Automated Content

How Artificial Intelligence Impacts Content Throughout the Organization


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Includes input from 16 industry leaders

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KALEIDO INSIGHTS

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Introduction

In the Information Age, content is the atomic particle of marketing, as well as a myriad of other content-generating areas of business. Content pervades sales, support, business intelligence, HR, news and media, and even to product, as devices and things become smarter and communicative. Businesses and content marketers are locked in a continual struggle to build, implement, and to scale effective content strategies, never mind achieve context and meaningful personalization. For content marketers, creating enough content, not to mention content that is specifically tailored to specific audience and/or persona types, or to content creators generating "commodity" content (e.g. sport scores, weather reports, stock market results, etc.) is onerous, time- and labor-intensive, and a cost-center.

Meanwhile, the rise of big data, faster computing, and better algorithms has unleashed a commercial explosion of artificial intelligence (AI). As more and more applications integrate AI, content is becoming automated, and its lifecycle is increasingly machine-driven.

AI and the techniques that underlie it-- machine and deep learning, natural language processing, computer vision, and machine reasoning -- unlock all manner of efficiencies. From big, unstructured data analysis to image/object recognition, from interactive experiences, to personalization, our analysis identified over 40 distinct applications of AI to content. Its intersection with adjacent (both existing and emerging) technologies impacts content creation, governance, distribution, repurposing, and beyond.

AI represents more than automation, it introduces wholly unprecedented risks to organizations and consumers alike.

This Kaleido Insights report examines and categorizes the impacts of artificial intelligence on content marketing and related functions. It features six real-world case examples, and articulate the benefits and pitfalls companies must consider when applying automation to their content-generating programs.

CONTENT AUTOMATION OR AUTOMATED CONTENT	ARTIFICIAL INTELLIGENCE
Involves the use of technologies and data to make make more efficient every stage of content lifecycle: ideation, creation, generation, curation, distribution, engagement, visualization, and optimization. Although templates, segmentation, and a variety of other if-then techniques have automated content development, AI-based techniques such as machine learning, natural language processing, and computer vision introduce new capabilities and use cases to businesses' use of content across multiple functions, products, and services.	AI is an umbrella term for the variety of technological tools and methods used to mimic cognitive functions across three areas: perception/ vision, speech/language; and learning/analysis. A machine's ability to "cognate" is supported by multiple approaches—machine learning, deep learning, natural language processing (NLP), computer vision, and other existing and emerging techniques—multiples of which can be used at the same time for a given use case. Kaleido Insights acknowledges discrete differences among techniques, but for simplicity, this report will use "AI" interchangeably for applications involving machine learning and other techniques mentioned above.

The Content Problem

In addition to the need for ever more content, there's also urgency around creating good and relevant content. Engagement rates are at all time low across the board, from publishing to advertising to owned and earned media[1]. Human content curation becomes increasingly difficult in light of the sheer volume of content in the wild. Meanwhile consumers' trust in content is eroding. Fake news, repeated failures detecting it, and deceptive advertising impel companies such as Facebook and Apple to hire hordes human content reviewers.

At the same time, there's information saturation on the part of consumers. People are overwhelmed with the sheer volume of notifications, news stories, updates, and email. The need to organize synthesize content is pressing, especially for information workers (financial services, corporate development, VC) and overwhelming to track.

Information velocity raises other challenges. Keeping us with a flood of information and content becomes daunting, not only in terms of learning and research, but also in areas such as content curation and/or aggregation. Tailoring content to its intended audience in an appropriate and acceptable form or medium is far from a simple task. The "right" content may not be published in the proper format, at the right time, or on the appropriate channel or device for its intended audience. More content is never the solution, but better, more tailored, appropriate, meaningful, timely, and personalized content can be achieved at greater scale and at a much lower expenditure of resources (staff and budget) via automation.

"Content automation is all about creating more efficiency and expanding expertise in a way that allows companies to make more money."

Laura Pressman, Automated Insights

Automated Content in Action

Our research finds the use of AI in content far transcends the marketing department and techniques for automating content development, curation, reporting, and personalization span the enterprise. What follows are examples illustrating the diversity of automated content applications.

