WHICH TECHNOLOGIES WILL INNOVATE THE CCAAS MARKET IN 2022?

Whitepaper

OPERATORS & PROVIDERS

JUNIPER RESEARCH

1.1 Current CCaaS Market Outlook

Contact centres allow customers to interact with representatives from a brand or enterprise free of charge. Historically, customers were only able to contact organisations via phone calls. However, after call centres developed into contact centres, this allowed customers to communicate via their preferred mediums.

As companies continue to develop these contact centres and invest in prominent technologies such as the cloud, contact centres began to adapt their architecture from on-premises to cloud-based due to their increased flexibility, reliability, scalability and security.

Juniper Research defines CCaaS (Contact Centre-as-a-Service) as:

'A service that merges cloud-based contact centre infrastructure with contact centre processes.'

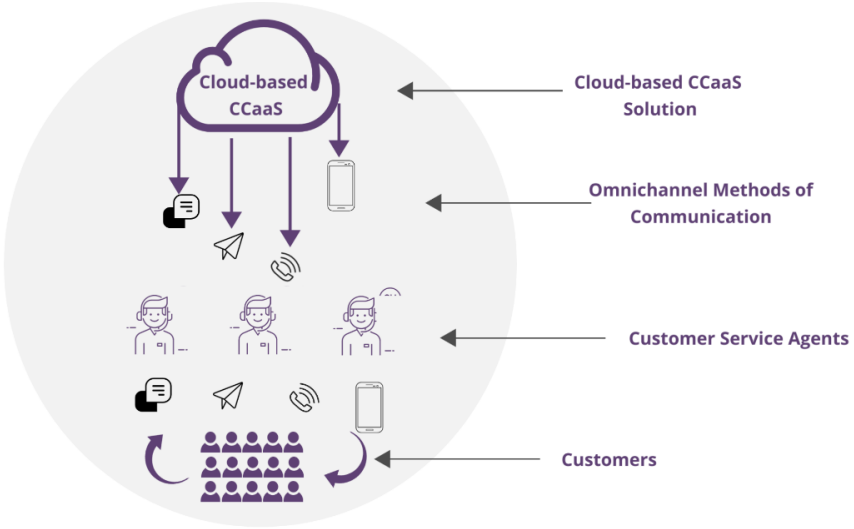
CCaaS provides a cloud-based customer experience business model that refines, integrates and streamlines customer interaction platforms. It allows enterprises to utilise contact centre software by purchasing only the technology they need, thus reducing the need for internal IT support.

This CCaaS infrastructure is hosted by a third-party provider who offers a number of services. These include voice, video, SMS, RCS, email, instant messaging, chatbots, social media, and push notifications.

The COVID-19 pandemic caused a significant proliferation in the use of CCaaS solutions, as contact centres needed to adapt to not only an increase in traffic but also the need provide high customer experience in a fully virtual environment.

For existing on-premises contact centre customers, CCaaS vendors should look to allow them to leverage consumer cloud capabilities from their premises in a hybrid cloud architecture. This allows companies to not only protect their investment but to also move to the cloud when and if they want to. This is particularly useful for medium-to-large enterprises, as transitioning to a cloud-based contact centres from a premises-based model can take some time.

Figure 1: CCaaS Solution



Source: Juniper Research

This infographic highlights how CCaaS platforms provide an omnichannel communications solution to contact centres that can be leveraged by both customer service agents and customers to ensure frictionless interactions.

CCaaS vendors now supply cloud-based contact centres rather than the legacy premises-based contact centres. This transition from an on-premises to a cloud-based solution allows for the easy integration of new technologies. These technologies will include AI-IVR 5G interactive calling and programmable voice.

The exponential growth of CCaaS is due to its ability for cloud-based solutions to be integrated to other tools and solutions through the use of SDKs (Software Development Kits) and APIs. Juniper Research urges enterprises to take advantage of these integration features by aligning its workforce management, contact centre and CRM (Customer Relationship Management) tools to create a strong customer experience whilst enhancing team efficiency and data management.

