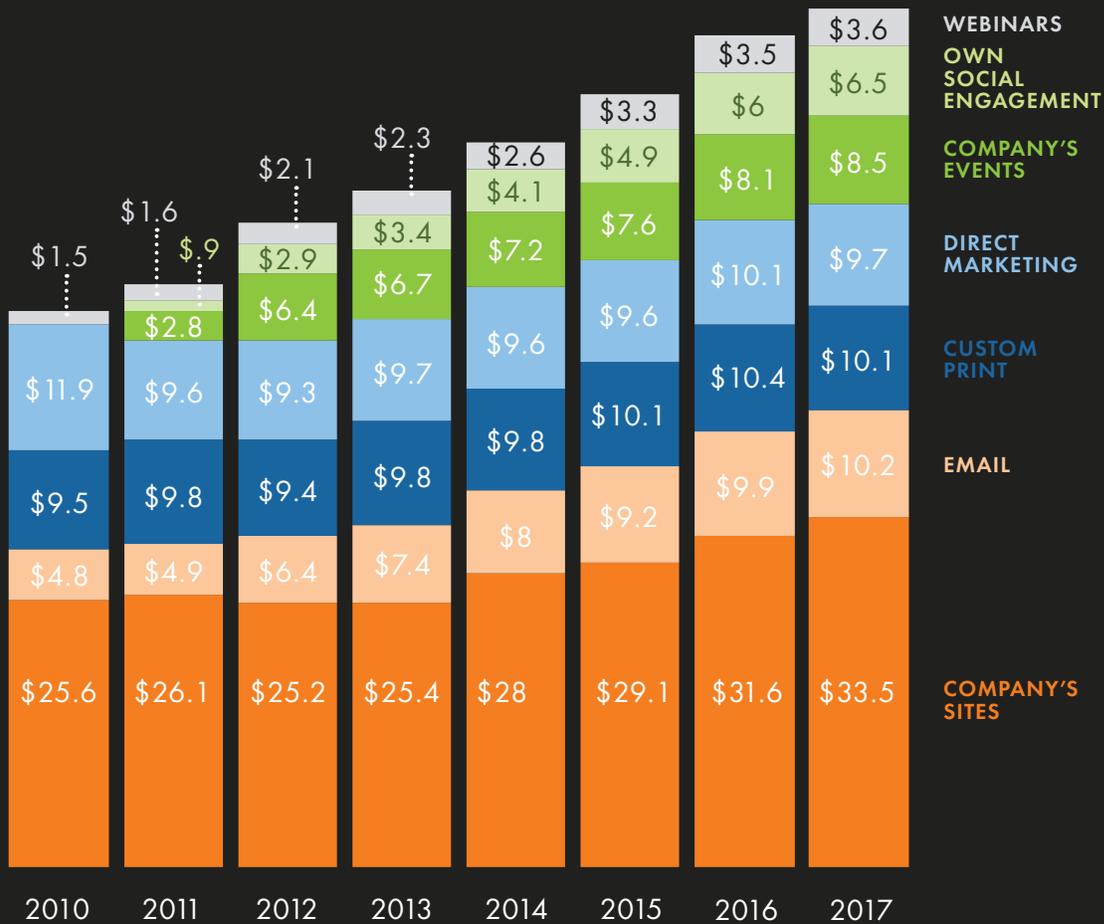
\$15.0 est. revenue

Unomy

\$5.0M est. revenue

US B2B Direct to Customer Spending

(USD Millions)



Education, Training & Human Capital Management

Outsell's coverage of this space includes educational content resources as well as solutions used for administrative purposes, edtech offerings, and services that support human capital management and recruitment.

Trends and Hot Spots

Teaching & Learning Solutions

An increasingly digital market demands that solutions providers redouble their efforts to understand user needs and to use this understanding to personalize solutions. There's also a shifting competitive landscape, with uncertainty around potential disruption from big technology players such as Microsoft, Google, Facebook, Amazon, and Apple, as well as from smaller edtech startups and the increasing availability of high-quality Open Educational Resources (OERs). Implications concerning data security and privacy arising from the increasing usage of digital solutions remain.

Education Management Solutions

Providers are using big data to extract value from solutions, delivering new insight to end users so that they can assess both faculty and student performance. These insights are also helping solutions providers drive product refinement and development. The creation of integrated portfolios and the use of standards such as Caliper increasingly serve demand for interoperability. Increasing demand for data to support business outcomes is hampered by poor quality data and privacy concerns, but this also provides an opportunity for solutions to address these issues.

HR Services & Solutions

In HR, there is growing recognition that these offerings can deliver competitive advantage, enabling HR to increase their efficiency and assess return on investment. The nature of the HR function is changing through a growing focus on data and insight. While it is still early days, there is potential for AI to enable HR to increase its impact in certain areas.

Corporate Training

Digitally-driven democratization is leading to a shift in the balance of power, with learners increasingly determined to drive the direction of their learning to pursue their own career and development goals. Better understanding of neuroscience is leading to the emergence of micro-learning and nano-learning solutions. These offerings also address the growing demand for highly targeted training nuggets delivered at the point of need.

Three Execution Essentials

Invest in UI/UX

Consumer players have raised the bar in this space, and digital-first organizations in the education space such as FutureLearn and Skillsoft are rising to the challenge of delivering a modern consumer experience, which works as well on mobile devices as it does on a desktop. Education solutions providers that haven't invested in user experience risk losing market share to providers employing cutting-edge technologies and intuitive user interfaces.