FIGURE 1 USE CASES FOR CONTENT AUTOMATION

Kaleido Insights, "Automated Content: How Artificial Intelligence Impacts Content Throughout the Organization," December, 2018

Marketing: Hyper-Local Digital Marketing

Vivint achieves hyperlocal content at scale across thousands of target markets

When it comes to differentiation in the smart home market, customer-centricity is a core value proposition. To provide a more personalized experience than its competitors, **Vivint,** a smart home technology provider, needed a way to create highly localized, topic-specific, (and easily scalable) copy for every location in which the company operates -- some 12,000 unique web pages! The company's initial human-generated efforts required manually sourced content and yielded only around 25 pages per week. Vivint calculated at this rate it would take about two years to complete the project at a cost of over than $200k (well outside the budget).

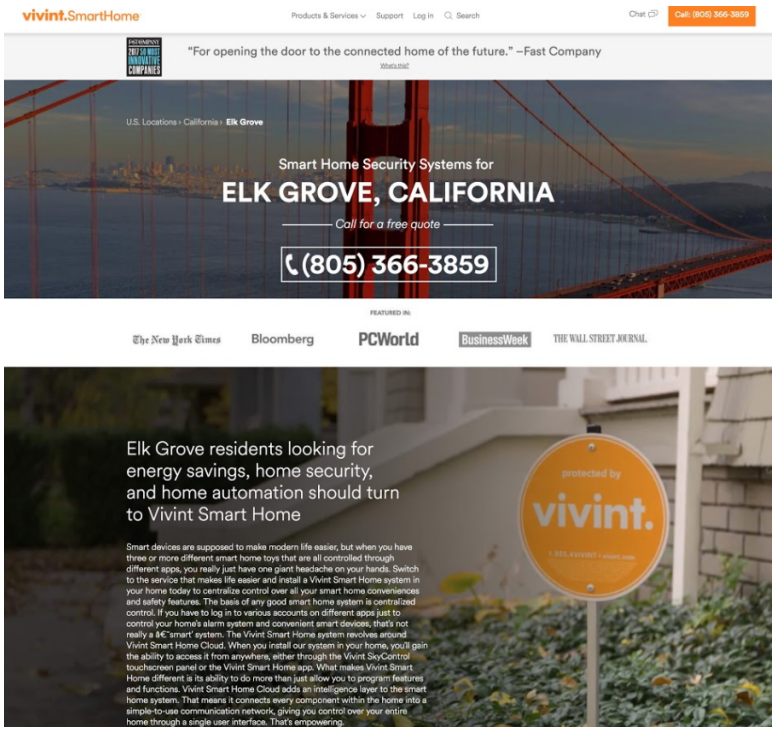


Image Source: Vivint

Vivint deployed Automated Insights' Wordsmith platform to create hyper-localized content at scale. Using natural language generation and machine learning, the platform tapped multiple APIs such as weather, real-estate, average incomes, and Vivint's own product and marketing data to deliver highly specific copy and messaging for more than 30,000 websites, e.g. every town in North Carolina.

Vivint reported a 5x increase in sales -- from 20 to 120 per week -- generated by local search, in a comparative analysis of the same time period[2]. Moreover, the company reported increased organic search traffic and improved SEO rankings (for terms like "smart home solutions," "home security," and "home automation") in thousands of local areas.

"We wouldn't have been able to reach, never mind scale, to this level of personalization with manual efforts only," says Jacob Parry, senior manager, digital marketing manager at Vivint. "Investing a couple months in building out the logic and API integration, training on brand guidelines and voice, has extended our efforts way beyond what we originally expected at a fraction of what we originally estimated."

Product & Suport: Personalization at Scale

Under Armour delivers holistic coaching for athletes

Athletes want to track their progress, benchmark performance and ideally, be motivated by a coach. There's a plethora of data to be taken into account when it comes to not only tracking but also benchmarking performance.

