AI-Augmented Customer Communications Management Market Study

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A Madison Advisors Study
December 2024

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The emergence of artificial intelligence (AI) has provided a significant breakthrough in how organizations manage and enhance their interactions with customers. AI-augmented customer communications management (CCM) is at the forefront of this innovation, blending traditional communication methods with advanced AI technologies to create more meaningful and engaging customer experiences.

AI-augmented CCM leverages the power of AI to analyze customer data, predict customer needs, and personalize communications across various channels. This technology enables businesses to deliver messages that are not only relevant but also timely and context-aware. By understanding the nuances of customer behavior, AI helps companies anticipate issues and respond to customer inquiries with unprecedented efficiency and accuracy.

One of the key benefits of AI in customer communications is its ability to automate routine tasks. Chatbots and virtual assistants, powered by AI, can handle a multitude of customer requests simultaneously, freeing up human agents to focus on more complex issues. These AI tools learn from every interaction, continuously improving their ability to resolve customer queries and facilitating a seamless service experience.

Furthermore, AI-augmented CCM empowers organizations to craft more customer-friendly communications. Through advanced content analysis, AI enables document designers to quickly change the tone of a document, set the reading level, and translate the content into a different language based on individual needs and preferences. This level of personalization fosters a deeper connection between organizations and their customers, enhancing customer satisfaction and loyalty.

However, the integration of AI into CCM does not come without its challenges. Concerns around privacy, data security, and the ethical use of AI are paramount. New and varied regulations world-wide can restrict or require close monitoring of AI.

Organizations must ensure that they transparently use AI and prioritize customer data protection above all.

AI-augmented CCM represents a significant leap forward in how organizations interact with their customers. By automating routine tasks, personalizing communications, and enhancing customer service efficiency, AI is redefining the

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landscape of customer engagement. As organizations continue to embrace this technology, the potential for creating more meaningful and lasting relationships with customers is immense. The future of customer communications undoubtedly lies in the intelligent integration of AI, promising a new era of customer engagement that is more responsive, personalized, and impactful.

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AI is transforming customer communications across industries, enabling businesses to offer more personalized, efficient, and responsive services. AI-augmented CCM software helps organizations stay competitive, while at the same time, face the demands placed on them by customers and regulators.

Cost Reduction

Economic factors continue to pressure organizations to reduce costs. Leveraging AI to rationalize a document template library introduces significant cost savings. Organizations of any size have, over time, assembled hundreds or thousands of document templates used for customer communications. The templates serve to maintain a corporate brand and utilize approved language. With the advent of document composition software, organizations encoded the template designs and content into a specific software solution. Over time as the legacy software was replaced, some templates were redesigned in the new software solution. However, with limited IT resources, lower-priority templates remained in the legacy format. Until the implementation of AI, the transformation of a full template library remained cost prohibitive. While the savings vary, organizations can realize 40-60% cost savings on conversion costs.

By automating the customization and updating of document templates, AI substantially reduces the workload on IT resources. Manual analysis and comparison of templates is both time-consuming and prone to human error, leading to additional costs in terms of both rectifying mistakes and the labor involved. An AI-augmented tool's capacity to analyze content and identify similarities means that templates can be automatically consolidated without the need for human oversight.

This aspect of AI utilization not only diminishes labor costs but also accelerates the conversion of document templates. Consequently, the reduction in time and resources required for document redesign directly correlates with lowered operational costs, making businesses more agile and responsive to market demands.

AI algorithms are designed to learn from data over time, which means they continually enhance the quality and relevance of document templates. This continuous improvement cycle helps in maintaining high standards of communication, significantly minimizing the possibilities of error-induced costs. By ensuring that documents are consistently accurate and of high quality, organizations benefit from improved customer

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satisfaction and loyalty, which in turn, translates to cost savings by reducing the resources spent on customer reacquisition efforts.

Improved Customer Experience

Predicting customer behavior with AI has transformed how organizations communicate with their customers. By analyzing vast amounts of data, AI algorithms identify patterns and trends that might otherwise be overlooked. The tools scan browser histories, purchase records, and social media activity, to build a comprehensive analysis of consumer habits. The predictive capabilities of AI enable organizations to forecast what their customers are likely to do next. This foresight allows organizations to tailor their marketing strategies, and finally realize the benefits promised by "TransPromo", the concept of weaving promotional marketing messages into transactional documents.

Moreover, AI-augmented tools continuously learn and adapt based on new data, ensuring that predictions on customer behavior become more accurate over time. This dynamic learning process is crucial for adapting to changing market trends and consumer preferences. For example, if an AI system notices a shift in consumer interest towards eco-friendly products, it can prompt a company to adjust its product lines and marketing campaigns accordingly. This agility in adapting to customer needs underscores the transformative potential of AI in not only understanding but also shaping customer behaviors.

The application of AI in predicting customer behavior also extends to personalization. By understanding individual customer activities and preferences, organizations can personalize their interactions and offerings to an unprecedented degree. AI-powered personalization enhances the customer experience by customizing emails, tailoring discounts, and making product recommendations. These actions lead higher engagement rates and improved customer satisfaction.

As organizations become more adept at integrating AI into their operations, the ability to predict and respond to customer behavior with great precision will increasingly become a cornerstone of competitive advantage.

Regulations on AI in Customer Communications

As AI systems become more integrated into customer interactions, regulators are beginning to grapple with the legal and ethical implications of this technology. The regulatory landscape is still evolving, but there are a few key areas where AI in customer communications intersects with regulations. Current and proposed regulations vary between countries with some having state-level and providence-level regulations creating a patchwork landscape.