Understand the user

In all segments of the education space, building an understanding of the shifting nature of user needs and demands is critical to serving them effectively, and to ensuring a strong renewable business. This not only means

tracking usage of specific products, but also learning more about user pain points (including pricing sensitivities) and using developments in learning science to drive product development.

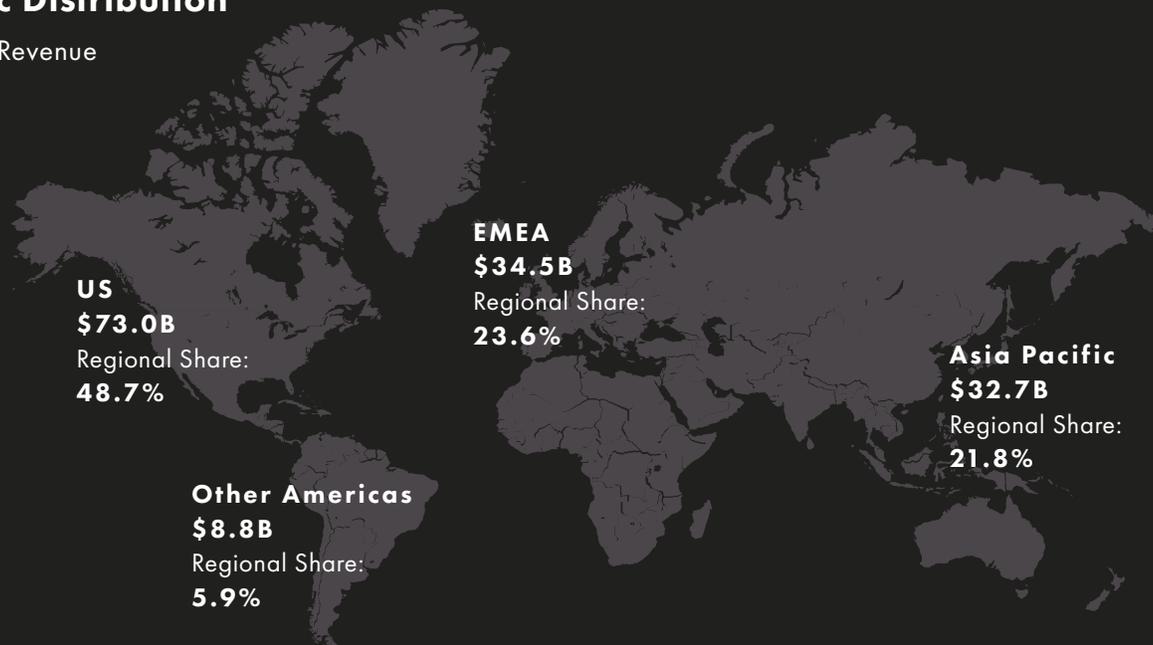
Demonstrate efficacy and ROI

All education-related solutions must demonstrate value to end users and buyers, whether this is through enabling efficiencies, delivering improved learning outcomes, or delivering digital tools and services that enable insights impossible in the print era. Attaching an associated monetary value to these activities is where the real challenge lies, and it takes the market full circle to the need to understand the user and their pain points.

Education, Training & Human Capital Management

Geographic Distribution

2016 Estimated Revenue
(USD Billions)



Source: Outsell, Inc. Research & Analysis

Companies to Watch

Acrobatiq

\$3.0M est. revenue

Coursera

\$24.0M est. revenue

ELSA

\$1.0M est. revenue

EverTrue

\$3.2M est. revenue

Immerse Learning

\$3.0M est. revenue

Labster

\$1.5M est. revenue

Next Tier Education

\$4.5M est. revenue

Show My Homework

\$2.5M est. revenue

Smart Sparrow

\$6.5 est. revenue

Third Space Learning

\$2.0M est. revenue

Market Ecosystem and Segments

2016 Estimated Global Revenue
(USD Billions)

HR Services & Solutions
\$55.3B
11.5% YoY Growth

- Segment Leaders**
- LinkedIn Corp.
 - Pearson Education
 - Workday
 - Ultimate Software
 - Ceridian Corporation



Teaching & Learning Solutions
\$53.3B
0.8% YoY Growth

- Segment Leaders**
- Pearson
 - Benesse Corp.
 - China South Publishing
 - Phoenix Publishing & Media
 - McGraw-Hill Education

Education Management Solutions
\$18.1B
0.7% YoY Growth

- Segment Leaders**
- Microsoft
 - IBM
 - Pearson
 - Ellucian
 - Blackboard

Corporate Training
\$23.4B
4.3% YoY Growth

- Segment Leaders**
- Global Knowledge Training
 - GP Strategies
 - Wiley
 - Arrow Education
 - Skillsoft Corporation

Financial, Credit, GRC and Tax & Accounting

This segment covers Financial Information & Solutions, Credit Information & Solutions, Governance, Risk & Compliance (Grc) Solutions, and Tax & Accounting Solutions.

Trends and Hot Spots

Financial Information & Solutions

Solution providers outside of financial services continue to break into the financial services space. Notable players include [IBM](#) with its Watson Financial Services (and acquisition of Promontory Financial Group), [Alibaba](#) with its stake in China Business News (CBN) and Big Data 100 Index, and [IHS](#)' merger with [Markit](#). Blockchain development in payments and trade settlements continue to garner momentum in financial services. Banks (as part of the R3 Consortium) and the VC/PE community are continuing to make investments. The value of data continues to escalate in financial services, as demonstrated by the premiums that [S&P Global](#) paid for [SNL Financial](#) and [Moody's](#) purchase of [Bureau van Dijk](#).