Under Armour's UA Record app is a cognitive coaching system built on the IBM Watson platform. The personal health assistant app provides real-time, data-based "Cognitive Coaching" based on both sensor and manually input data around sleep, fitness, activity, heart rate, and nutrition. Additional sources, such as geospatial data,

help to determine how external factors, such as weather and environment, may affect training. Athletes can benchmark their own insights against other registered users "like you," i.e. who share similar profile information such as age, gender, etc.

The app aspires to not only coach but also to greatly facilitate data input. For example, for food intake tracking and nutrition management the app uses Watson's Visual Recognition and Discovery technology. The app can visual recognize of food images for faster and easier food identification, replacing the tedious task of manually entering each food item consumed by the users.

Users are encouraged, via both the app and website, to purchase additional Under Armour devices, including a fitness band and headphones that synchronize with the app.

Image Source: Under Armour

Under Armour reported its connected fitness device and related accessory business grew 51 percent, to $80 million in 2016 year-end results[3]. Otherwise put, consumer adoption of the app and related products is growing, as is the positive impact to the company's bottom line.

News Media: Reporting Frequently-Occurring Stories

Los Angeles Times automates earthquake reporting

News outlets are challenged when they must devote precious resources and staff to create "commodity" reporting; stories that are frequently occurring and that lend themselves to highly templated reporting. Examples include daily stock market reports,sporting news, or the quarterly earnings of public companies. Events that occur with regularity are another example.

Image Source: Twitter

Southern California experiences frequent earthquakes. Not every quake is "the big one," but regionally all are newsworthy. LA Times journalist and web developer Ken Schwencke wrote the Quakebot algorithm to publish earthquake stories in near real time. When an alert comes in from the U.S. Geological Survey about an earthquake above a certain size threshold, Quakebot extracts the relevant data and plugs it into a pre-written template. The story then goes into the paper's CMS, to be reviewed and published by a human editor. The algorithm enables the LA Times to scoop competitors on earthquake stories, as well as to report vital civic information in a timely manner.

The U.S. Geological Survey itself publishes LA QuakeBot (@earthquakesLA)[4] that uses a template to immediately tweet earthquake information.

If there's a 6.0 or higher quake in Los Angeles, Quakebot automatically pushes a post live. If the event is smaller than 6.0, the blog post goes to the copy edit desk where editors decide whether or not to post it. The bot has been functional for over five years. Additionally, the Los Angeles Times runs The Homicide Report[5], which automatically tracks and creates a short piece on every murder in LA County.

Customer Service/Support: Bots Augment Human Agents

Live Person uses bots to improve customer service and agent job satisfaction

Customer support is a cost center, yet critical to most businesses. Questions, complaints and inquiries from customers and prospects alike can be highly repetitive; human intervention is not required for every step of the process.

Technology company Live Person has developed a "bot assistant to the agent" (based on the IBM Watson platform) that augments live customer support with bots to handle simple and routine tasks. The support process can be handed back and forth between the bot and a human agent, freeing the human to save time to work on more complex problems and relieving tedium from the job.

The company analyzes an organization's existing transcripts to analyze the best use case and scenarios for customer service and support, the develops bots that can support these conversations using AI technology.

LivePerson claims that bot-driven messaging lowers labor costs, increases agent satisfaction, and decrease agent turnover. Additionally, the platform reports on escalations which helps brands understand where products and/or processes can be improved or optimized.