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United States AI-related Regulations

In the United States, the Federal Trade Commission (FTC) plays a central role in overseeing AI applications, particularly when it comes to consumer protection. The FTC has emphasized that businesses must be transparent about their use of AI, ensuring that customers know when they are interacting with an AI system rather than a human.[1] This aligns with the Commission's broader mandate to prevent deceptive practices. For example, the use of chatbots or AI-based virtual assistants in customer service must not mislead consumers into believing they are communicating with a human representative if that is not the case.

The FTC has also warned companies about the need to ensure that AI systems do not perpetuate discriminatory practices. If an AI tool used in customer communications is found to unfairly treat consumers based on race, gender, or other protected characteristics, the company could face liability under the FTC's unfair and deceptive practices authority. Additionally, the FTC has stressed the importance of accuracy in AI-driven decision-making, cautioning businesses against using AI models that provide erroneous or biased outcomes.

Similarly, the Fair Credit Reporting Act (FCRA) governs the accuracy of consumer data used in credit reporting.[2] If AI systems are involved in generating customer communications regarding credit reports, they must adhere to FCRA standards, ensuring that any decisions made using consumer credit data are accurate and that customers can dispute incorrect information.

While the United States has no federal AI-privacy regulations, individual states have enacted specific laws to protect consumer data privacy. These regulations vary from state to state but several examples are cited below.

The California Consumer Privacy Act (CCPA) gives consumers greater control over how their personal data is collected, used, and shared. AI-driven systems that process customer data in California must comply with the CCPA, meaning businesses must provide transparency about data collection practices, allow consumers to opt out of data sharing, and delete personal information upon request.

In addition, the CPRA which took effect in 2023, establishes stricter regulations around the use of sensitive personal information.[3] This includes requiring companies to disclose when AI-driven systems use customer data in automated decision-making processes, particularly if those decisions significantly affect the consumer.

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[1] Policy Statement of the Federal Trade Commission on Biometric Information and Section 5 of the Federal Trade Commission Act
[2] Fair Credit Reporting Act 15 U.S.C. 1681, Revised May 2023
[3] California Privacy Rights Act of 2020, https://thecpra.org

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In states like Illinois, the use of biometric data in AI-powered customer communications (e.g., voice recognition systems) is subject to strict consent requirements under the Biometric Information Privacy Act (BIPA). This law mandates that companies must obtain written consent before collecting and using biometric data.

In addition, a number of proposed regulations are working their way through the approval process. Although the Algorithmic Accountability Act has not yet been passed, it represents a growing push for federal regulation of AI systems, particularly those that impact consumers. The proposed law would require businesses to conduct assessments of their AI systems, focusing on identifying potential risks related to privacy, discrimination, and security. While this law has not yet been enacted, its proposal reflects the increasing regulatory attention AI is receiving, especially as it relates to consumer interactions.

The United States regulatory framework for AI in customer communications is still developing, with existing laws primarily focused on transparency, non-discrimination, data privacy, and fairness. Agencies like the FTC are actively monitoring how businesses use AI, while states like California and Illinois have enacted specific data privacy regulations that impact AI systems. Although there is currently no comprehensive federal regulation specifically governing AI, the increasing use of AI in customer-facing roles is likely to spur further legislative developments in the near future. Companies must stay abreast of these evolving regulations to ensure compliance and foster consumer trust.

Canadian AI-related Regulations

While Canada also has yet to enact comprehensive AI-specific legislation, existing laws on data privacy and consumer protection heavily influence how AI can be deployed in customer interactions. The Personal Information Protection and Electronic Documents Act (PIPEDA) is Canada's primary federal privacy law governing how businesses collect, use, and disclose personal information.[4] Under PIPEDA, AI systems used in customer communications must adhere to strict requirements for transparency, consent, and accountability. Organizations must inform customers when their data is being collected and explain how AI-driven decisions are made, particularly when these decisions affect access to services or products. This law also emphasizes the protection of sensitive customer data and gives individuals the right to access and correct their personal information.

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[4] Personal Information Protection and Electronic Documents Act, The Personal Information Protection and Electronic Documents Act (PIPEDA) - Office of the Privacy Commissioner of Canada

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The proposed Artificial Intelligence and Data Act (AIDA), introduced as part of Bill C-27 in 2022, signals Canada's move toward more direct regulation of AI. If enacted, AIDA would introduce a risk-based regulatory framework, addressing potential harms associated with AI systems, particularly those impacting consumers. AIDA would impose specific obligations on businesses using AI, including transparency in AI operations, requirements for identifying and mitigating potential biases, and mandatory reporting of incidents where AI causes harm. For customer communications, this means companies will need to ensure that their AI tools are not only compliant with data privacy standards but also operate fairly, without perpetuating discriminatory outcomes or misleading customers.

European AI-related Regulations

The European Union (EU) is a global leader in the regulation of emerging technologies, including AI. The EU's regulatory approach to AI, particularly in customer communications, is focused on protecting consumer rights, ensuring transparency, preventing discrimination, and safeguarding privacy. The legal framework is built around general data protection and anti-discrimination laws, while more specific regulations are being developed to govern AI directly.