Credit Information & Solutions

Commercial credit information continues to expand its reach into the supply chain risk management realm (specifically supply chain finance). Data such as supply quality, lead time, and pricing are evaluated alongside creditworthiness to yield a more holistic perspective on business partners. [Experian](#), [Equifax](#), and [TransUnion](#) continue to dominate the consumer credit information arena. But freemium players like Credit Karma increasingly take market share from the big three. Trended data continues to garner traction in the mortgage space, thanks largely to the new Fannie Mae rule that requires lenders to evaluate candidates' management of balances (debt) over time. Both Equifax and TransUnion

are aggressively marketing their offerings in this space, while Equifax's epic breach causes the whole space to reel, creating a credibility setback.

Cybersecurity is an age-old practice, yet absolute immunity from hackers will never happen, even in the age of blockchain. But for providers that specialize in the business of consumer information, attention to data security must remain paramount — and the infrastructure used to secure such information must be of the highest echelon.

GRC Solutions

The application of artificial intelligence (AI) in GRC management is growing, given its ability to help companies prioritize risk & compliance management initiatives considering limited resources. Areas of third-party screening are gaining momentum, as geopolitical uncertainties loom. Solutions that address money laundering, bribery, corruption, and terrorist-funding are in full swing. With data breaches reaching an all-time high, data protection and cybersecurity regulations are driving up investments in the information technology (IT) GRC arena, with notable players like [RSA Archer](#), IBM, [Oracle](#), and [SAP](#).

Tax & Accounting Solutions

Transfer pricing studies, research & development (R&D) credit, mergers & acquisitions (M&A), and initial public offerings (IPOs) are driving up demand for tax management

Three Execution Essentials

Recognize the value of AI

Financial services and other highly-regulated verticals have kept AI on the sidelines, given the potential of AI's monetary impact if it makes wrong decisions or executes incorrectly. Platforms like IBM Watson are mature enough to test and integrate into the workflow of various industries, paving the way for newcomers that could potentially add further customer value to players in the greater information industry. This speaks to solid opportunities for collaboration.

Embrace content, analytics, and collaboration

Enterprise collaboration has become both a hardware and software play. From Cisco to Polycom, and from Adobe to Symphony, the key to successful business execution is relevant content and analytics that help accelerate

decisions. Each aspect of the content, analytics, and collaboration value chain consists of many players, and it is up to these players to evaluate how best to partner in order to yield the most customer value.

Understand that new data could create new markets

The marriage of IHS and Markit created new markets for both members — overnight. Markit benefited from a multi-vertical insight, while IHS gained a new audience in financial services. The same goes for Verisk Analytics and Wood Mackenzie in the risk and energy markets. The opportunity for new markets do not always lie in the different application/use of the same data, but in that of an altogether different data.

technologies and services, particularly in light of an economy globalization continues to increase with vastly distributed international teams.

Most companies remain largely reactive to enterprise tax management, so wait for government audits to arise before seeking audit support from tax consultancies. Instead of budgeting for proactive tax compliance measures (solutions), companies are allocating budgets to “put out

fires” when audits happen. Personal income tax services are taking a hit, given the growth of personal tax software. Consumers no longer need to understand tax law and requirements, but rather they only need diligently answer simple questions via software, a role traditionally filled by tax preparers. [H&R Block](#) is an example of a major personal tax service franchise that is losing market share to personal tax automation giant, Intuit.

Financial, Credit, GRC and Tax & Accounting

Geographic Distribution

2016 Estimated Revenue
(USD Billions)



Source: Outsell, Inc. Research & Analysis

Companies to Watch

AlphaSense

\$5.7M est. revenue

Corlytics

\$2.9M est. revenue

DataSift

\$30.0M est. revenue

GovBrain

\$0.2M est. revenue

Hedgeable

\$8.5M est. revenue

Panorama

\$49.9M est. revenue

QuanTemplate

\$4.7M est. revenue

Sentieo

\$2.5M est. revenue

Visible Alpha

\$3.0 est. revenue

Market Ecosystem and Segments

2016 Estimated Global Revenue
(USD Billions)

Financial Information & Solutions

\$63.8B Revenue
10.2% YoY Growth

Segment Leaders

- Bloomberg LP
- Thomson Reuters
- S&P Global
- Moody's Corporation
- Intercontinental Exchange

Credit Information & Solutions

\$12.8B Revenue
4.7% YoY Growth

Segment Leaders

- Experian plc
- Equifax
- TransUnion
- The D&B Corporation
- Fair Isaac Corporation (FICO)



Tax & Accounting Solutions

\$45.8B Revenue
4.3% YoY Growth

Segment Leaders

- EY
- PwC
- KPMG International
- Intuit
- Deloitte

Governance, Risk & Compliance Solutions

\$22.9B Revenue
4.9% YoY Growth

Segment Leaders

- RELX (LexisNexis)
- Verisk Analytics
- Wolters Kluwer
- Protiviti
- Towers Watson

Legal & Regulatory

The Legal & Regulatory solutions market includes B2B and B2C legal information, technology, and, increasingly, information-as-a-legal-service providers. They offer legal information and software used by the legal services industry, corporations, government bodies, and consumers prepared to conduct their own legal affairs.

Trends and Hot Spots

Automation of Legal Services

In the West, the legal services market is saturated. There has been little increase in demand for legal services, and subsequently little increase in demand for legal solutions. In this environment, solution providers need to help legal services providers increase demand for legal services. This will come from the lowering of legal fees through the automation of legal services and awakening the latent market for legal services. Legal solution providers need to develop toolkits and platforms for legal practices to automate their services.