Whilst CCaaS systems provide the ability to leverage new technologies, these platforms also facilitate interoperability between telephony networks, as users will be able to select an operator of their choosing, keep their existing telephony provider or use other capabilities, thus providing interoperability between carrier networks.

1.2 CCaaS Market Drivers

There are many benefits to enterprises adopting cloud-based contact centre technology. These benefits are highlighted below:

i. Omnichannel Communication

The omnichannel experience is imperative to customer experience, as it allows enterprises to offer the same quality of service across a variety of channels and ensure that all customers are served equally. In order to measure KPIs (Key Performance Indicators) across a range of communications channels, enterprises will have to learn to identify and track the clients across these digital channels in order to gather data and analyse the customer journey, to provide insights into customer queries.

Most modern CCaaS solutions have omnichannel capabilities that can be applied to customer service. Customer service agents can use web or app-based software to view customer interactions across a wealth of communications channels, including phone calls, messaging, live chat and social media.

Moreover, the rise of CCaaS allows for customer service agents to handle customer queries from multiple communications channels, as APIs enable the integration of information onto one user interface. This increases the ease of supplying an omnichannel experience.

ii. Emergence of Social Media

The continued growth of social media has resulted in the expansion of communications opportunities for both A2P (Application to Person) and P2A (Person to Application). This does not only provide a marketing outlet, but also an additional channel of communications for both enterprises and consumers which further strengthens the omnichannel experience.

Embracing social media also gives enterprises the opportunity to improve transparency. As the KPI for marketing and customer service is significantly different, it is important to ensure that if a brand wants to establish itself on social media, then it must have the means to deal with customer enquiries, thus promoting the need for a CCaaS solution.

Contact centres and CCaaS platforms must not only use social media as a way to communicate directly with customers, but should also be monitored for public feedback regarding a company. A strong social media customer service model should look to interact privately with customers, as well as publicly addressing comments and mentions to ensure that the brand image is secured for the wider audience.

iii. Cloud-based Services

As contact centres have evolved to serve multiple technology channels, contact centres are now migrating from on-premises infrastructures to cloud based. An on-premises contact system is internally managed and maintained, whereby hardware and software have to be handled on-premises. However, migrating to a cloud-based infrastructure will provide significant competitive advantages and faster ROI (Return on Investment) due to increased flexibility and implementation of services and decrease in in-house maintenance and upkeep.

However, one advantage for vendors that provide these on-premises contact centre services is that it is likely that their customers have had the same contact centre solution for many years. As the process of replacing or upgrading infrastructure is expensive and time consuming, it is unlikely that these vendors have analysed the market for replacement infrastructure.

However, as cloud-based contact centre infrastructure is more flexible and externally managed, there is more competition in this market, as it is easier for customer to 'jump' from one provider to another. In order for CCaaS providers to reduce customer churn and ensure customer loyalty, they should look to promote an end-to-end contact centre solution so that customers only need to interact with one CCaaS provider.

Within a cloud contact centre network, both customers and agents can take advantage of technologies such as IVR (Interactive Voice Response), co-browsing, programmable voice, interactive calling, amongst others. Moreover, the success of a CCaaS solution will depend on whether the vendor is able differentiate themselves from the market competition by offering next-generation technologies such as RCS.

However, not all CCaaS providers currently offer this comprehensive set of network technologies. In order for them to provide the best customer experience, it is not enough to just support multiple communications channels. They must also be able to use innovative and comprehensive technologies that facilitate communication across these channels. For example, interactive calling leverages 5G networks to offer advanced voice calling functionality, including interactive content and screensharing, directly in the native calling app on smartphones, thus negating the need for third-party applications.

iv. AI and Machine Learning

The aim of AI and machine learning is to automate experiences and conversational interfaces, and can be integrated into any cloud-based application of a tool.