The General Data Protection Regulation (GDPR) is the foundation of data protection in the EU and applies to any AI system that processes personal data in customer communications.[5] Several GDPR principles apply directly to AI. These include transparency, which requires organizations to inform customers about how their data is being used and obtain consent from customers if AI tools engage in automated decision-making or recommendations that significantly affects customers. Under GDPR, customers have the right to know the logic behind automated decisions, such as determining eligibility or recommendations. Companies must be able to explain how those decisions were made. Also, AI systems may only collect and use data that is necessary for the specific purpose for which consent was given, ensuring that customer data is not used for unintended purposes.

The recently enacted EU AI Act (AIA) is one of the most significant regulations specifically targeting AI technologies.[6] The Act sets forth a regulatory scheme that imposes a sliding scale of limitations on developers based on the perceived risk of the AI. The AI Act categorizes AI systems into four levels of risk: unacceptable, high, limited, and minimal. AI systems such as chatbots and recommendation engines fall into the "limited" or "minimal" risk categories, but if they are involved in sensitive areas like credit scoring or employment, they could be classified as "high risk." High-risk systems face stricter compliance requirements, including mandatory assessments, transparency obligations, and more robust consumer protections.

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[5] General Data Protection Regulation, General Data Protection Regulation (GDPR) – Legal Text
[6] EU Artificial Intelligence Act. EU Artificial Intelligence Act | Up-to-date developments and analyses of the EU AI Act

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THE ROLE OF AI IN CCM SOLUTIONS

Vendors have found a number of roles for AI in CCM solutions. A majority of the AI use cases provide content refinement and document rationalization. Driven by increased requirements for document accessibility, AI serves a vital role in reducing the burden on organizations to comply with emerging regulations. Other use cases involve automation of the workflow processes and customer journeys.

Content Refinement

CCM vendors most commonly use AI to refine content within the customer communications to increase personalization and improve the overall customer experience. CCM vendors leverage large language models to analyze and recommend different word choices. The large language model is a vast library of previously used examples or texts which the AI engine scans rapidly to find better phrases. Examples of content refinement include softening the tone of a request for payment and replacing complex jargon with plain language to make the content more accessible to the reader.

Another key aspect of content refinement is summarization. With the adoption of digital channels, such as email and text messaging as primary channels for communications, organizations need to summarize pages-long documents into a short and simple message. The AI engines provide a mechanism to do the summarization with accuracy.

For organizations with diverse customer bases, the CCM vendors provide the ability to translate the text within a customer communication into a different language. By communicating with customers in their native language, the organization removes the burden of translating from the customer and creates a better customer experience.

AI-driven translation tools use machine learning algorithms to analyze and translate text. These systems learn from vast datasets of multilingual text to generate accurate translations. AI-powered translation tools can process large amounts of text at speeds that are essential for organizations operating globally and needing to translate customer communications in real-time. By integrating these translation services into CCM applications, users can access the translations instantly.

Without AI, organizations rely on manual translation services, which require a more significant investment in both time and money. The automated translations reduce the need for human translators, which can significantly cut costs, especially for simple or repetitive tasks like translating product descriptions or social media posts. This allows organizations to scale their translation efforts without overburdening their budgets. And while many of the examples present text translation, the translation tools are not limited to written text. They can also translate spoken language in real-time through speech recognition technologies. This opens up possibilities for multilingual communication for customer service enhancing cross-cultural interaction.

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Similar to translation, AI engines make documents accessible by automatically generating alternative text for images, identifying and structuring headings, optimizing the reading order, adjusting color contrast, and analyzing document content to flag potential accessibility issues. This essentially allows for faster and more accurate remediation of documents for people using assistive technologies like screen readers, particularly through techniques like Natural Language Processing (NLP) and Optical Character Recognition (OCR).

Document Rationalization

Over the past two decades, the use of digital document composition systems has grown significantly. Organizations manage libraries of document templates, overlays, graphics and text content which have been coded into legacy composition systems. Previously, the time and labor associated with recoding every document into the latest CCM solution were cost-prohibitive.

AI-augmented solutions are revolutionizing the streamlining of content and reengineering workflow processes, significantly enhancing operational efficiency. Leveraging advanced analytics and machine learning, an AI solution can sift through an extensive collection of document templates to identify redundancies and add the coding necessary for a single template to serve as a replacement for multiple variants. This capability saves time and reduces the potential for error.

An AI quickly parses hundreds of templates to separate and identify content elements. The AI identifies common language and graphics then saves only one instance of each piece of content. The system creates references for all the templates in which each content element is used. Ideally, the CCM solution stores the content in a neutral format so that the content is not tied to a specific composition system or delivery channel.

With these tools, organizations are now able to quickly implement new CCM solutions with significantly less IT resources. In addition, AI algorithms ensure that all document templates and content adhere to the latest regulations and corporate policies, mitigating legal risks. This is particularly important for industries such as finance and healthcare, where communication errors can have serious regulatory repercussions.

Accessibility

AI plays a critical role in enhancing accessibility, especially as global awareness and regulations around inclusive access grow. One prominent regulation guiding this progress is the Web Content Accessibility Guidelines (WCAG), which sets a standardized criterion for digital content and platforms. AI technologies ensure that these standards are met. Through natural language processing and machine learning, AI systems can automatically adjust web content to be more accessible to users with disabilities, such as transforming text into speech or enhancing visual content for those with visual impairments.

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Another significant regulation is the Americans with Disabilities Act (ADA), which has been interpreted in recent years to apply not just to physical spaces but to digital realms as well. AI's role here is transformative, enabling dynamic adjustments to digital environments to accommodate a wide range of disabilities. For example, AI-driven tools can personalize user experiences on websites, ensuring that navigation and interaction are accessible for all users, regardless of their physical abilities. This not only helps organizations comply with ADA standards but also enhances the user experience for a broader audience.

