

A Study Analysis and Survey of Various Contact Centre Solutions

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Abstract— Any telecommunication contact centre manage several million calls per day. Calls mostly part arrive on passages and are then dealt with by voice entryways. The non-self-served calls are then sent to a call administration framework based on an ICR, which helps with directing the calls empowering call sharing. This mechanism helps the routing externally and lets the call to arrive in required part of the network. Previously, only voice access was provided by contact centre, but now, they merged various channels such as video, voice, fax, SMS/MMS, WEB and email, etc. It seamlessly integrates various service strategies inside enterprises, so that consumers can communicate with organizations conveniently. Various enterprises such as Genesys, CISCO, Avaya, Huawei and many more have their own contact center solution to establish a customer center service architecture that integrates various departments. In this paper, we will give a detailed explanation of different enterprise contact center architectures related to various factors. A sum of 25 working professionals had demonstrated enthusiasm for our overview that incorporates professionals belonging to different Information Technology sector. The outcomes depict the architectural analysis of the contact centre, which are generally used by the professionals.

Keywords— Contact centre; Call centre; PBX; Switch; Agents; IVR; Benchmarks.

I. INTRODUCTION

Contact centre spend large amount of money on innovation with expectations of enhancing their organization's aggressive position, operational execution and cost structure. Supervisors regularly accept that more modern contact centre innovation would yield good execution and will enhance key execution pointers, for example, cost per contact, first contact determination and consumer loyalty. While reality of this presumption is now and then followed, and measured by individual contact centre experiencing a change in innovation process, there has never been a factually substantial research think about including different contact centre, that demonstrates whether a relationship genuinely exists between more propelled innovation and better execution. The study represents collection and comparison of data from many contact centers to decide the presence and power of this relationship. It incorporates approved informational collections from 4 best contact focuses speaking to an expansive cross-segment of enterprises.

II. BACKGROUND

A contact centre (likewise known as a client association centre or e-contact centre) is an essential entity in a venture where client contacts are overseen. The contact centre regularly incorporates several call centres yet may incorporate different sorts of client contact also, including email bulletins, postal mail indexes, Web webpage request and visits, and the gathering of data from clients amid in-store obtaining. A

CRM is superset of contact centre [1]. A contact centre would commonly be given unique programming that would permit contact details to be steered to fitting individuals, contacts to be followed, and information to be accumulated. A contact center is an imperative component in multichannel showcasing. One of the main terminology of contact center is Computer Telephony Integration (CTI) [2]. Contact centers have hardware (a switch), software (databases and applications), and human infrastructure (supervisors and agents). Traditionally, the computer functionality in a contact center was limited to agent representatives receiving and recording information without any relation to the switch. Computer Telephony Integration (CTI) changes this philosophy. CTI is computer based telephony equipment. In other words, it enables computer applications to control phone functionality. Enterprises software uses CTI to provide contact centers with the ability to pass interaction data between agent desktops and make interaction routing decisions. For example, enterprises enable the following [3,4,5,6,7]

A. Screen Pop

Displaying information on an agent's computer screen as an interaction is being delivered to the agent [3].

B. Intelligent Transfers

Displaying interaction-related data on the agent's (who receives the transfer) computer screen.

C. Routing Strategies [8,9,10,11,12, 13]

Expanded routing capabilities such as routing to the last agent the customer spoke with or service level and skills-based routing.

Before understanding the contact center system, one must be aware of the widely-used terminologies that are used by the enterprises which provides contact center solution. Traditionally these components were pure hardware devices but in modern contact center solution these are provided as software components.

1- Automatic Call Distributor(ACD)

A telephone framework that performs four essential capacities: answers approaching calls, gets data and guidance from database, decides the most ideal approach to deal with call, and sends the call to the best possible operator when one is accessible.

2- Automatic Number Identification(ANI)

A sequence of numbers related with call. These numbers distinguish the telephone number of the person who called. Sometimes referred to as "CallerID".

3- Dialed Number Identification Service(DNIS)

A component of 800 or 900 lines that distinguishes the telephone number the guest dialed to achieve the connects CTI.

4- Interactive Voice Response(IVR)

An equipment and programming framework that utilizes reactions from a touch tone phone to assemble and store information. It utilizes a human voice to peruse back. It is sometimes referred to as a Voice Response Unit(VRU).

5- Private Automatic Branch Exchange(PABX)

A switch inside a private business.

6- Public Switched Telephone Network(PSTN)

A system to which ACDs, telephone and PBXs are connected.

7- Trunk

An optical line or wire (physical wire) between telephone exchanges.

A general system design for contact center is shown below.