Due to the cloud's ability to adopt new functionalities and technologies, AI and automation will allow voice and messaging clouds to provide recommended solutions and next-best actions for customer service agents. This ability to utilise AI in CCaaS will also allow users to view all interactions and digital conversations in real-time, whilst monitoring call routes, messaging termination and clearing.

However, there are potential risks when integrating AI into a contact centre business model. If it is not done correctly then it could increase workload for customer service agents whilst decreasing customer satisfaction. Although the technology can use machine learning to adapt and provide eventual automation, it still needs initial training to be able to answer specific customer questions. It is also important for human agents and AI to have integrated workflows. This will ensure that agents, bots and clients are able to use the same information to ensure consistent service.

1.3 CCaaS Market Restraints

1.3.1 IVR Fraud

IVR is used in customer service as a way to improve contact centre operations and KPIs. IVRs include an automated phone system which allows incoming callers to access information via pre-recorded messages without having to interact with human agents. The flexibility and application of IVR allow it to be used by a wide range of market industries, such as utilities, healthcare and transportation, with customers being able to interact by using touch tone keypads of voice recognition to have their call routed to a specific department.

Despite the benefits of IVR, it is often the first stage of customer interactions, which makes it a prime target for fraud. It is not currently possible for contact centres to distinguish if a caller is genuine, as scammers will mask their identity by spoofing their phone number. In order to combat this risk, contact centres must form partnerships with third parties to implement a fraud prevention-based tone printing technology. This provides a comprehensive method of authenticating callers. CCaaS providers must also implement biometric voice recognition capabilities which can be used to either match a customer's voice from a previous interaction or to identify known fraud voiceprints.

1.3.2 Security Risks, Cyber Attacks and Data Security

Adopting a cloud-based contact centre solution can increase the protection risks regarding data storage, control and accessibility. Moreover, due to the omnichannel nature of CCaaS, vendors are under pressure to ensure strong security measures from multiple mediums. Vendors must guarantee that they are adhering to standards such as GDPR, HIPAA, PCI, FISMA. These vendors must ensure that they are also adhering to process specific standards, such as the PCI DSS for payments and SOC 2 certification for healthcare data.

Since the pandemic, many contact centres are now adopting either a hybrid working model or have stayed totally remote. Contact centres, and therefore CCaaS providers, must offer addition security when agents are working from home. These include:

- Use multi-factor login authentication
- Use password managers to keep passwords secure
- Use a VPN for connections directly into business systems
- Instead of storing customer credit card information, use DTMF (Dual Tone Multi-frequency) masking technology
- Ensure that all laptops are fitted with updated antivirus software

To ensure that customer and business data is only being handled by the necessary parties, CCaaS providers must not only provide data encryption services that prevent intelligible data from leaving the cloud, they must also ensure that businesses are provided with individual access profiles for its agents.

Furthermore, as confidential information is often disclosed in every customer-agent or customer-bot interaction, it is imperative that contact centres provide continuous training to their agents to ensure reliable operations and reduce mistakes.

1.3.3 Inadequacies in Network Bandwidth

Whilst maintaining a bandwidth for multiple APIs, messaging platforms and analytic systems, in order to provide a telephony system that is operated as a cloud-based service, the bandwidth of this connection is the predominant factor determining the maximum number of parallel calls. Without sufficient bandwidth, packs of data will get lost, calls will be disconnected and call quality will be significantly impacted.

To ensure that a contact centre is provided with a sufficient network bandwidth, these companies must partner with operators to ensure that it is not using a contended broadband connection. This will reduce the overall traffic travelling through the network, thus improving its efficiency.

Moreover, contact centres can streamline their workflows to provide asynchronous connection speeds. Due to the difference in processing speed of uploading and downloading, when arranging an Internet connection for a call centre, they must consider an enterprise-grade broadband connection, as it improves the latency of upload speed without sacrificing download speed.