In the EU, the European Accessibility Act (EAA) aims to harmonize accessibility standards across EU member states, focusing on key areas such as e-commerce and banking services. AI technologies rapidly and accurately assess customer communications for accessibility and modify the documents as needed with little to no manual intervention.

Under regulations like the Accessibility for Ontarians with Disabilities Act (AODA) in Canada, there is an increasing push for digital accessibility across services and platforms. AI is pivotal in automating the assessment and optimization processes for digital content, ensuring it is accessible to everyone. Technologies such as predictive text and AI-driven content moderation significantly reduce barriers to digital participation for people with various disabilities. Together, these technologies and regulations represent a concerted effort towards a more inclusive digital future, enabled by the advancements in AI.

Business Process Automation

The integration of AI into business operations has revolutionized customer communications. AI-augmented technologies offer flexible solutions that enhance efficiency, reduce costs, and deliver personalized customer experiences. By leveraging AI, organizations can automate the customization and delivery of customer communications across various channels, ensuring a personalized and timely interaction with each customer.

AI algorithms excel in pattern recognition, data analysis, and decision-making processes, making them ideal for automating repetitive tasks. This AI-driven approach enables the software to analyze customer data and previous interactions to optimize the content, format, and timing of communications.

For example, AI-powered chatbots can handle a multitude of customer queries simultaneously without human intervention. This implementation significantly reduces response times and also allows customer service agents to focus on more complex queries, increasing overall efficiency and customer satisfaction.

AI enhances personalization in customer communications. Through machine learning algorithms, AI can analyze vast amounts of data from customer interactions and preferences. This analysis enables organizations to tailor their messaging to meet individual customer needs and automatically deliver messages via the customer's preferred channel leading to more engaging customer relationships.

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AI's role in business process automation is multifaceted, impacting both customer-facing and back-office processes. Through the adaptive learning capabilities of AI, solutions continuously enhance their understanding of business users' behaviors, facilitating a proper course of action by making recommendations to the users based on previous similar scenarios. With AI-driven recommendations, new users benefit from the work done by experienced users, which enables new users to get up to speed faster. By embracing AI-driven technologies, organizations can achieve operational excellence and gain a competitive edge in today's competitive business environment.

Best Practices for Deployment

When considering any new technology, organizations should identify the business goal they expect the solution to help with and determine a method for measuring results. Customer communications management is a complex affair involving multiple software systems. AI-augmented CCM software will likely help organizations lower costs by eliminating manual labor at several steps in the production process. The software might also improve the overall customer experience delivered by accurate customer communications written in plain language; and the solutions can provide a competitive advantage by decreasing the time-to-market.

In addition, organizations need to document the business processes that will be impacted by the new software and determine what effect the solution will have on operations. The organization should consider both internal workflows and customer journeys. AI-augmented CCM solutions offer operations new opportunities to streamline both internal and customer-facing processes. With documentation, the organization can assess which processes can be improved with AI and evaluate the results.

Since very few solutions work in an isolated environment, organizations must consider how well the new software will integrate with existing systems. Fortunately, newer software solutions tend to be more open for integration than legacy platforms and provide opportunities to gradually or in some cases, quite quickly replace older applications. Regardless, organizations must develop a prototype and plan for thorough testing before bringing new solutions into production. Once a new solution is in place, organizations need to have documented procedures for measuring the results and identifying areas of improvement.

FUTURE OF CCM AND CONSIDERATIONS FOR AI

AI offers exciting opportunities for future development. With ever-changing customer expectations, both organizations and vendors can find ways to improve the customer relationship with AI. And while doing so, organizations should remain mindful of new regulations related to both AI and customer privacy.

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Content Provenance

With AI being increasingly employed to generate marketing content, responses to customer inquiries, and even recommendations for loans and insurance coverage, ensuring that the AI uses reliable and accurate sources becomes critical. Content provenance refers to the traceability and authentication of the origin of information provided by the AI service.

Provenance helps establish credibility and trust, both of which are crucial to an organization's brand in a competitive market. For an AI system to create relevant and personalized customer communications, it needs accurate data sources free from misinformation and biases. By ensuring content provenance, organizations shield customers from inaccurate information, thereby protecting both their brand reputation and customer relationships.

Content provenance also plays a vital role in maintaining compliance with industry standards and regulations. Many sectors, such as healthcare, finance, and legal industries, are subject to strict regulatory requirements about the information shared with customers. AI systems could inadvertently violate these regulations by delivering unverified or incorrect information. Provenance provides a means of tracking and verifying the sources of content, ensuring that AI-generated communications meet compliance standards and protects organizations from legal and regulatory repercussions.

Industry leaders, such as Adobe and Microsoft, are developing an open metadata standard for images and videos that allows content creators to attach digital signatures to a piece of digital content attesting to its origins. The standard supports tracking the individuals and systems involved in the content creation and editing. If any changes are made without the key held by the content publisher, the tamper-proof signature will no longer match.

In addition, provenance enables continuous improvement in AI systems. The AI models are trained on large datasets, and without a clear record of content sources, it is difficult to identify biases, inaccuracies, or errors that could affect customer interactions or financial recommendations. Provenance helps organizations track content performance and make adjustments as needed.

Language Translation

As the systems improve over time, new data and linguistic trends are added enabling the model to adapt and become more precise in interpreting context, slang, and dialects. Unlike rule-based systems or phrase-based models, AI-based systems rely on deep learning models, which consider the entire context of a sentence rather than just individual words. This allows AI to understand nuances, context, and idiomatic expressions, resulting in more natural-sounding translations.

