

Chapter 5

Case Study

5.1 Introduction

It is envisaged to perform a comprehensive analysis on the existing Sri Lankan Call Center industry in this chapter. Industry visits and discussions with industry people was used as the source for developing this Case study. The profile will be buildup using the same conceptual model, researcher used in the previous chapter.

A Call Centre's life can be categorized in to three distinct Phases as follows

- I. Operational Phase (6-12 months)
- II. Expansion Phase (12-18 months)
- III. Integration Phase (+ 18 months)

In the Sri Lankan scenario, it can be identified four Call Centers out of Five are still in the operational phase. Only the Astron Call Center can be considered in the Expansion phase. The Operational phase is the most critical phase of the life cycle, as vulnerability for failures are very high during this stage.

5.2 Telecom Infrastructure

Current Call Centers in the country can be basically categorized into two categories based on their operation.

- 1. Inbound operation
- 2. Outbound operation

The nature of the operation of each category has been given descriptively in Chapter 2, Literature review.

Outbound operation	<ul style="list-style-type: none"> • Peach International Pvt Ltd • Aramit International Pvt Ltd • Brumby's International Pvt Ltd
Inbound operation	<ul style="list-style-type: none"> • Astron • Hello Corporation

Above table shows respective Call Centers which can be grouped under this classification.

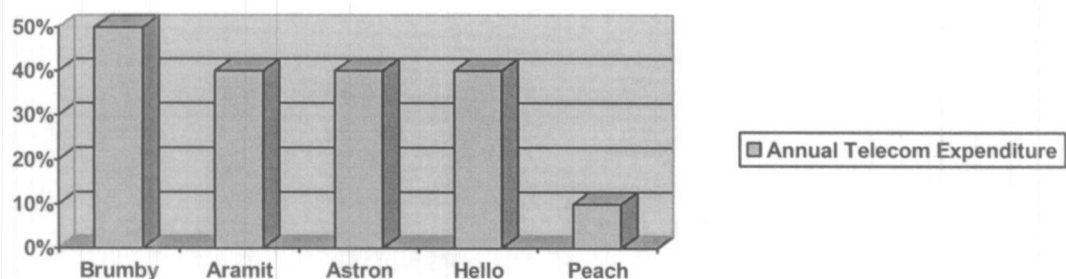
In the current context, the outbound centers merely operate as telemarketing centers for offshore customers. Telephone machine is the only equipment use in this operation.

VOIP(Voice Over IP) is the basic technology use for international communication. Sound clarity seems not to be a problem comparative to cheaper rates offered by private ISP's (Internet Service Providers).

Out of five centers Astron call center made their reservations on the existing telecom infrastructure as they had transferred some operations to their Indian branch due to poor telecom infrastructure. Their main concern was on telecom infrastructure and was anxious about the Indian threat that might absorb their total operation due to lack of competitiveness

Out of all these centers, Hello corporation was the only center that could be considered as a fully CTI (Computer Telephony Integrated) enabled Call center which used computer and telephone both for customer interaction. However, this operation was recently terminated due to loss of respective customers and currently Hello corporation operates only voice operation.

Figure 4 Annual telecom expenditure as a percentage of total maintenance cost.



During the data collection from the industry, it has been cleared that cost of telecom expenditure plays a major role on total operational cost of Call Centers. The *Figure 4* shows annual telecom expenditure of Call Centers as a percentage of total maintenance cost.

It is observed two call centers operates in World Trade Center premises, Colombo 1 and they mentioned it as a one of motivation factor for destination selection. For example, Brumby's International has been located in Sri Lanka due to low tenancy rates available at WTC, with other telecom facilities comparative to its source countries. They initially employed only foreign call agents for the operation and it was cleared the tenancy rates were the main concern for their offshore selection.

5.3 Labor force

It is observed, low wage rates for call center agents had been a major motivation factor for all most all call centers in Sri Lanka. In addition to that availability of less dialect English speaking labor force was another factor.

For example two Call Centers who operates telemarketing functions for European clientele emphasized the necessity of fluency in English from local labor force. One particular observation was, a certain call center recruits only school leavers from International schools of the country due to their need on English fluency. There reservation was, those who learned from local school system in Sinhalese or Tamil medium couldn't perform to their perceived industry standard.