1.3.4 P2A Voice Traffic Identification

Juniper Research forecasts that the total number of voice users will grow by 19% between 2022 and 2027. This increase in voice traffic also enhances the likelihood for misidentification.

In order to ensure maximum ROI, operators must be able to identify how much voice traffic is attributable to contact centres. If this P2A traffic is not identified, it will be assumed as P2P traffic, which is essentially free to the consumer. To facilitate this identification, voice firewalls should again be used to identify P2A traffic and distinguish it from P2P and A2P.

1.3.5 Barriers When Moving to Cloud Contact Centres

Although security concerns are one of the major barriers for contact centres when migrating to the cloud, another important barrier is the potential for data loss. In order to avoid this becoming a concern, CCaaS providers must ensure that they are educating and providing clarity to contact centres on the cloud migration process.

Despite CCaaS being available to businesses of all sizes, a lack of traffic may result in this solution on being attractive to medium-to-large enterprises. Therefore, this significantly limits the scope of businesses for CCaaS vendors to target. Moreover, the upfront investment in transitioning from on-premises to cloud-based services is high. This investment will not be feasible for all small enterprises which will further hinder CCaaS availability.

Another barrier that contact centres face when migrating to the cloud is the possibility of laying off employees due to the increased automation in everyday processes. This is particularly true when considering the integration of AI to automate many simple agent tasks. However, although migrating to the cloud will

reduce the need to manually update systems, this does not have to result in redundancies. Instead, contact centres are urged to re-focus their employees to more impactful work which is more central to the business.

1.4 Key Technologies for CCaaS Platforms

1.4.1 SMS

SMS is an important method of communications for contact centres, as it is provides a familiar, trusted and simple technology that can be easily utilised by contact centres worldwide. It is a highly attractive communications channel, due to its ubiquity on smartphones, and allows contact centres to reduce waiting times, reducing number of inbound calls and improving customer experience. Moreover, it is an effective form of communications for both consumers and contact centre agents as agents can still be handling voice calls whilst replying to SMS messaging.

Due to the cloud-based nature of CCaaS, this allows for multiple inbound SMS numbers to multiple SMS conversations. This improves the efficiency of SMS communications with contact centres as agents

Despite the popularity of P2A SMS, we attribute this to a reduced amount of consumers taking advantage of more rich methods of communications such as messaging over RCS and OTT apps, thus mimicking the migration of P2P traffic to these services. Furthermore, as OTT applications are often supplied to consumers free of charge, this reduces their ability to be monetised by CCaaS providers.

Due to this reduction in revenue, Juniper Research predicts that operators and CCaaS providers will accelerate their investment in technologies such as RCS to offset the loss over SMS revenue over the next five years. In order to accomplish this, we recommend that CCaaS providers capitalise on advanced anti-fraud and network solution standards.

1.4.2 RCS

Despite the staggered deployment of RCS, Juniper Research believes that CCaaS vendors, CPaaS (Communications Platform-as-a-Service), SaaS (Software-as-a-Service) and MaaP (Messaging-as-a-Platform) solution providers will play a significant role in the future support and roll-out of RCS. Specifically, CCaaS providers will act as a link between operator networks and the consumers who wish to use the technology.

Due to the increase in the conversational nature of RCS messaging, both consumers and brands are able to improve engagement by providing more rich media, such as photos and videos, in order to improve interactivity. Moreover, as RCS is transmitted over operator networks, customers are able to utilise this technology without the need to download a third-party app.

Despite the facilitation of RCS being more expensive for CCaaS compared to SMS messages, consumers often are subscribed to a pay-per-message and will therefore, be paying a higher rate to have a conversation via SMS. Consumers will look to more conversational mediums such as RCS where the price of conversation is lower. Therefore, CCaaS platforms must ensure their hardware and software are able to facilitate RCS messaging to ensure messages can be sent via this medium without the need to fall back to SMS as default.