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Despite the advancements in AI translation services, the solutions do still face challenges. While AI can handle many aspects of language, it sometimes struggles with deep cultural or contextual understanding. Idioms, humor, and culturally specific references can be mistranslated because AI may not fully grasp the non-literal meaning. This is crucial in legal, medical, or technical translations, where small errors can have significant consequences. AI is not yet flawless in these areas and still requires human oversight for accuracy and precision. And since AI models large language models, if that data contains biases (e.g., gender or cultural biases), the AI might inadvertently propagate those biases in its translations. These challenges highlight the need for careful testing, curation and diversity in training datasets.

Looking forward, AI translation will continue to evolve, driven by advancements in machine learning and multimodal AI systems. While AI will handle the bulk of straightforward translation tasks, human translators will focus on refining complex, high value, or culturally nuanced customer communications. As AI models are exposed to more diverse linguistic data, they will be better at detecting tone, sentiment, and emotional nuances in text, allowing for translations that are not only grammatically correct but also emotionally resonant.

Personalization

With its ability to process high volumes of data and learn from previous activities, AI will be able to provide high levels of personalization for customer interactions from the creation of personalized images and offers, to ensuring the readability of complex information. By embedding these highly-personalized promotional messages into the customer communications, the solution delivers on the "TransPromo" concept. In addition, AI-augmented CCM solutions offer real-time responses to customer inquiries across channels and customer touchpoints. Advances in voice and speech recognition as well as analysis of graphical content will enable the AI solutions to handle even the more complex tasks.

Organizations will also be able to provide greater personalization supported by an AI solution's ability to provide predictive analysis. In other areas, such as financial services, AI is already supporting decision making with insights gleaned from analyzing a vast amount of data. For customer communications, this ability can predict and plan for customer inquiries across all aspects of a business.

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To complete this study, Madison Advisors interviewed and received briefings from six CCM vendors whose solutions utilize AI to achieve the objectives outlined in this report. The vendors provided valuable insights into the current and future state the of the CCM/CXM market. The vendors profiled below represent some of the key components of a robust CCM/CXM environment.

Founded in 1995, Crawford Technologies provides CCM/CX software and services to over 2,000 companies worldwide. The company's focus areas include Enterprise Output Management, Content Services/ECM, and Regulatory Compliance (ADA Accessibility and Omni-Channel delivery).

The company's flagship solutions, Operations Express and PRO Conductor, specialize in post-composition datastream reengineering and workflow automation. These solutions support high-volume transactional output in commercial and digital environments, compatible with mainframe and server systems across nearly all operating systems. Acting as middleware, these solutions enhance both legacy systems and new infrastructures, integrating with every customer's composition environment tool, printer, mailing/finishing equipment, and mail hygiene hardware/software vendor.

Two award winning AI-powered solutions—AccessibilityNow Translate and SmartSetup—are transforming how organizations manage documents and workflows in high-volume, fast-paced environments.

AI Functionality

Crawford Technologies categorizes its AccessibilityNow Translate service as a solution designed to translate documents from one language to another while making font adjustments automatically and retaining the document formatting. The solution automates the translation of high-volume documents with performance measured in milliseconds per page, making it scalable to millions of pages per day. The solution ensures that the content is accessible to individuals with disabilities, adhering to compliance standards such as WCAG, PDF/UA, and Section 508, which makes the resulting document available for printing as well as online presentment.

Supporting over 120 languages, AccessibilityNow Translate provides the ability to translate the document in real time utilizing the client language glossaries and if a paragraph or sentence is not available in the glossary, it uses the selected AI integration to get a real-time translation of the selected document content. The solution supports a manual review of the content if required.

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Crawford Technologies' SmartSetup is a no-code solution that simplifies the indexing process for document onboarding and application migration projects. Using AI, the solution scans content to identify variable and static content elements, identify document boundaries, addresses, and variable information used within large production print and mail files. SmartSetup automatically creates the workflow rules and embeds the data locations and triggers in the document layout enabling organizations to easily onboard new applications into their automated document factories (ADF) and production workflow toolsets.

Reporting and Analytics

Crawford Technologies' AccessibilityNow Translate reports on delivery and usage through the same interface as its flagship solutions, allowing users to efficiently manage and monitor their document translation processes. The solution can provide data in any format the customer needs.

The solution offers change tracking and identification features that highlight any unapproved text within a document. The Change Track System, enhanced with Language Sentinel, ensures thorough monitoring and evaluation of all results.

Conclusion

Crawford Technologies provides a wide range of tools leveraging AI to support the various needs of complex CCM environment. SmartSetup offers a fast and efficient migration tool for bringing legacy documents into a modern environment supported by Crawford Technologies' digital transformation and omni-channel delivery capabilities. Crawford Technologies AccessibilityNow Translate service is one of several tools within the AccessibilityNow platform which supports the full range of an organization's accessibility needs to meet the demands of emerging regulations.

Founded in 1998, Messagepoint is a privately held firm headquartered in Toronto, Ontario with a growing presence across United States and Europe. The Messagepoint platform is a cloud-native customer communications management solution that harnesses AI-powered Content Intelligence to consistently deliver exceptional, highly personalized customer communications across all platforms and channels. The intelligent content hub addresses the complexity of regulated, omnichannel customer communications with a unique headless approach to modular content management is not tied to any one document template or channel. The content components managed in Messagepoint enable advanced content-sharing and easy reuse of content through multiple communications and channels without having to write explicit rules or code.