Free Legal Solutions

As the “free law” movement gathers support around the world from governments, universities, non-profits, and startups, free legal solutions are getting better. LexisNexis recently acquired Ravel Law and has committed to maintaining the free, legal research platform Ravel developed in partnership with Harvard Law School Library by digitizing the library’s entire collection of US case law. Other legal information providers have improved or launched free legal research platforms, including [vLex](#), [Justis Publishing](#), [Casetext](#), and [Co/Counsel](#). Shifting the value of legal research platforms from pure content to data analytics and other tools will make it easier to launch basic, free legal research platforms that can drive new sales as power users progress to the premium version.

Predictive Analytics

Predictive analytics systems are transforming how lawyers prepare their litigation strategies, and legal analytics is the new competitive battleground for solution providers serving lawyers. Last year, [Bloomberg BNA](#) launched Litigation Analytics, a new module within Bloomberg Law that provides analytics on US judges and courts. The solution provides attorneys with advanced analytics to prepare litigation strategy by predicting factors such as which way a judge will rule, the length of time a judge will take, or the average appeal outcome. [LexisNexis](#) is also particularly active in this space following the acquisitions of [Lex Machina](#) in November 2015, which provides analytics for litigation data, and Ravel Law in June 2017, which provides analytics tools for entire court systems and jurisdictions and on law firms’ litigation histories.

Latin America

Outsell’s Market Sizing research reveals that the Latin American market is driving the growth in “Other Americas,” which increased its share of the global legal & regulatory solutions market from 5.8% in 2015 to 7% in 2016. Brazil is driving this growth, where there are nearly a million lawyers registered with the Brazilian Bar association, which equates to one lawyer for every 213 people. That gives Brazil more lawyers per head of population than the US. The increased privatization of state-controlled companies in

Three Execution Essentials

Larger law practices have grown impatient waiting on legal and regulatory solution providers to develop off-the-shelf innovative solutions that provide them with the technologies their clients increasingly expect. As a result, a few have begun hiring their own developers, data officers, and experts to create their own proprietary technology platforms and tools. This is enabling them to build tools that cater specifically for their needs, providing a competitive advantage in the market. Legal and regulatory solution providers need to act now to ensure they do not miss an opportunity to serve a major gap in the market.

Explore new ways to source better data

The popularity of analytics systems creates a need for better data sources. Legal solution providers can offer low-cost solutions where they can gather valuable w data to use in other solutions that serve premium buyers.

Launch tool kits for automated legal services

The automation of legal services will completely change the legal profession. Smaller legal solution providers are capitalizing on the automation trend by developing AI platforms that legal service providers can use to serve their clients with automated legal services. Corporate clients have developed their own internal automated services, which is taking business away from law firms. Mid-sized corporate law firms without internal innovation centers need

automation tool kits to provide the building blocks to create their own automated legal services.

Integrate customers' external and internal data

A shift to analytics is a first step, but to really benefit from personalized insights based on data analytics, external data (case docket data, judge information, cases, etc.) need cross-referenced with law firms' internal data (hourly rates, out-of-court settlements, time-recordings etc.). This will provide law firms with better competitor intelligence, the ability to gain insight from previous litigation strategies, and create more accurate client proposals based on budgeting analytics. The challenge will be creating a system that brings both datasets together while also preserving client confidentiality.

Brazil is creating more legal work, as the Brazilian economy is recovering from its deepest recession ever. This trend is benefiting vLex, the multilingual legal information provider co-headquartered in Barcelona and Miami, who is seeing their Latin American business grow at more than 100% annually.

Brexit

Brexit is creating demand for better legal information where there is uncertainty about the implications of the UK repealing or reforming roughly 12,000 EU regulations, 7,900 statutory instruments and 186 acts that incorporate a degree of EU influence. Given the amount of uncertainty this

Legal & Regulatory

will create in the UK, the EU, and for companies that have an interest in the EU globally, there is a big opportunity to create legislative analytics solutions for UK/EU law. However, these will primarily affect the content of existing legal products and generally will not create opportunities for completely new products and revenue. Indeed, the changes may actually increase costs from the creation of new content needed within existing subscription products.

Outsell expects demand for AI document review software to increase due to Brexit, as countless agreements that companies have entered will need reviewed to find clauses that are reliant on the UK's membership of the EU.

Geographic Distribution

2016 Estimated Revenue
(USD Billions)



Source: Outsell, Inc. Research & Analysis

By the Numbers

\$23B

Size of the total Legal & Regulatory global solutions market in 2016.

3.1%

Growth of Legal & Regulatory global solutions market in 2016.

43%

Combined market share of the 20 largest international legal information solution providers.

\$9.7B

Combined revenue of the 20 largest legal and regulatory global solution providers in 2016.

2.1%

Outsell's CAGR forecast for the legal and regulatory solutions market from 2014-2020.

Source: Outsell, Inc. Research & Analysis

Companies to Watch

Autto

(pre-revenue)

Legal Robot

\$0.3M est. revenue

Notarize

\$2.0M est. revenue

VisaBot

(pre-revenue)

Brightflag

\$2.0M est. revenue

Loom Analytics

\$0.5M est. revenue

Premonition

\$3.0M est. revenue

LawGeex

\$2.0M est. revenue

Luminance

\$0.3M est. revenue

Rechtwijzer

\$2.0 est. revenue

Science, Technology & Healthcare

This segment includes the Scientific & Technical Information and Solutions, Medical Information, Health Information & Health IT, Pharma Information and Solutions, and Geophysical & Geomapping markets.