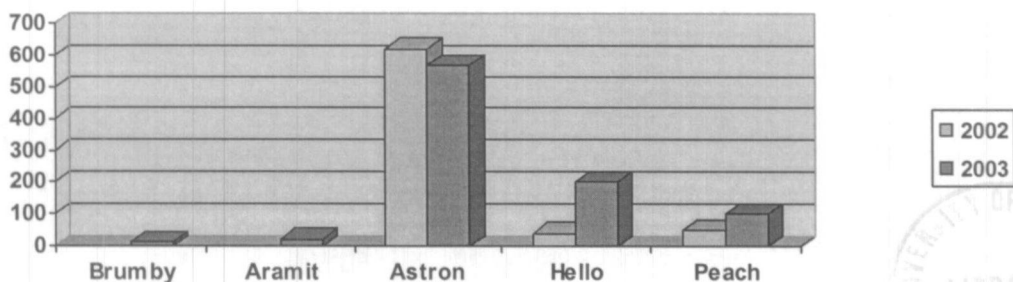
However, this seems to be a issue addressed by the policy makers if they envisage to utilize the industry potential as a remedy for current unemployment problem. The real unemployment problem exists among those who passed out from local school system without a sound English fluency. However, if the industry is expecting much higher skill level from the labor force, government has to intervene, providing and upgrading required skills.

However, all of the Call center authorities were satisfied with the skill levels of their existing labor force comparative to their Indian counterparts. For some centers it has been a major competitive advantage over winning prospective clients. For example, Hello Corporation, who has operations in Sri Lanka, India and Philippines(Manila) conducts frequent evaluations among three centers and commented that Sri Lankan agents performs much better than others.

In a call center operation, manpower typically accounts for 55 to 60 percent of the total cost. In Sri Lanka, the manpower cost is approximately one tenth of what it is overseas. Per agent cost in USA is approximately \$ 40 000 while in Sri Lanka it is only about \$ 5 000.

Labor force strength was also measured during the data collection part of the study and is shown in the *Figure 5*. The figure shows the number of agents employ in each center and its growth pattern during the course of time. Only the Astron Call Center shows a retrenchment in its labor force due to transfer of its certain functions to Indian branch.


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Figure 5 Labor force profile of Sri Lankan Call Centers



Another observation was per seat cost of Sri Lankan agent was higher than their Indian counterparts. This has been a disadvantage for Sri Lanka to make its country image as a prospective destination. Most of the industry people mentioned they had to compete with India on aspects like, quality of service, labor skills etc., and not on cheap labor.

5.4 Government Influence

Two out of five Centers have been obtained BOI tax concessions when setting up the centers in Sri Lanka. It seems those two were satisfied upon the respective Authority assistance granted to them.

However, it was apparent the industry is expecting another big role to be played by the government. Building up the country image as a prospective ITES outsourcing destination was the main concern of all the industry people. Currently Indian government is making a similar effort as it has identified the potential of the industry.

Moreover, certain centers claims reduction in International Direct Dialing (IDD) rates would also makes an industry boom as communication cost is the major operational cost of the industry.

5.5 Time Zone difference



Time zone difference has been a major critical factor for most of the centers which defines the nature of operation. Those centers which provides telemarketing services to Europe clientele have adjusted their operational hours from 12.00 -10.00 p.m. Sri Lankan time accordingly. However, inbound centers like, Hello and Astron who operates 24 hours of the day claims that time zone difference of Sri Lanka with Europe and America was not a major critical factor.

5.6 Neighbor country influence

This factor has been analyzed in two ways as Source country impact and Indian Competition. It is observed, Foreign Investment and Technology were the two major factors received from source countries.

In the case of Indian impact everybody accepts India is a big player in the industry and there are lot to learn from India ranging from Industry standards to policy level

intervention. However, only one Call Center perceives India is a direct threat to the operation. Other Call Centers had not experienced any direct impact to their local operation. Reason would be the secure partnerships with their source countries and companies.



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Chapter 6

Conclusion

5.1 Introduction

This chapter concludes the overall study in the light of findings and analyzed results. Case study information will also be incorporated in setting up the conclusion. Then some recommendations are presented based on this conclusion for the development of the industry.

5.2 Conclusion

This research was conducted to analyze the critical success factors for the adaptation and enhancement of the Call Center industry. The research problem focused in the analysis was, whether the Call Center industry get affected by those factors.



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Through the survey of literature, the researcher identified five factors that affect the development of Call Center industry. The factors were, Level of Telecom infrastructure, Degree of Attraction of Labor force, Level of influence by neighbor countries, Level of government influence, and Level of effectiveness of Time zone differences. A research hypotheses was developed based on the assumed casual relationship between those variables and the degree of development of Call Center industry.

The field survey was carried out among all five Call Centers operates in Sri Lanka which operates as a destination of an outsourced business function. The smaller population of the research was regarded as a major obstacle to deploy statistical analysis. On this view, the research results were strengthen using a Case study on the industry.