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AI Functionality

Messagepoint's proprietary AI platform, Messagepoint Rationalization and Content Intelligence Engine (MARCIE) performs critical functions throughout the platform. Through Rationalizer, it automates the ingestion of legacy documents, content analysis and consolidation and migration into Messagepoint. With Assisted Authoring, it both proactively analyzes content across the entire library and identifies issues with readability, sentiment, or brand compliance. MARCIE also offers Content Intelligence services via a set of APIs for content optimization, analysis and parsing outside of the Messagepoint platform. MARCIE also leverages third-party generative AI services from OpenAI, Amazon, and DeepL. The Messagepoint APIs also enable organizations to "bring their own LLM" for further flexibility.

For complex legacy environments, the Rationalizer module can analyze legacy content to detect duplicates, similarities for the purpose of consolidation, thus reducing the number of document templates being managed. Rationalizer is also critical for content migration. The tool breaks document-centric content from multiple legacy formats into modular objects usable across multiple systems and channels.

Assisted Authoring enables organizations to optimize content for reading levels, sentiment, tone, plain language and branding. It suggests changes and provides plain language alternative text. The solution can translate content into over 80 languages and provide translation accuracy checks to ensure the quality of the translations. In addition, the solution creates digital renditions (summaries) of content optimized for different delivery channels without compromising the meaning.

Reporting and Analytics

Messagepoint Production Manager manages production and provides reporting and usage through the same user interface. Production Manager also provides a robust set of APIs for integrating this information with other reporting tools and data warehouse applications.

The solution offers detailed logging and reporting functionality, allowing results to be reviewed post-deployment during execution time. The solution supports the creation of multiple data partitions to segregate training, validation, and testing datasets. It maintains complete model provenance, including hyperparameters and processing code, to ensure models can be validated and reproduced if necessary. This approach ensures transparency and allows for thorough evaluation of the AI functions before and during their deployment.

Conclusion

Messagepoint offers a robust CCM platform with integrated AI capabilities supporting plain language, sentiment, tone and branding. The platform also leverages AI for content translation with a system of accuracy checks.

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Messagepoint Rationalizer offers critical support for migration through its deconstruction of legacy content from document-centric objects to modular content elements that are independent of any specific CCM software or coding. During this process, the tool eliminates duplicates thus minimizing the overall size of the content library.

MHC

MHC Automation is a SaaS-first software company, which has been specializing in intelligent document and payment automation for almost 25 years. MHC NorthStar manages business processes across the enterprise for customers, vendors, and employees by automating core functions such as accounts payable, supply chain, human resources, and customer experience with integration into existing business systems and enterprise resource planning (ERP) software solutions. The NorthStar CCM platform is available as an on-premise, cloud-based, or hosted solution and is suitable for mid-size and enterprise organizations across verticals, including software technology, healthcare, manufacturing, finance and insurance.

The NorthStar CCM platform delivers document composition, data mapping/modeling, and workflow engines capable of generating millions of documents daily. The platform enables business users to make changes and manage communication processes in a low code/no code environment without IT involvement. The NorthStar CCM workflow engines are accessible through APIs for seamless integration with homegrown or third-party systems, such as Salesforce. The integrated workflow enables organizations to create and deliver robust customer communications from within core business systems with full scheduling, routing, and approval cycles.

AI Functionality

AI Assist is MHC's AI-toolset within MHC NorthStar. For legacy document ingestion and migration, AI Assist evaluates libraries of legacy documents to consolidate multiple similar documents into a single template. The product creates a data model for the variable data fields used within the document set. With AI Assist, NorthStar CCM business users can quickly generate templates, documents, emails, and web forms using intuitive, AI-driven prompts.

AI Assist elevates the quality of each communication by offering content refinement, writing assistance, and translation tools, ensuring that all messages are clear, readable, and brand compliant across channels. The tool creates content summaries of lengthier text for e-mail and text messages to maintain a consistent message.

MHC NorthStar CCM offers a robust graphical workflow designer that enables business users to develop and modify document workflows and customer journeys. The workflow designer supports the document production process from the collection of data thru document rendering to document delivery. Activity is managed through a scheduler, watched folders, or APIs that trigger processes and handle notifications, logging, and

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routing for approvals. The workflow engine also supports bi-directional customer interactions with configurable touch points and triggers to generate new documents based on customer inputs.

Reporting and Analytics

MHC NorthStar CCM monitors and logs all activity within the platform and is capable of displaying all activity by an individual user or within a specific workflow instance. The solution logs all AI requests and tracks changes implemented by each user within the system. The solution uses a graphical interface displaying a timeline of activity for easy tracking.

Conclusion

MHC Automation's MHC NorthStar CCM is an end-to-end CCM platform with extensive integrations for core business software systems and a robust workflow system for document automation. AI Assist provides crucial tools that accelerate legacy migration, refine and translate content, and automate inbound and outbound business processes. The solution is supported across on-premise and a variety of cloud-based platforms.

PAPYRUS
SOFTWARE

Papyrus Software is a global leader in CCM and CXM, whose software is used by the world's largest enterprises across industries for exceptional customer experiences. The company's AI-driven platform seamlessly integrates content management, process automation and customer insights, delivering personalized communication at scale. With a proven track record of driving ROI and a deep understanding of industry-specific challenges, Papyrus is the trusted choice for organizations seeking to transform their customer journeys.