Trends and Hot Spots

Scientific & Technical Information & Solutions

Market dynamics include the continuing march to digital, an overarching requirement for improved data discoverability and accessibility, increasing use of data and analytics, developing a sustainable Open strategy, and an enhanced focus on the provision of information and tools to support the individual professional. Continuing flat institutional budgets challenge information providers, as does the need to demonstrate and justify ROI, concerns around data security and privacy, and protection of copyright and IP. Changing end-user requirements and behaviors requires vendors' constant attention, with a focus on productivity and workflow as key information-related challenges. Technological developments, data analytics, and digital workflow solutions are all driving growth in this sector. However, these remain relatively small endeavors and don't yet have the financial clout to move the dial significantly at this stage.

Medical Information

Market dynamics include ongoing impact of national, governmental, and, increasingly, philanthropic initiatives and policies as they generate funding and research in new areas. The continuing move towards precision or more personalized medicine is impacting the market, requiring new research, reference data, and training solutions to support these developments. Significant investment continues in digital medical education tools and services

for undergraduate, graduate, and continuing professional development levels. Solutions include adaptive learning, digital labs, video-based training simulations, distance learning solutions, and webcasts.

Health Information & Health IT

This market remains a high-growth area and hot spot for the information industry as a whole. A massive sector financially, it contains huge companies with the ability to invest big, with healthcare frequently a division of broader-based organizations focused on BPO or technology services that are quickly hoovering up vertical specialists. Market dynamics include the impact of technology and the ever-increasing ability to connect multiple disparate data sources across the continuum of care and for the benefit of patient outcomes. The increasing sophistication of predictive (and prescriptive) data analytics solutions and the harnessing of machine-learning and AI technology supports and helps drive momentum around precision health initiatives, enabling more granular and specific insight and analysis at the individual patient level.

Pharma Information & Solutions

Already a highly advanced technological sector, biomedical research transformation continues through massive increases in processing and data management power as well as enabling the capturing, processing,

Three Execution Essentials

Focus on improving outcomes

Vendors need to concentrate on the provision of high added-value services. Increasingly, this is about improving outcomes. Provide tools, workflow solutions, and content that improve end-user outcomes by making a designated task easier, more efficient, less resource-intensive, and less time-consuming as the ultimate in high-end value in today's marketplace.

Personalization and precision is the way forward

Detailed user and usage data is fundamental. For example, in health, detailed usage and patient data analytics that identify behaviors at an individual level is where vendors need to focus. The ability to triangulate individual patients/users, their personal and professional context, and their usage behaviors is key to future revenue generation. The ability to create granular, custom products, tools, and

solutions with accurate, intelligent user/patient usage analytics is where future growth opportunities lie.

Understand the user

For decades publishers determined how users consume content. The roles have now reversed, with a shift from a product-centric view to a user-centric perspective. Wider society behaviors around technology and information consumption are driving organizational change, product development, and investment strategies across the information industry. Information vendors need to invest in planning and organizational transformation to ensure they engage, support, and fulfill the needs of the next generation of end-user personas: librarians/information managers, authors, researchers, scientists, technicians, professionals, and patients.

sharing, and mining of vast amounts of outcomes data. Market consolidation continues, with players building and expanding data assets and capabilities via mergers and acquisitions as well as collaborative alliances to provide a broader range of services. Information and data providers, technology companies, contract research organizations, management consultants, and tech-based startups are all actively playing in this space. Pharma companies look for solutions that help them capitalize on ever-expanding data exhaust and exponentially more powerful processing, mining, and analytical tools. Closely linked are needs

around data quality, trust, and security, particularly given the commercial and personal sensitivities of the data involved in the health sciences sector.

Geophysical & Geomapping

Global macro-economic trends continue to batter this sector. Those organizations reliant on investment in the oil and gas exploration industry remain fundamentally challenged by the ongoing global energy crisis and the slower-than-expected pick up in global oil prices. However,