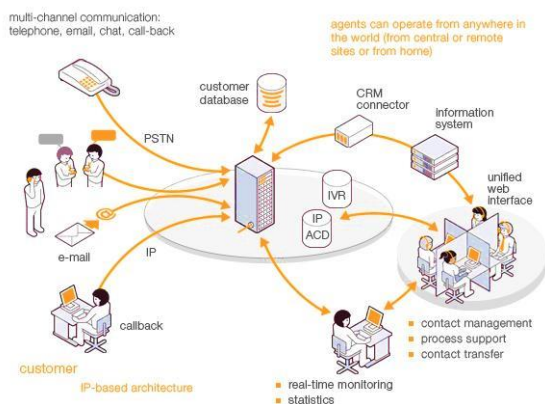


Figure-1 General Design Of Contact Center

III. RESULT AND SURVEY ANALYSIS

A study was led to capture views on top four contact centers from an organizational perspective. The questionnaire consisted of 7 multiple choice questions which was provided online using 'Survey monkey' and circulated by means of different social network sites.

As per the survey results 80% of professionals agree that out of various contact channels voice plays a high significant role for any contact center whereas some professionals believe omni channel (means all the channels like voice call, chat, web browsing, email, video call, etc. integrated together.) plays a better role. Also in some cases chat box seems to be a decent alternative. The accurate details for all the contact channels are present below in the graph.

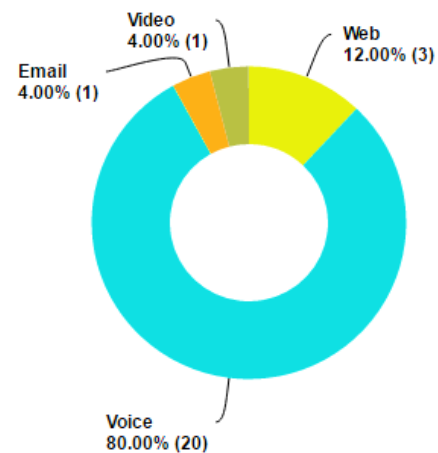


Figure-2 Contact Channel Information

There are various fields which leads to evolution and expansion of contact center industry in the market. As per the survey results 45.83% believes telecommunication sector and financial services plays a major role in contact center evolution whereas 8.33% believes even healthcare industry leads to exponential growth of contact centre. Also, nowadays banking and ecommerce sectors shares a little market in contact center evolution. The accurate details of all the fields are present below in the graph.

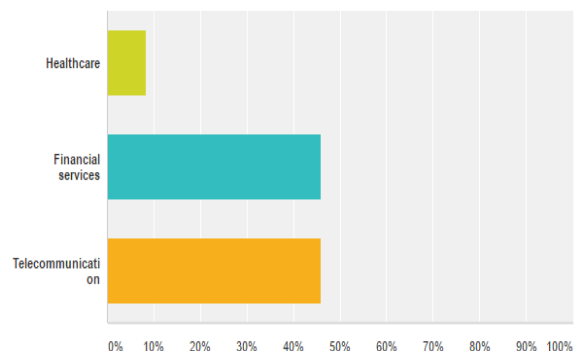


Figure-3 Contact Center marketwise information

There are various entities which are responsible for smooth working and hassle free operation within the contact centers when it deals with customer experience. As per the survey results 73% professionals believe that the contact center representative is the most important person for customer experiences. The accurate details for all the factors responsible for customer experiences are present below in the graph.

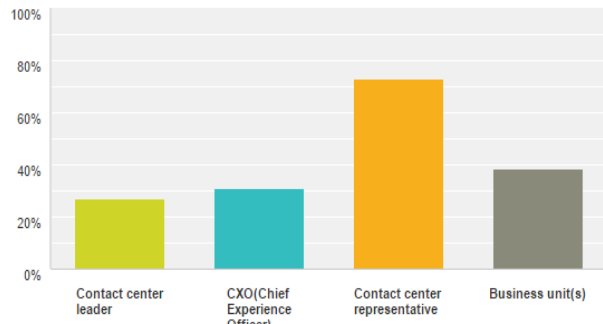


Figure-4 Contact Experience Entities

There are various information tools that are available in the contact center which according to the organization size and purpose and also the contact center vendor. As per the survey results 73% believe that tools for speech, customer voice and text analysis is the most common and widely used tool in any type of contact center. The accurate details for other tools are present below in the graph.

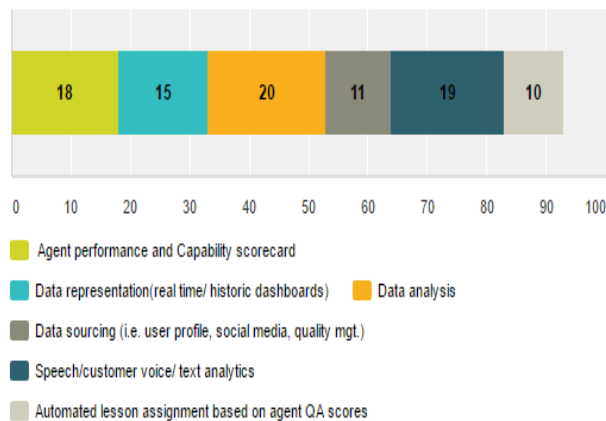


Figure-5 Tools In Contact Center.