The "all in one" Papyrus document lifecycle platform satisfies various needs for document creation and multi-channel delivery across high-volume, online, ad-hoc and interactive business documents. The platform seamlessly integrates CCM with inbound communications, adaptive case management and content services based on one source code. The awarded Business Designer technology empowers business users to self-service their needs and easily create and manage intelligent business forms, processes and highly dynamic business documents for print and digital delivery with minimal involvement from IT. The platform provides next-generation self-service with a fast access to relevant information and ad-hoc processing of personalized e-invoices, e-policies or e-contracts.

AI Functionality

Papyrus Software has integrated AI functionality into the core of the Papyrus document lifecycle platform. Papyrus uses its own AI solution as a user-trained agent (UTA), which watches and learns from user activity thru

pattern recognition. When the UTA sees similar data or processes, it recommends actions for case management, such as in the case of insurance claims or any other process. The UTA offers guidance to the user as to the next steps or recommended response.

Everything in Papyrus can be configured to leverage the UTA. In the Papyrus Intelligent Document Processing (IDP), the UTA can be set to a "training mode" where it will learn by example. Likewise, the security around AI data can be controlled for confidentiality. At the highest level, no information will leave the Papyrus environment. At a lower level, certain personal data elements are removed before using an external AI service.

The Papyrus platform works with various external AI systems, including the insights into the document and content editing services. Papyrus works with the Microsoft Cognitive Service to extract the information from complex handwritten documents and use it directly in document processing. The platform works with various generative AI services for sentiment analysis, adjusting reading levels, and translation.

Reporting and Analytics

Papyrus has integrated monitoring, tracking and auditing within the system, and can include data on AI usage in freely definable reports and dashboards. All services can be monitored and statistical information can be provided. For example, whether the content provided from the AI Service is used after the first request, or multiple attempts were needed before the user decided to use it, or is the content used 'as-is' or it had to still be manually modified by the user.

Only services that are permitted by the Security Administrator are available to the users. The received content from the AI system can be purified automatically avoiding malicious scripts inside the received content. The Papyrus Test Center can also be used to evaluate the results received by the services and present the result to the Test Operator that can interact with the decision.

Conclusion

Papyrus Software provides a complete and fully integrated CCM platform including digital automated document factory for inbound and outbound communications. Using AI, the platform provides various content-related functions, such as sentiment analysis, brand control, and translations. The user-trained agent technology presents a unique approach to leveraging AI in the CCM environment with its ability to guide users through the various document-related processes. The secure, internal AI operates as both student and teacher by learning from user's activity to provide guidance when the same or similar instances occur.

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quadient

Quadient is a global company behind a communication-focused automation platform powering secure and sustainable business connections through digital and physical channels. Quadient supports businesses of all sizes in their digital transformation and growth journey, unlocking operational efficiency and creating meaningful customer experiences. Quadient Inspire focuses on deployments ranging from the largest enterprises down to larger midmarket sized customers, while its Quadient Impress offering supports smaller customers. Quadient's solutions are offered globally and are notably used by companies in highly regulated industries with a large number of customer-facing communications and forms.

Quadient Inspire is a market-leading customer communications management suite of integrated solutions designed to meet diverse deployment preferences and unique business objectives. The suite enables customers to deploy in one environment and seamlessly migrate to another as their needs change. Inspire delivers a seamless omnichannel experience from a single design template.

Within the market-leading Quadient Inspire suite, two deployment options exist – Inspire Evolve (a SaaS solution) and Inspire Flex (an any-premise solution), with both allowing integration to business systems and enabling front office and back-office teams to create and deliver batch and one-to-one customer communications with little IT support.

AI Functionality

Quadient enables organizations to use the AI service of their choice to support the features within the Inspire suite. The product's APIs allow for seamless integration to Microsoft Azure OpenAI but other AI platforms can be configured.

With AI, Quadient provides content analysis, automation and content improvement. The AI features analyze any selected content and provide an assessment of the sentiment, tone, readability and branding of the content. The interface presents scoring or ratings in each category and in-editor highlighting of potential issues.

In addition, Quadient's AI Assistant provides suggestions for improving existing content or generating new content. An administrator can create configurable "quick prompts" which are then accessed by users to change the sentiment of the content with a tone dropdown and strength percentage. In addition, a custom prompt editor enables more ad-hoc requests (e.g. "Generate 2 paragraphs to inform customer of ....").

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The tool can rapidly translate content into a different language with a drop-down list of languages, or can summarize content for easier readability or use in digital communications, such as email, where lengthy paragraphs and text blocks may become cumbersome for customers to sort through.

Quadient's InspireXpress tool uses AI and machine learning to accelerate the conversion of legacy communication templates and forms into the Inspire format. The tool identifies similarities between templates (and exceptions where previous human error may have led to a difference between content areas that should have been identical across templates), enabling the system to combine multiple legacy templates into a single intelligent template. Many organizations see a 50-90% reduction in the eventual number of templates being managed once migrated into Inspire.

Reporting and Analytics

Quadient Inspire provides comprehensive analytics capabilities to track and measure the effectiveness of communications across various channels. These analytics features enable organizations to gain insights into customer engagement, response rates, and overall communication performance. The solution tracks the success rate of communication deliveries across channels and conversion rates to measure the direct impact of communication efforts on business outcomes.

The solution offers reports on compliance with regulatory requirements and tracks errors or issues in communication delivery processes, aiding in risk management and process improvement. However, it does not include any tools for monitoring the AI-generated results for biases or compliance.