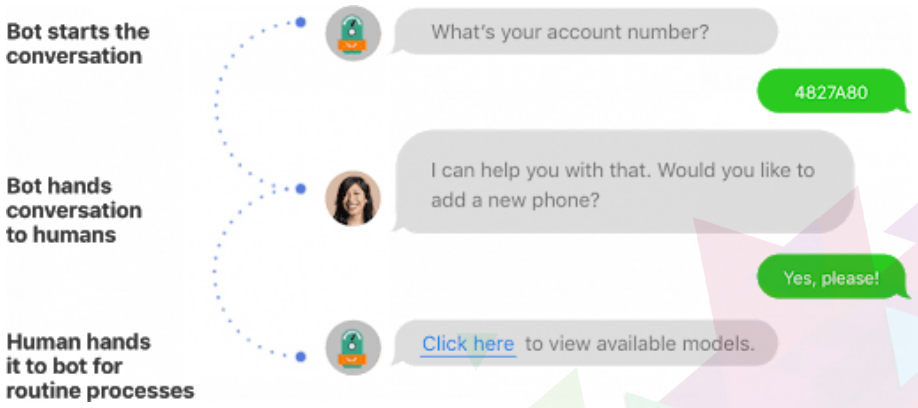


Image Source: IBM Watson

HR: Job Recruitment Optimization

NVIDIA optimizes and diversifies recruitment through big data analysis

The automation of content can also be found in human resources (HR) departments supporting everything from recruitment to performance management to education and beyond. Recent technologies like social and mobile have transformed the hiring experience, but content of job descriptions themselves have remained static, until now.

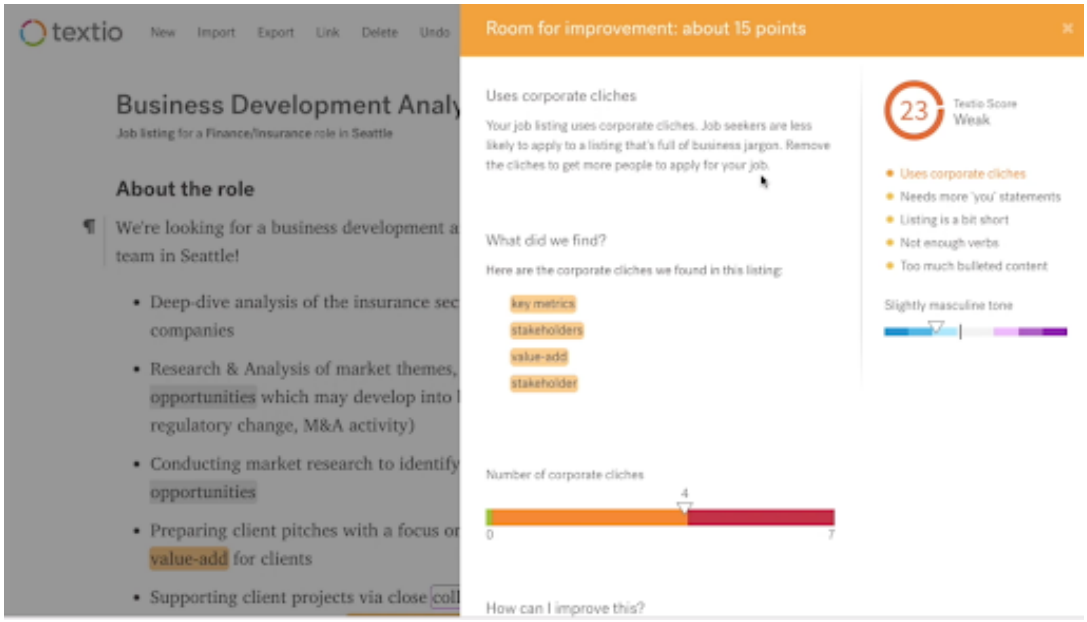


Image Source: Textio

By analyzing a dynamic set of more than 300 million job ads and hiring outcomes, a company called Textio augments the writing of job descriptions, optimizing on the keywords and phrases most likely to attract and engage desired candidates. By analyzing how how every word used statistically affects hiring results and how well the job descriptions compete in a given market, the Textio Score gives recruiters a benchmark for how fast the job will fill compared to others in the same industry and location.

When NVIDIA began using the tool, they set a minimum score of 70 and immediately achieved a 17% faster rate of filling open roles. The company also immediately noticed an uptick in the percentage of applications from women. When they increased the threshold to 90, they achieved a 50% faster time to fill open roles and a 28% increase in female applications. Simple suggestions like developing a strong equal opportunity employment statement yielded double the number of qualified global candidates than the control. Results were twofold: faster time to fill roles and a marked increase in qualified candidate diversity-- a difficult and critical needle to move in tech, especially in NVIDIA's field of artificial intelligence.