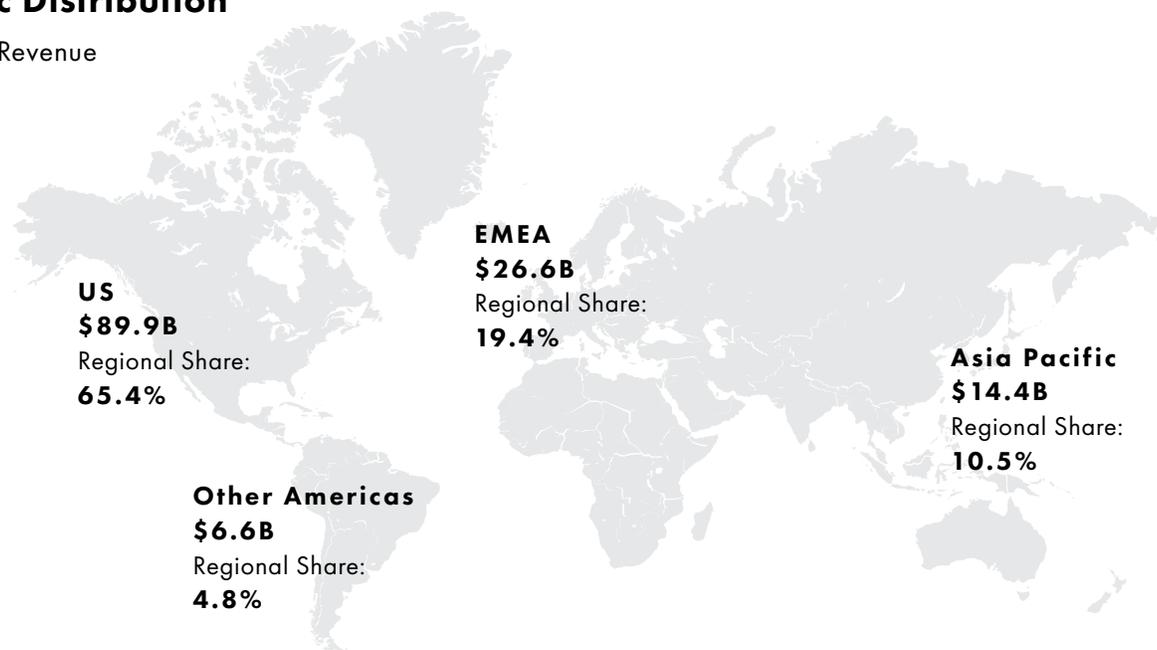
Science, Technology & Healthcare

those not tied to the oil and gas industry fare significantly better. Ongoing market consolidation via merger and acquisition, bankruptcies, and the sale of discrete assets such as library units are also features of this space. Expect to see more significant consolidation in this sector whilst it remains a down market. More positively, the industry-wide

shift in data analytics has seen geospatial and geographic location-based services, for example, continue to expand into new segments on the back of the value they provide in improving predictive insights and forecasting.

Geographic Distribution

2016 Estimated Revenue
(USD Billions)



Source: Outsell, Inc. Research & Analysis

Market Ecosystem and Segments

2016 Estimated Global Revenue
(USD Billions)

Health Information & Health IT

\$90.9B Revenue
13.5% YoY Growth

Segment Leaders

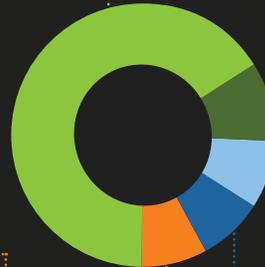
- OptumInsight
- Cerner Corporation
- Cognizant Technology Solutions Corporation
- McKesson Corporation
- Epic Systems Corporation

Pharma Information & Solutions

\$10.8B Revenue
15.2% YoY Growth

Segment Leaders

- Quintiles
- LabCorp
- InVentiv Health, Inc.
- PAREXEL International Corp
- Pharmaceutical Product Development



Scientific & Technical Information & Solutions

\$13.3B Revenue
2.7% YoY Growth

Segment Leaders

- RELX Group plc
- Clarivate Analytics
- IHS Markit
- Springer Science + Business Media
- John Wiley & Sons, Inc.

Medical Information

\$11.4B Revenue
6.2% YoY Growth

Segment Leaders

- RELX Group plc
- People's Medical Publishing House
- Wolters Kluwer nv
- Springer Science + Business Media
- WebMD Health Corp.

Geophysical & Geomapping

\$11.1B Revenue
-18.4% YoY Growth

Segment Leaders

- Garmin Ltd.
- Petroleum Geo-Services ASA
- Fugro N.V.
- DigitalGlobe, Inc., CGG

Companies to Watch

2bPrecise, Inc.

\$1.0M est. revenue

Kudos

\$0.9M est. revenue

PubLons

\$1.0M est. revenue

Praxify Technologies

\$8.0M est. revenue

Qventus

\$2.0M est. revenue

RedLink

\$1.1M est. revenue

Transcriptic

\$2.0M est. revenue

TriNex

\$5.0M est. revenue

ÜberResearch/Dimensions

\$2.0 est. revenue

Yewno

\$1.0 est. revenue

Companies to Watch

Congratulations to this year's Outsell 250. From this list of young, emerging companies, we selected Outsell's 30 to Watch. These companies are innovators, breaking ground in their space, and are making their way onto the data, analytics, and information industry stage. Each of the 30 companies* use data, analytics, machine learning, or a combination of each to do something unique that most any company in our industry will want to take note of and consider for their own business.



2bPrecise

Developed with significant investment support from analytics

platform innovator Allscripts, Inc., 2bPrecise has developed an EHR-agnostic, cloud-based Precision Medicine Platform that captures and securely stores individuals' genomic data and blends it with clinical information. It then pushes the resulting insights to the point of care, enabling the clinician to take more informed action than would result from clinical data alone. The talk of HIMSS 2017, the 2bPrecise solution demonstrates significant promise as a solution to the missing link in the practice of precision medicine at the point of care.



AdBrain

By uniting device, channel, and platform identifiers into a single customer view, AdBrain helps advertisers deliver personalized, contextual messages consistently across all digital touchpoints along the customer journey. Its identity management system integrates with major adtech and agency platforms to enable better cross-device, cross-channel, and cross-platform targeting.



Acrobatiq

A subsidiary of Carnegie Mellon University, Acrobatiq launched

in the summer of 2013 to deliver adaptive courseware and learning analytics supported by a range of consulting and professional development services. Products include Smart Author, a tool enabling faculty to develop rich, interactive, adaptive online courses optimized for mobile delivery, and a customizable content library of courseware. A learning dashboard complements these tools. The dashboard can help faculty to understand what students did or did not learn, to quantify how well they have learned different skills, to identify patterns in students' learning behaviors, and to measure the effectiveness of instructional and design choices.



AlphaSense

AlphaSense prides itself on a proprietary search engine algorithm that reduces the decision-cycle among financial services and business professionals. It does this by using natural language processing (NLP) and enhanced linguistic search to help users identify all types of information and data associated with over 35,000 global companies.