To efficiently utilize the advantages of contact centers industries has started using hosted cloud technologies. As per the survey results 76% professionals believe that use of cloud technologies had made their business flexible and cost efficient. The accurate details for all are present below in the graph.

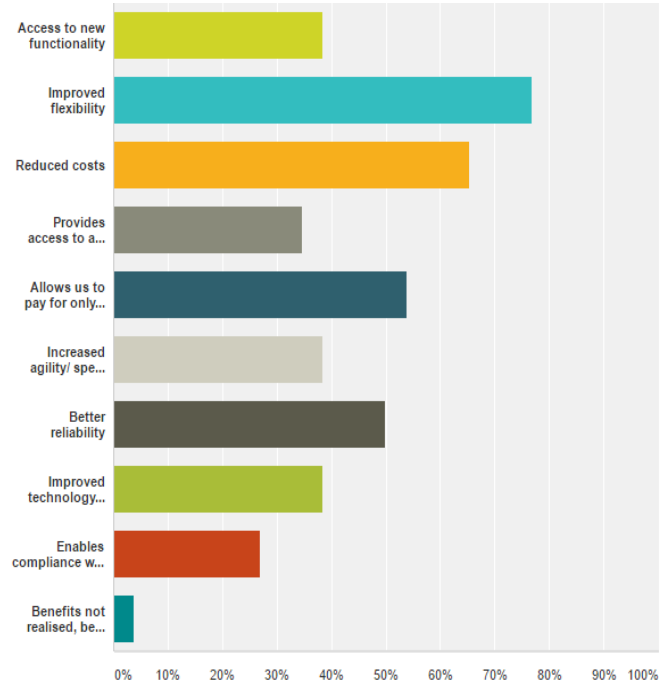


Figure-6 Benefits Of Cloud Technologies In Contact Center.

To clearly understand the labels in the above graph, refer the chart below which gives better knowledge along with number of responses.

Answer Choices	Responses
Access to new functionality	38.46% 10
Improved flexibility	76.92% 20
Reduced costs	65.38% 17
Provides access to a single integrated customer contact platform	34.62% 9
Allows us to pay for only what we use	53.85% 14
Increased agility/ speed to market	38.46% 10
Better reliability	50.00% 13
Improved technology uptime	38.46% 10
Enables compliance with enterprise-wide IT	26.92% 7
Benefits not realised, being removed	3.85% 1
Total Respondents: 26	
Comments (0)	

Figure-7 Detailed Response Of Cloud Technology In Contact Center.

An organization can have its own contact center or it can out-source it is depending upon its business size and requirements. As per the survey results 65% believe it's better to have in-house contact center whereas 35% prefers out sourcing the contact center facility. The accurate details are present below in the graph.

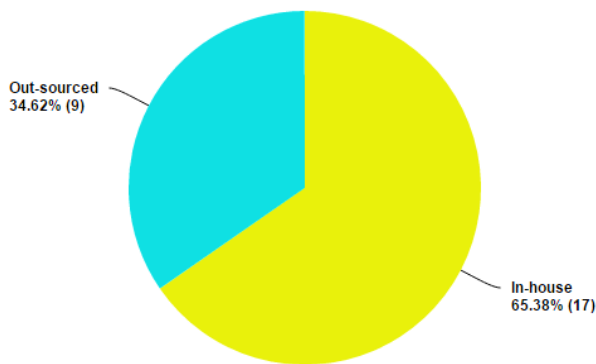


Figure-7 Types Of Contact Center.

There are various organizations which provides contact center facility globally. Of all the contact center organization, globally 84% professionals believe that Genesys provides the best contact center solution. The accurate details of the top four organization in the contact center industry as per the survey are given below.

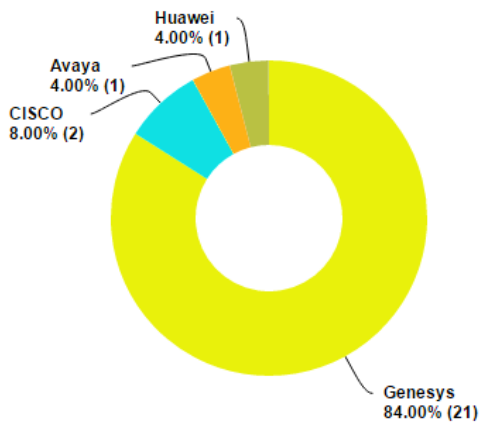


Figure-8 Best Contact Center Industry marketwise.