1.4.3 Chatbots

Due to the proliferation of online customer traffic, chatbots are often deployed as a default entry point for communications between both brand and enterprise. The benefits of chatbots in customer interactions include:

- Time and Cost Saving
- Personalisation
- Customer Loyalty
- 24-hour Service
- Increased Customer Experience

Chatbots are now heavily deployed within customer service and contact centre markets. It is now expected that CCaaS providers offer this solution within its product portfolio. However, despite chatbots providing significant benefits to contact centres, CCaaS providers are not able to receive a direct revenue stream from providing chatbots as a service. It is only through subscriptions and licences that CCaaS providers can gain revenue through chatbots.

Due to the increase of conversational commerce and eCommerce markets, Juniper Research recommends that chatbots are to provide the facilitation of payments over their interface. This is to provide a seamless online shopping experience for consumers and therefore, CCaaS providers must ensure that they do not only adhere to the security standards needed to secure payments, but these providers must also partner with PSPs in each region in order to integrate payments via a third-party tool.

1.4.4 IVR (Interactive Voice Response)

Despite IVR technology being used for some time, is it not always the most popular method of communications for customers. However, it is not a dispute with the IVR technology, but rather its IVR design. This is due to customers not choosing to use automation and it is something that they are being forced to do which leads to a customer having very little options if they wanted to speak to a human agent. Juniper Research warns that enterprises must ensure that they only deploy IVR software if it caters to the needs of the customer and not just the company. One way to ensure customer satisfaction whilst also utilising IVR software is to always provide customers with an option to talk to a live agent.

Nevertheless, this technology continues to be a popular method of communications for contact centres and to be innovated through the use of AI. Utilising AI in IVR technology improves its conversation capabilities through:

- ANI (Automatic Number Identification) matching – Allows for the identification of callers to anticipate their needs and proactively address their issues.
- Speech Recognition and NLU (Natural Language Understanding) – Provide the ability to understand conversation speech and decipher customer intent.
- Call Steering – Redirects callers to the appropriate department which reduces transfers between agents and increases first contact resolution.
- Nuance Dialogue – Builds an IVR system that uses dialogue to mimic human conversation.

1.4.5 Dialler

Contact centre diallers are specific software applications which are deployed to automate outbound and inbound calls. Automatic diallers mean that agents are not required to manually dial telephone numbers one by one and update customer records after finishing a call. However, this is only the case for outbound diallers. Inbound diallers allow customer calls to be transferred to agents that have been idle for the longest.

As customer traffic increases and contact centres expand, the inclusion of dialler technology will be beneficial to improve the efficiency and distribution of inbound calls across the enterprise. However, Juniper Research recognises that the monetisation opportunities for this technology alone is slim. Therefore, dialler technology must be incorporated into subscription packages in order to provide a comprehensive offering.

1.4.6 5G Interactive Calling

Interactive calling utilises 5G technology, and during a phone call, it allows both parties to interact with content within the native call screen without the need for third-party apps. Users can both browse the Internet, view photos and videos, or even play games together. Proof of concept for 5G interactive calling was only established in February 2022 through a collaboration between Ericsson, Telefónica and Samsung. This collaboration was imperative as the current 4G voice technology, VoLTE (Voice-over-LTE), is not sufficient to support interactive calling. The lower speed of 4G networks in comparison to 5G networks has thus far restricted the use of interactive features or AI in operators' voice services.

Whilst it is the operators that will control the development and deployment of 5G network infrastructure, Juniper Research recommends that CCaaS providers must

continue to innovate in technologies that can be supported across these 5G infrastructures, including 5G interactive calling. Furthermore, this support for 5G will improve customer experience across a range of calling solutions, including voice and video. For example, the higher speed and lower latency of 5G networks will allow CCaaS vendors to provide a more immersive experience during video calling, including AR (Augmented Reality).