Aviso

Founded by colleagues who met at the National Center for

Supercomputing Applications, Aviso provides data science driven sales forecasting and performance intelligence. Aviso scores prospects and generates indicators to help identify deals likely to close in the current quarter while providing a 180-day, forward-looking view into sales. Aviso also calculates sales pipeline values required to reach goals. Artificial intelligence-powered triggers provide sales reps and sales managers early warning signs that suggest deals may be off track and why. Based in Menlo Park, CA, Aviso has raised over \$30 million in venture funding.



Corlytics

Corlytics is becoming a global leader in regulatory risk intelligence

by employing an effective team of risk professionals, legal analysts, and data scientists. Its core clients are in financial services, and its advantage is in its active collaboration with regulators that allows the provider to develop solutions in parallel to pending regulations.



DataSift

The era of big data has propelled DataSift to new heights. It coined

the phrase, "Human Data Intelligence," which means that it is able to pull insights from all types of human-generated data (in real time). The platform recognizes, understands, and analyzes blogs, social media, news, and business information, all while securing consumers' privacy.



Dawex

All the workflow aspects of sourcing and buying data from third parties can be hard to manage. The Dawex platform allows any company to acquire, monetize, and share data in a secure environment. Data vendors promote their assets and establish pricing and licensing terms on Dawex. The platform generates contract and licensing agreements and provides data escrow services for buyers. All data is encrypted and resides on Dawex servers. It is then fed to buyers based upon negotiated terms of use. Dawex helps companies market their data through a growing partner network.



DISCERN

Aggregating, standardizing, and normalizing disparate data sets in real-time is hard. DISERN doesn't create data but rather makes it ready for business uses accessed through their preferred tools and processes. The DISERN data model supports transactional discovery, and the company pairs it with an analytics engine that provides visual intelligence. DISCERN bundles deep, vertical data sets across energy, retail, and real estate for license as reports, platform subscription, and enterprise integration.

*Click company name for website



ditto Labs

Through visual search and image and video analytics ditto helps marketers analyze social photos and videos through facial, object, logo, and contextual recognition. Crimson Hexagon, Clarabridge, Linkfluence, Oracle, Synthesio, and Tracx are among its partners, as it looks to hardwire its technology into leading social media monitoring and marketing cloud platforms.



ELSA

ELSA (English Language Speech Assistant) is a free mobile application that functions as a personal coach to help English learners around the world speak English with more accuracy and confidence. The app targets non-native English learners looking to improve their pronunciation, targeting both a consumer audience as well as offering a tool to support English language tutors struggling to offer students 1:1 support.



EverTrue

EverTrue is an advancement software platform that supports fundraising efforts at educational institutions. Powered by institutional data and third-party insights, EverTrue provides streamlined access to donor data to help advancement offices more effectively engage constituents and maximize giving potential. The EverTrue platform improves results for the entire advancement team through targeted products for alumni relations, annual giving, prospect research, and gift officers.



GovBrain

GovBrain deploys artificial intelligence (AI), NLP, and machine learning on regulations, legislative news and trends, and geopolitical activities to generate insight for financial services and legal affairs professionals. Financial institutions are utilizing GovBrain to competitively differentiate themselves.



Headset

Founded by the team that started Leafly.com to educate consumers about legalized cannabis consumption, Headset is focusing on cannabis supply chain intelligence. Targeting growers, processors and retailers, Headset is positioned as the IRI meets Nielsen of the cannabis industry. Real-time data, analytics, and published reports provide actionable insights on product categories, brands, and consumer demographics. Based in Seattle, this startup has raised \$2.5 million in venture capital and has poised itself for growth as more states legalize medical and recreational cannabis use.



Hedgeable

Hedgeable positions itself as the private weather management platform for the millennials. It presents low investment requirements in terms of fees and assets and offers users the same account management, risk analysis, advanced data science, venture investing, Bitcoin investing, and impact investing as the high-end private wealth management firms.



Kudos

A web-based service that helps researchers and their institutions and funders maximize the visibility and impact of their published articles, Kudos provides a platform for assembling and creating information to help search filtering for sharing information to drive discovery and for measuring and monitoring the effect of these activities. It continues to impress as it grows its brand and partnership portfolio, establishing itself as a clear leader in terms of supporting researcher needs around establishing and driving impact.

LABSTER

Labster

Danish startup Labster builds highly realistic and interactive virtual laboratories for science education. These virtual labs combine gamification elements, including an immersive 3D universe, storytelling, and a scoring system, to increase student learning and engagement. A study of Labster published in Nature Biotechnology indicated that the solution could increase learning outcomes by more than 76%. Both K-12 and higher education schools use Labster.



Luminance

Luminance is AI document review startup launched in September 2016 as a spin-out from the University of Cambridge. Luminance is particularly tailored to M&A transactions and analyzing 'data rooms' — a collection of privileged documents about a business that are disclosed during an M&A transaction. Luminance automatically reads, compares and analyses the contents of a large data room, enabling lawyers to gain an early indication of the complexity of the transaction. The company recently announced a \$20 million valuation after investment from Talis Capital.



MadHive

MadHive's Interactive Stamps help capture intent data on TV, mobile, and web viewers. It combines data from publishers, brands, and trusted third parties, and it utilizes machine learning to create relevant intent-based profiles, secured by blockchain. Publishers and brands can then give and revoke access to these profiles at any time, in a secure, quality-focused data environment.



Panorama

Panorama's flagship product, Necto, is among the most advanced business intelligence (BI) tool in the market because it is not just a platform that aggregates and analyzes various data sets for correlations and causal relationships. Instead, it is able to present such information via effective visualizations/graphics.