Conclusion

Quadient's AI Assistant augments the Inspire CCM solution with an integrated tool that uses configurable prompts to recommend adjustments to the sentiment, tone, and readability of content. The AI Assistant can also be used to enforce corporate brand standards. The AI Assistant provides translation and summarization services as well.

Quadient's AI-based InspireXpress tool converts legacy document templates and forms to the Inspire format while at the same time identifying and consolidating duplicate or similar templates. These AI-driven features and benefits empower users of Quadient Inspire to create more engaging, personalized, and effective customer communications while reducing time, effort, and potential errors.

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Smart Communications specializes in customer conversations management solutions. The company provides businesses with the tools to enhance their customer engagement through personalized and efficient communication strategies wholly within a cloud environment. The company's document automation and multi-channel delivery solutions help organizations streamline their customer interactions across the entire customer lifecycle. The company serves various industries, including finance, insurance, and healthcare, enabling them to meet the growing demands for effective communication in today's digital landscape.

SmartCOMM's Template Editor is a fully functional, browser-based design tool capable of supporting batch, interactive, and on-demand document creation on the same platform. It enables users to design customizable templates ensuring personalized and relevant interactions. Template Editor's drag-and-drop functionality integrates with existing data sources, allowing for real-time data population and automated updates. SmartCOMM's Conversation History capability captures communication-related context and metadata to optimize downstream interactions and supply valuable training data to AI systems.

AI Functionality

Operating within the Template Editor, SmartCOMM's Writing Assistant improves text readability, adjusts tone, and translates content to other languages. This feature is enabled by request, allowing clients full control over all AI features. For compliance, the solution maintains internal reporting to track when and how AI features are used to track content provenance and comply with potential AI usage audits.

Within Template Editor, edition sets solve a critical need. The tool enables authors to create content variants specific to language, channel, idiom, language, brand, effective dates, and jurisdiction. Each edition can contain state-specific language, but all the editions are contained within the same content object and the conditions at run time determine which edition is used without complex rules programming.

Client data is stored in the AI implementation that is on the client's tenancy. No client data is bidirectionally moving to populate external models. Smart Communications does not have access to client data, with a minor exception for technical support when a screen is shared.

Reporting and Analytics

SmartCOMM offers a variety of reporting options. Usage is reported in the client portal for Pure Cloud clients using Conversation Cloud Platform, while delivery is at the application level. However, SmartCOMM does not

initiate any training of the AI, which may be the sole provenance of the organization, especially if an organization is using its own AI libraries.

The compliance risk is determinable and log reports include usage of AI technology. SmartCOMM traces each use of AI by content developers within the system, which enables the solution to report the circumstances associated with any alterations to content elements. This is a key differentiator, because it allows an organization to audit any AI usage, which will likely become a regulatory requirement.

Conclusion

Smart Communications cloud-based CCM solution provides browser-based services for the full range of customer conversations. Writing Assistant leverages the organization's preferred AI platform to advise on text readability, conversational tone, and language translation. Conversation History allows clients to store communication-related metadata, including the presence of AI-impacted content at the communication level. To support existing and upcoming regulatory requirements, the platform maintains an audit trail for any and all changes made to the content by an AI model. Similar AI functionality supports inbound data collection through SmartCOMM's Smart IQ digital forms solution.

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Richard Huff
Senior Analyst

Richard Huff provides extensive experience in managing market and product research to offer strategic advice on best practices and technology recommendations for printing/mailing operations. His experience includes assisting clients with enterprise document strategies, product selection and market initiatives.

Prior to joining Madison Advisors, Rich worked as a Senior Analyst with Doculabs, where he was the lead on end user and vendor engagements. He also has experience on the manufacturer side, having held positions at Uarco, Inc., a manufacturer of customized business forms and labels. Rich was an integral member of the launch team for Uarco Impressions, one of the first distributed short-run color print operations.

An established industry expert, Rich has authored articles for publications that include *Document Strategy, Digital Publishing Solutions* and Xplor publications.

Kemal Carr
President

Under Kemal Carr's direction, Madison Advisors has established a market niche as an independent analyst and market research firm that addresses the needs of the electronic and print customer communications management (CCM) marketplace. The firm provides retainer and project-based strategy services designed to assist clients with technology selection and alignment and business process optimization decisions.

Kemal is regularly sought out by some of the leading output technology publications to write about or comment on the industry's key issues and topics, including articles on the impact of eDelivery and multi-channel delivery, advancement in communication technologies, and electronic document presentment. He is also asked to speak at trade events, including key sessions at Xplor's global conference, DOCUMENT Strategy Forum, Inkjet Summit, and numerous vendor trade events.

In 2017, Carr received the Brian Platte Lifetime Achievement Award from Xplor International at its global conference. The award was in recognition of Carr being one of the industry's most respected resources and thought leaders who is known for his insight, vision and passion.

MADISON ADVISORS

Madison Advisors offers research and consulting services that provide objective analysis, client-specific guidance and in-depth market knowledge to clients in the customer communications management (CCM), electronic delivery and print industries. Madison Advisors' industry-neutral expertise enables enterprise organizations, service providers and technology providers to achieve their strategic objectives around CCM.

Since our inception in 2001, Madison Advisors has helped our clients:

- Assess their competitive industry standing through our Best Practices Assessment
- Develop and implement effective enterprise communication strategies
- Identify growth opportunities in the enterprise, service provider and technology provider markets
- Understand the impact of market trends on their business

To learn more about Madison Advisors, go to www.madsion-advisors.com

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