1.4.7 Programmable Voice

Voice APIs do not only allow applications to connect to carrier networks, but they also allow the specific app in use to control the carrier service. This allows for the completion of many voice operations including call recording and audio conferencing. Therefore, when using programmable voice, contact centres are able to programmatically control a carrier network without the need to interact with the PSTN (Public Switched Telephone Network).

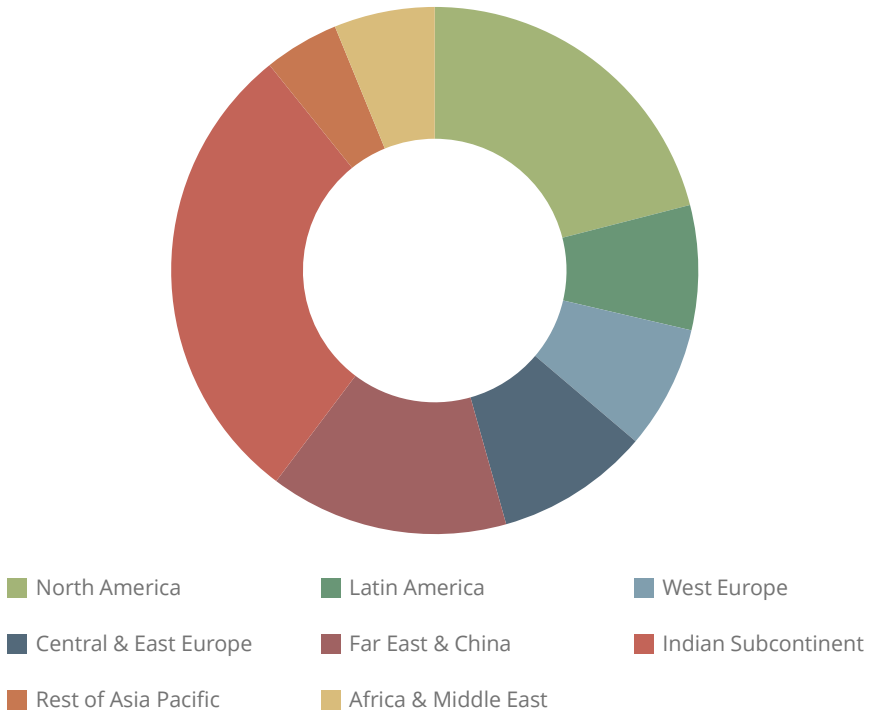
When building a contact centre solution, voice will remain a core channel for customer communication. Moreover, as Internet connectivity is yet to reach its full potential, telephony infrastructure is more mature and should be offered as a default solution. Therefore, in order to ensure that contact centres are able to ensure quality for both messaging and voice solutions, CCaaS providers must provide data and voice connections over different networks to guarantee that all traffic can be accommodated.

We believe that programmable voice will be particularly important for the future working world, particularly after the pandemic. As the need for voice APIs increases, operators will be able to monetise this traffic by taking a proportion of the revenue generated by each API call. Moreover, voice APIs have the flexibility to allow contact centres in a market vertical to effectively use next-generation technologies without the need to invest in extensive telecom infrastructure and expertise. This is particularly beneficial for cloud-based contact centres, as they are unlikely to have this expertise in-house, as all hardware and software is managed by a third-party vendor.

1.5 Market Forecast Summary: Total CCaaS Market Revenue

The global CCaaS market revenue will reach $15.6 billion by 2027; rising from $4.9 billion in 2022. This phenomenal growth of 216% will be driven by the breadth of services offered within comprehensive subscription-based models, including advanced analytics capabilities, AI-enabled chatbots and personalised video solutions.