Pilot AI Labs

Utilizing deep learning-based visual perception algorithms and computer vision technology, Pilot AI Labs uses the latest camera technologies to create new solutions for retail shelf analytics, drone usage, special recognition, and real-time localization.



Praxify Technologies

Acquired by athenahealth, Inc. in June 2017, Praxify is a mobile platform solution focused on the complex care patient space. It aims to reinvent how doctors work with health data to drive productivity, portability, and improved decision support. Using machine learning and natural language processing, its MIRA solution acts as a virtual assistant in the acute and ambulatory space supporting connections to the EHR and other workflow requirements such as charting and dictation. Its SIYA suite of mobile tools is a holistic care management platform designed to engage patients in managing their health. After patients are identified for care management services, it helps determine which care manager at a payer or provider organization can best manage their needs. The technology can then facilitate a telemedicine visit between that care manager, the patient, and a caregiver, to support agreement across the entire team with regards to key care goals.

QuanTemplate

QuanTemplate

QuanTemplate is an insurance analytics and data management provider that addresses the needs of both insurance and reinsurance firms. Its strength is its ability to quantify risk from raw data clusters. Its enhanced ability to assess monetary impact from risk information improves not only liability forecasts but also customer value.



Qventus

Focused on simplifying how healthcare operates, it creates AI and machine learning-based products that help healthcare organizations and their people adapt in the moment and make the right decisions from the most complex data. The Qventus software platform acts as "air traffic control" to support solving operational challenges across the hospital including emergency departments, perioperative areas, and patient safety. Going beyond analytics, the platform predicts issues, prescribes an immediate recommendation, and gets the right team member to take action in order to prevent issues from escalating and affecting the patient experience.



Sentieo

Sentieo is a financial research platform with intelligence document search, that enables stakeholder collaboration and research management. Sentieo is positioned as a lower-cost option to today's premium financial desktops, with greater data analytics versatility. Serves both the buy side and sell side of financial services, as well as the private equity space.



Third Space Learning

Third Space Learning aims to use the opportunities that technology and globalization provide to create an online teaching model so that every child, irrespective of wealth or location, can access the personal support they need to feel inspired in their learning. Specifically, the company delivers online 1:1 tutoring in maths for UK primary school children using tutors based overseas, and it has created an AI algorithm which infers good online teaching practice to facilitate the training of future cohorts of tutors.



TriNetX

Focused on the research and development phase of the life sciences industry, TriNetX is a global health research network enabling healthcare organizations, biopharma, and CROs to collaborate, enhance trial design, accelerate recruitment, and bring new therapies to market faster.



ÜberResearch/Dimensions

Owned by Digital Science, ÜberResearch/Dimensions is a data science and software developer for research funding organizations. Its flagship product, Dimensions, provides ongoing analysis of the ongoing research funding environment driven by a grant database containing more than \$1 trillion of historic and current funding. Containing data from over 200 funders, Dimensions supports high-value, data-driven, workflow-related, portfolio analysis, and planning for science-funding organizations.



Visible Alpha

Visible Alpha enhances analysts' financial modeling by improving assessments on assumptions, opinions, and forecasts. The platform allows users better quantifiable insight to companies' future performances via a proprietary set of data and tools. Effectively, this combination of capabilities enables users to generate alpha.



Yewno

Yewno offers an inference and discovery platform aimed at helping researchers, scholars, students, and teachers become more efficient. Its discovery engine has applications in an array of fields such as finance, economics, biotechnology, legal, education, and general knowledge search. It is also expanding its platform to support the needs of publishers and content curators.

Execution Essential Actions

With a present that's no longer comfortable and familiar, resilience and focus on strong operational results are essential to stay competitive. The below checklist will help leaders work from the outside in to respond to these trends and challenges. Here are essential benchmarks and best practices necessary to thrive and grow.

✔ User-Centered Design

- Your solutions development and marketing are design-driven and people-centric instead of product or service centric.

✔ Talent and Culture

- Your corporate culture supports the changing needs and motivators of multiple generations at work.
- You have a talent recruitment and retention program and policy that supports diversity.

✔ Product and Platform Innovation

- You have implemented data-driven marketing and product innovation that drives personalization.
- You have a platform strategy — executing against a plan to **be** the platform of choice or an API strategy to **be in** the platforms of choice.
- You have a dedicated product management/platform management function that sits independent from editorial/content and technology, whose main function is advocacy for the customer.

✓ Sales and Marketing

- You've mystery shopped your own website and telephone access points and know that the user experience is superb, with friendly and easy to use UI/UX and access to real human beings in sales and customer support.
- Your firm's sales performance KPIs are at or better than norms for your competitive cohort.

✓ New Technologies

- You are implementing an AI or machine learning playbook to improve your cost of goods and/or operations of key business functions.
- You have a view on how you will leverage or respond to blockchain technology as enabler or disruptor.

✓ Benchmarks and Operational Readiness

- You've benchmarked your operational performance against your competitive set and best-in-class firms wherever they are.
- You have a strategy for how to gain market share and share of wallet.
- You know how you will grow organically.
- You know how you will grow inorganically, if this is part of your strategy, and have access to capital to inform the latter if you.

With benchmarks in place, readiness assessed, everyone on your marks, get set ... GO!

Here's to a great finish to 2017 and a fast start to 2018. Outperform and Out Sell!

Meet the Team

Outsell has assembled a global team of executive-level analysts, most with more than two decades of experience developing, marketing, selling, buying, deploying, and using information and content technology. We're all here to serve, and any person you call is the right person.



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About Outsell

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