Legal: Contract Analysis and Recommendations

DLA Piper arms legal teams by automating case-specific analysis and recommendations

Given the massive and inherently language- and document-based structures and elements of law, ML and NLP introduce a variety of content automation use cases, from contract analysis to compliance, to surfacing related precedents. Labor and resource implications are similar to those in marketing: using automation for tedious, time-consuming tasks like document review and contract analysis presents an opportunity to have legal support workers spend more time on more strategic and higher ticket value items such as client recommendations.

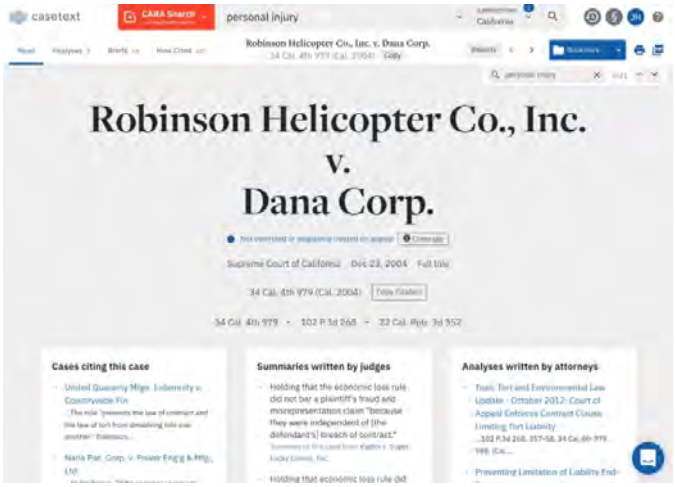


Image Source: Case Text

Multinational legal firm DLA Piper uses a tool called CARA.ai by Casetext to support both contract analysis and even to forecast an opposing counsel's arguments and rebuttals by surfacing opinions used in prior similar cases. The tool draws from databases of state and federal cases to surface relevant statutes, precedents, briefs filed in past cases, articles authored by subject matter experts, and compare summaries of judicial opinions. It extracts and weights key factual, jurisdictional, and procedural elements that can be further refined with additional keywords. Relative to traditional legal research databases like Lexis, a study by the National Legal Research Group finds CARA.ai enables attorneys to finish legal research 24.5% faster[6].

Busness Intelligence: Performance Reporting

Energy provider automates big multivariate data-driven search and reporting

Far beyond copy, creative, or ads, machine learning is also infusing the design, production, and access of reporting of analytics and business intelligence. Companies generate all manner of reports for internal stakeholders, for competitive intelligence, as part of client programs, as required by auditors and regulators for compliance, or even as formal products. Traditionally this has consisted of a highly manual process of analyzing, collating, and delivering analysis and insights, but NLP and AI introduce new levels of efficiency via data sourcing, data interpretation, analytics -- "what if's at scale"-- and even narrative commentary.