Figure 2: Total CCaaS Platform Revenue in 2027 ($m), Split by 8 Key Regions



Source: Juniper Research

- Leading CCaaS platforms were assessed and evaluated on criteria such as depth and breadth of offerings, service innovation and future prospects. The leaderboard ranked the top three vendors as follows:
    1. Twilio
    2. CM.com
    3. Infobip
- Twilio has built a flexible CCaaS product offering by supporting multiple OTT messaging applications and voice services. Juniper Research commended Twilio on its intelligent routing and performance-tracking capabilities, which are key in supporting enterprise adoption of omnichannel communications strategies.
- Offering unique innovative services is not enough to stand out in the market. Enterprises will choose their preferred solution based on the comprehensiveness of the value-added services available. As a result, vendors must look to expand the solutions offered via their CCaaS platform to provide crucial differentiation in a highly competitive market.
- Social media platforms, such as Instagram and Facebook, will become an important medium for enterprises to interact with their customers in the future. In turn, it urged CCaaS vendors to integrate inbound communications from these channels into their solutions immediately to provide the maximum reach to end users for CCaaS clients. Offering omnichannel functionality will enable CCaaS vendors to strengthen product portfolios; mirroring the success of the CPaaS (Communications Platforms-as-a-Service) ecosystem.

Order the Full Research

Discover extensive analysis of this evolving market in this latest research, featuring comprehensive assessment of 7 key market verticals. Split by 60 countries, this invaluable report reveals key recommendations for CCaaS vendors, five-year forecasts aligned with strategic analysis, in addition to Juniper Research's Competitor Leaderboard – which evaluates 17 CCaaS vendors using a number of quantitative and qualitative criteria.

Key Features

- **Future Technology Analysis:** Key monetisation opportunities for CCaaS vendors when deploying various technologies including:
    - 5G Interactive Calling
    - Dialler
    - Interactive Voice Response
    - Programmable Voice
    - RCS
    - SMS
- **CCaaS Market Segment Analysis:** Deep dive evaluation of the use cases and monetisation strategies that will aid in future CCaaS market growth. The 7 key markets considered here include:
    - Banking & Finance
    - Government
    - Healthcare
    - IT & Telecommunications
    - Media & Entertainment
    - Retail & eCommerce
    - Travel & Hospitality
- **Juniper Research Competitor Leaderboard:** Key player capability and capacity assessment for 17 CCaaS providers; positioning them as either an established leader, leading challenger, or disruptor and challenger. Our Competitor Leaderboard scores these companies on their size of operations in the CCaaS space, their extent and breadth of market partnerships, the sophistication of their platforms, and Juniper Research's view on each company's innovation and future business prospects. The companies included in Juniper Research's CCaaS Competitor Leaderboard include:
    - Cisco
    - Genesys
    - Microsoft
    - Oracle
    - Talkdesk
    - Vonage
- **Benchmark Industry Forecasts:** 5-year forecasts are provided for total CCaaS users, minutes (where applicable), and revenue. These forecasts are split into 5 traffic channels including subscriptions, voice, mobile messaging, chatbots, and video, and further split by our 8 key forecast regions and 60 countries.

What's in this Research?

1. **Market Trends & Strategies:** Strategic analysis of market dynamics, drivers, trends, and constraints, together with detailed future technology opportunities and market segment analyses (PDF).

2. **Competitor Leaderboard:** A detailed investigation of 17 key CCaaS solutions and player analysis via the Juniper Research Competitor Leaderboard and Heatmap (PDF).

3. **Five-year Forecasts:** Extensive forecasts on the total market value of the CCaaS market, including the number of CCaaS users, and total data, minutes, and revenue across multiple CCaaS technologies (PDF).

4. **Interactive Forecast Excel:** Highly granular dataset comprising of 31,050 datapoints, allied to an interactive scenario tool; giving users the ability to manipulate Juniper Research's data (Interactive XL).

5. **harvest Online Data Platform:** 12 months' access to all CCaaS data in our online data platform, including continuous data updates and exportable charts, tables, and graphs (ONLINE).

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