After analyzing the data, the researcher has found that the arguments developed at the beginning of the study are partially valid. So the main conclusion of the study is:

There is a significant relationship between critical success factors (Level of Telecom infrastructures and Degree of Attraction of Labor force) and the degree of development of Call Center industry.

Although above conclusions can be made, in general, the research gives mixed results. For instance, level of government influence and support was a main concern envisaged from the industry for the betterment of the industry although it was not highlighted through the statistical analysis. The main reason for that may be small sample population available for the research. That deviation was mitigated through the case study analysis.

Moreover, the research has found that the effect of Time zone difference, which has been identified in the conceptual model was less significant for the development of the industry. This was proofed through the Statistical analysis and Case study both. It was evident, time zone difference between source and destination countries was an added advantage to the Call center industry but not a major critical factor serving as a motivation for ITES outsourcers.

Similarly, level of influence from neighbor countries also shows vague results. Through the statistical analysis, it didn't showed any significant relationship with degree of development of the Call Center industry. In the light of industry case study, it was revealed majority of Sri Lankan Centers were not affected by Indian competition.

This may be due to several reasons. Most of the Sri Lankan Call Centers possess a permanent or single client, who has been a partner or investor in certain cases. In that scenario, those centers do not require to compete to attract prospective clients with their Indian counterparts. Other reason may be the magnitude of the market which is not still saturated by competitive Call Centers. It is proven in the literature review, that ITES outsourcing is increasing in demand world wide and the growing demand is still not catered by the Call Center industry.

5.2 Recommendations

The research provides evidence that Sri Lankan Call Center industry can be enhanced and adopted by the proper utilization and deployment of several critical success factors viz; Level of Telecom infrastructures and Degree of Attraction of Labor force. Therefore, industry itself, governments and policymakers should seek possibilities and strategies to achieve a development of the industry. Some recommendations can be made in this regard are as follows:

Presently, the industry has been faced with a comparatively high cost of data and telecommunications infrastructure, which makes international call centers and data centers commercially unviable. A significant pre-requisite for fostering Call Center growth is building the required communication infrastructure. This involves providing sufficient high quality bandwidth, high quality service, covering as many parts of the country as possible, at a comparable cost etc. Deregulation measures of the telecom industry would definitely boost the industry as it enables the reduction of IDD rates at competitive prices.

Very recently Sri Lanka Telecom introduced "telecom city" project, which can be considered as a pioneering effort to setup communication infrastructure for Call Center industry. The project will be completed in 3 phases, starting with the Call Center, supported with the world-class infrastructure and facilities in the first phase. This leading venture can be assumed to be attracted investors and leading players in ITES industry to the Sri Lanka.

Moreover, government needs to embark a project, which will expand and improve our country wide backbone connectivity including our international gateway, with the concurrence of the relevant operators and agencies, *vis-à-vis*.

Further, government should make an unprecedented effort to build up the English and IT literacy level among the younger generation. This would definitely open up new windows for the unemployed youth to become a skilled worker. This kind of effort would nourish the Call Centre industry also as it generate the required labour force.

No doubt that a political and economic stability of a country welcomes the foreign direct investments. In the context of Sri Lanka, this is badly needed than ever before. Further, building up the country image as a prospective destination for outsourcing is also expected by the industry from the government. This is not a difficult task as the country currently performing a similar effort on making its as a Tourist destination. If a similar approach is initiated by the government in the global arena the industry will be obviously benefited.

5.3 Areas for Further Study

Some topics can be suggested as important issues for future researches:

- Framework for assessing quality of service of Sri Lankan Call Centers
- Defining some measures for Labour skill development of the industry
- Comprehensive examination of the utilization of local resources in the industry
- Analysis on technology transfer and diffusion in the Call Center industry
- Investigating the measures for developing and enhancing the critical mass of the industry



Appendix

I List of organizations and contact details

Org. 1

Brumby's International Pvt Ltd

Level 9,

East Tower,

WTC,

Colombo 1

Phone: 0777 784006

Org. 2

Aramit International Pvt Ltd,

Level 16,

East Tower,

WTC,

Colombo 1

Phone: 075 549859



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Org. 3

Astron

No:5,

Galle Road,

Wellawatte,

Colombo 6

Phone: 011 2592364

Org. 4

Hello Corporation

Level 4,

Access Towers,

278,

Union Place,

Colombo 2

Phone: 011 2305933

Org. 5

Peach International Private Ltd,

No:464,

5th Floor,

Galle Road,

Colombo 3.