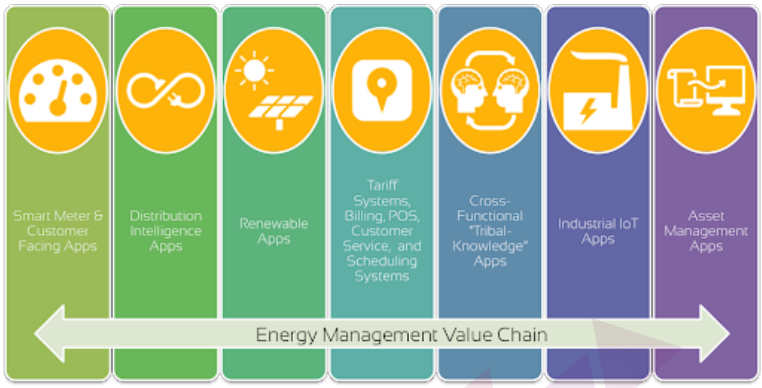


Image Source: App Orchid

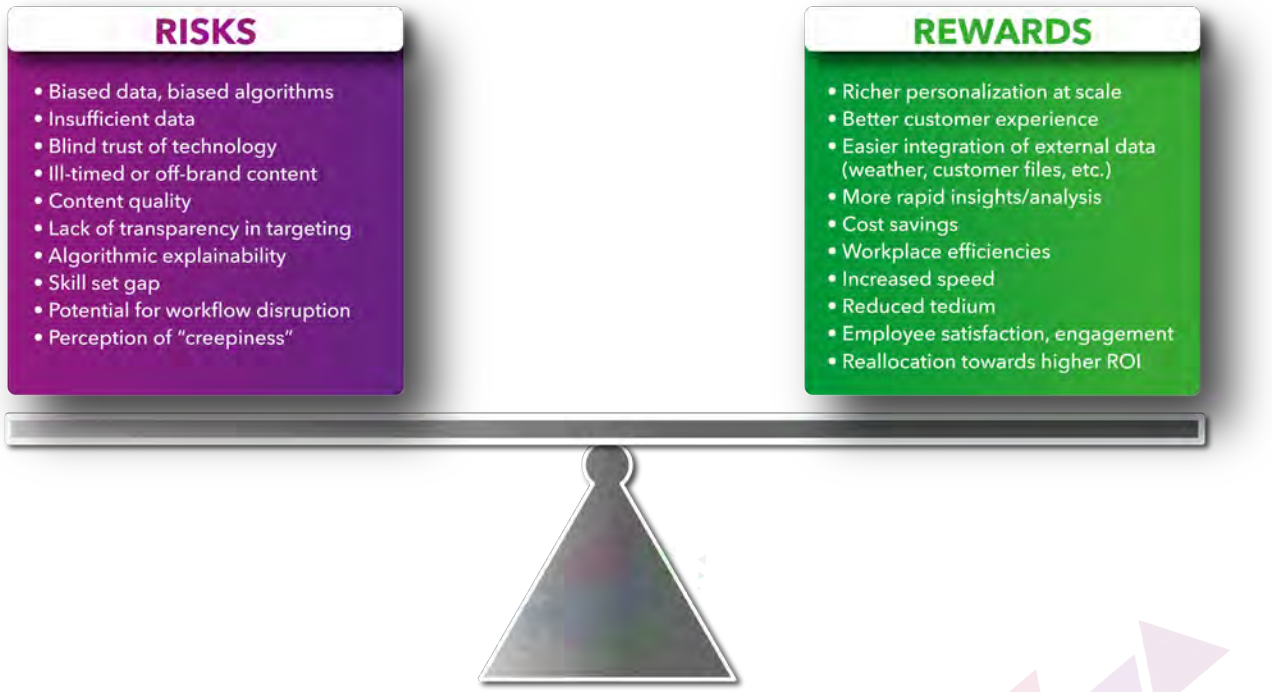
Large energy providers are constantly working on analyze massive historical, real-time, dynamic, data sets (across systems, devices, customers, third party data and beyond) to improve grid reliability, increase efficiency and provide superior customer service. To automate the inquiry and reporting of these data, an enterprise energy company is tapping enterprise AI provider, App Orchid to deliver near real-time insight reports via analytical data from smart meters, controls, and power line sensors, as well as unstructured utility-related data from other reports, emails, white papers, field assessments, customer interactions, and personnel observations. From customer service agents to dispatch crews, reports use NLP/NLG to "respond" to inquiries, such as "Which transformers are most likely to fail in December and how long will it likely take to restore service?" Or "How do I optimize generation dispatch at 1:00 p.m. tomorrow if there is a 50% cloud cover?

While such 'big data'-driven report automations are not an overnight endeavor, they represent millions in cost savings, efficiency gains, and downtime prevention. Insights also enable more agile decision-making to allocate limited resources based on predictions and recommendations. Further, as energy companies are constantly investing in new technologies (e.g. smart meters, control systems, poles, etc.) integrating and activating the data flowing from these is essential for realizing returns.

Risks & Rewards of Automated Content

AI introduces new risks and challenges: to the organization, to brands, to workflow and business processes. "Right now there is no automated tool that can grasp the brand voice," notes Steven Wong of Ready State. But at the same time it offers potentially great rewards, including reduced costs and manpower in content creation, much improved personalization, timeliness, precise targeting, and richer data, to name but a few.