IV. DISCUSSION

Contact centre have experienced an irreversible development over the decade. As proof of that, the analysis of the 2016 Global Contact Center Benchmarking Report affirm a proceeded, sensational change. Computerized contact – as email, web visit, web-based social networking, and self-benefit channels – proceeds with its massive development as prevalent engagement strategy.

This change reflects at the heart of convention. It implies that more contact centre clients globally no longer need to utilize the phone to speak with associations. Indeed, ought to the advancement proceed at its back and forth pace, our examination demonstrates that computerized will surpass voice-based contact inside two years. Why? Since clients request it. The modern well-informed purchasers entering the market – generally Generation Y – utilize the telephone just if all else fails for inquiries that couldn't be fathomed in different way. Some clients would much preferably utilize

online networking and web visit than whatever other method for accomplishing their coveted administration results.

In this way, for contact centres, the goal is well aware: consolidate computerized channels into your general engagement methodology, or face annihilation. That is the reason our 2016 Report explores the business effect of the to be advanced, and in addition the stamped impact it left on the contact centres DNA.

Also, we break down the present state, advancement loop holes, business impacts, and developing patterns driven by the developing requirement for an incorporated involvement in an omnichannel domain. Clients need access to numerous engagement strategies, and in addition need a frictionless, simple, and quick access methods over channels.

This has grab associations' attention on the client. Almost seventy five percent perceive the contact centre as a critical aggressive differentiator and gauge its execution transcendently by the impact it has on client experiences. The result is more noteworthy weight on data analysis part. Data Analysis is seen by the larger part of contact centre as the probably element to change the business throughout the last decade. In any case, the issue is that many aren't measuring the execution of digital impact. It's especially stressing that 4 out of 10 focuses still have no data analysis mechanism by any means. Along these lines, if the computerized upheaval is to be grasped fittingly, there's abundant opportunity to get better and development.

V. CONCLUSION

Computerized innovation is quick changing the worldwide contact centre industry. Organizations now recognize customer experience (CX) as a key differentiator. It's turned into the top pointer of key execution in the meeting room — it's additionally the top driver for self-and helped benefit contact channel choices. Customers want to engage with companies in a way which is natural to them so solution design should be surrounded around how they function, live, and interface with their general surroundings. The challenges of providing clients with a solution that compromises all the channels – including Internet, web talk, online networking, and telephone – requires more prominent capacity and comprehension. The supporting technology needs design, ownership, and especially a human touch to be effective. As per our discussion and analysis Genesys proves to be the best globally in serving all the customer needs and meeting up with the digital impact on the contact center industry.

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REFERENCES

- [1] Vittorio Noce, David Curley, “*Genesys Core Applications Positioning and Architecture*”, NIPA, India, pp. 1-40, 2016.
- [2] Neil Davey, “*What does the contact centre industry look?*”, Infographic, London, pp. 23-56, 2016.
- [3] P. Reynolds, “*The Math of Contact Center Staffing*”, Society of Workforce Professionals, Nashville, pp. 495-650, 2015.
- [4] Andrew Pritchard, Raj Mirchandani, “*The Contact Centre of the Future*”, Smarter Service, NY, pp. 330-456, 2017.
- [5] KD. Schwartz, “*Predicting the call centre of the future*”, crmsearch, pp. 477-699, 2015.
- [6] Mike Murphy, Nicola Millard, “*The Contact Center of 2020*”, Call centre help, USA, pp. 210-250, 2016.
- [7] S. Agrawal, K.D. Kulat, M. B.Daigavane, “*Evaluation of Routing Algorithm for Ad-hoc and Wireless Sensor Network Protocol*”, International Journal of Computer Sciences and Engineering, Vol.1, Issue.2, pp.11-18, 2013.
- [8] JW. Sarah, CD. Gastine, K. Kerai, “*The Digital Evolution Journey of the Contact Centre*”, Bearing Point, Amsterdam, pp.104-176, 2017.
- [9] Avinash Bhat, Priya Badri, “*The Future of Contact Centers*”, Cognizant, India, pp.50-170, 2016.
- [10] Jeremy Payne, “*The Evolution of Contact Centre*”, Enghouse Interactive, Phoneix, pp. 233-250, 2015.
- [11] Intelenet, “*Intelenet's Solution for Contact Centre*”, Intelenet global, Indiana, pp. 200-211, 2014.
- [12] Umesh Kumar Singh, Jalaj Patidar and Kailash Chandra Phuleriya, “*On Mechanism to Prevent Cooperative Black Hole Attack in Mobile Ad Hoc Networks*”, International Journal of Scientific Research in Computer Science and Engineering, Vol.3, Issue.1, pp.11-15, 2015.
- [13] Martin Prunty, Andrew Pritchard, “*The Customer Focused Contact Centre*”, Smarter Service, Somers, pp. 280-330, 2017.

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