FIGURE 2 RISKS & REWARDS OF AUTOMATED CONTENT



Kaleido Insights, "Automated Content: How Artificial Intelligence Impacts Content Throughout the Organization," December, 2018

Weighing these pros and cons is not just about conducting due diligence for implementation, it is about institutionalizing governance for ongoing monitoring, tuning, and optimization. AI is not deterministic in that once the code is developed, outcomes are predictable; it is probabilistic, meaning the technology itself is continuously evolving based on its interactions. "Algorithms left unchecked can go off the rails," says Rob Bennett, CEO of Rehab Digital. "Just because something can generate its own content and makes it own decisions doesn't mean it has awareness of ethics, cultural nuance, what resonates with a particular segment at a particular time." This means companies must balance the tremendous efficiencies gained through content automation with the resources and structures to evaluate their performance, metrics, and data integration.

A Look Ahead

Over the next five years, there will be a rapid adoption in content automation across the enterprise. The groundwork has already been laid for this trend with technologies such as CRM and marketing automation, both of which deliver content to users dependant on a myriad of criteria. These technologies are already integrating with AI capabilities and platforms (e.g. IBM's Watson or Salesforce's Einstein). Furthermore, AI is increasingly permeating mobile phones, cameras, IoT devices, cars, and infrastructure all around us. What can be digitized-- our voices, expressions, bodies, spaces, etc.-- is changing with the advent of AI, and as such all of these are becoming data sources that, in turn, feed content creative, distribution, and targeting.

Automated content is part of a much broader trend in how automation is impacting the way humans work. The role of content and how workers across all industries interact with it will never exist in a vacuum devoid of human intervention. Businesses must also account for other technological, cultural, and economic trends, including new interfaces such as voice or biometrics; an erosion of trust and thirst for authenticity; and the ever-more complex question of access to good data.

The time to evaluate where and how automated content can serve your own organization or enterprise is now. Such assessments must not be undertaken in a vacuum or with a line-of-business (LOB)-oriented perspective. As we have illustrated, automated content can provide benefits across the organization. It's therefore that marketing (for example) does not spearhead an initiative without the involvement of other business units, all of which will use and benefit from automated content in the future as businesses seek efficiency, consumers demand more targeted, relevant, timely, and personalized communications, and as data permeates what we do, as well as how we do it.

About Us

About the Authors

Rebecca Lieb is an industry analyst and founding partner with Kaleido Insights, focused on marketing, content, media, and the relationship between organizations and their market. Her areas of specialization are digital marketing and media, with a concentration in content strategy, content marketing and converged media. She has published more research and books on content strategy than anyone else in the field. Rebecca works with many of the world's leading brands on digital marketing innovation. Clients range from startups to nonprofits to Fortune 100 brands and regulated industries, including Facebook, Home Depot, Nestlé, Anthem, Adobe, Honeywell, DuPont, Fidelity, Gannett, IBM, New York Life, Oracle, Save the Children, Pinterest, LinkedIn, Cisco, ad and PR agencies, and The Federal Reserve Bank of New York.

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About Kaleido Insights

Kaleido Insights is a research and advisory firm focused on the impacts of disruptive technologies on humans, organizations, and ecosystems. Our industry analysts provide business leaders with clarity amidst a fragmented technology landscape. Kaleido advisory relationships, webinars, speeches, and workshops are grounded in research rigor, impact analysis, and decades of combined expertise.Innovators are realizing that implementing each new technology isn't enough, especially as business models are disrupted. Keeping up is becoming more difficult. Our mission is to enable organizations to decipher foresee, and act on technological disruption with agility, based on our rigorous original research, trends analysis, events, and pragmatic recommendations. If you're interested in building a relationship with our analysts, we'd love to hear from you. Please email info@kaleidoinsights.com to start a conversation, or visit www.kaleidoinsights.com to learn more about our offerings.

RESEARCH METHODOLOGY

This research was developed through extensive primary and secondary qualitative research methods. We interviewed 16 market influencers, vendors, and adopters between February – June 2018. We also conducted countless briefings and discussions with industry innovators in the artificial intelligence, content automation, marketing, and related markets. Input or mention in this document does not represent a complete endorsement of the report by the individuals or the companies listed herein.

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ENDNOTES

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