Phone: 074 724377



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II Questionnaire

Call Centre industry of Sri Lanka, analysis on critical success factors for adaptation and enhancement of the industry

Questionnaire

Target group: Top Management of Call Centre organizations

This questionnaire has been prepared to analyze critical factors for adaptation and enhancement of the call center industry of Sri Lanka. You are kindly requested to answer all the relevant questions. The questions are of general nature and may not entail confidential information. However, you have the choice of not responding to any question which you may consider involve confidential information. This survey is carried out for an academic purpose. Therefore, your cooperation is solicited to make the survey a success.

Sandagomi T. K. J
MBA student, University of Moratuwa.

Name of the company:

1. Level of Telecommunication Infrastructure

- 1.1. What was the significance of Telecom infrastructure of Sri Lanka, when selecting it as the destination country of your business? Pl. select the appropriate answer
 - a. Yes it was a major motivation factor (2)
 - b. Yes, but it was not a major factor (1)
 - c. No, it was not considered at all (0)
- 1.2. What is your current evaluation on Telecom Infrastructure of Sri Lanka?
 - a. Highly satisfied (3)
 - b. Satisfied, but need improvement (2)
 - c. Not satisfied, but can be improved (1)
 - d. Not satisfied at all (0)
- 1.3. To what extent did the availability of telecom. Infrastructure facilities affected when selecting a suitable location for your call center within Sri Lanka.
 - a. very high (4)
 - b. high(3)
 - c. low (2)
 - d. very low (1)
 - e. not relevant (0)
- 1.4. What is the initial investment on Telecom. Infrastructure as a percentage of total investment in your organization
 - a. Below 5% (1)
 - b. Between 5 -10%(2)
 - c. Between 10 -20% (3)
 - d. Between 30 -50% (4)
 - e. More than 50% (5)
- 1.5. Pl. rate your annual telecom. Expenditure as a % of total maintenance costs of your organization.
 - a. Below 5% (1)
 - b. Between 5 -10% (2)
 - c. Between 10 -20% (3)
 - d. Between 30 -50% (4)
 - e. More than 50% (5)
- 1.6. Please select the telecommunication service provider of your company
 - a. Telecom
 - b. Suntel

- c. Lanka Bell
- d. Dialog
- e. Mobitel
- f. Other (Pl. specify).....

1.7. What is your current evaluation on reliability of your telecom service provider

- a. Highly satisfied (3)
- b. Satisfied but need to improve (2)
- c. Not satisfied, but can be improved (1)
- d. Not satisfied at all (0)

1.8. What is your current evaluation on quality of service of your telecom service provider

- a. Highly satisfied (3)
- b. Satisfied but need to improve (2)
- c. Not satisfied, but can be improved (1)
- d. Not satisfied at all (0)

2. Labor force

2.1. Which of the following aspects of the labor force of Sri Lanka attracted you to set up a Call Center in Sri Lanka? (Rank according to importance from 1-5)

- a. Availability (4)
- b. Skills (IT and English) (3)
- c. Attitudes (2)
- d. Low wage rates (5)
- e. Others (pl. specifies) (1)

2.2. What was the significance on labor force availability in Sri Lanka, when selecting Sri Lanka as a destination country

- a. Very high (4)
- b. High (3)
- c. Low (2)
- d. Very low(1)
- e. Not relevant (0)



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2.3. What is the average educational level you envisaged from the majority of labor force (e.g.: from call center operators)

- a. Less than GCE O/L (1)
- b. G.C.E O/L (2)
- c. G.C.E. A/L (3)
- d. G.C.E. A/L and professional qualification (4)
- e. Degree holders (5)

2.4. Rate the type of skills you are expecting from Sri Lankan labor force according to your priority (from 1-4)

- a. Fluency in English (4)
- b. Computer Skills (3)
- c. Communication skills (2)
- d. Others (Pl. specify) (1)

2.5. What is the level of satisfaction on the skills of your labor force

- a. Highly satisfied (3)
- b. Satisfied, but need improvement (2)
- c. Not satisfied, but can be improved (1)
- d. Not satisfied at all (0)

2.6. What is the level of IT skill you envisaged from Call center operators

- a. No IT skills is required (0)
- b. Computer operating skills (2)
- c. Professional skills on hardware/software design and development (3)

- d. Others (pl. specify) (1)
- 2.7. What kind of English skill you are expecting from call center operators
 - a. Fluency in Speaking only (1)
 - b. Fluency in Writing and Speaking (2)
 - c. No English skills are expecting (0)
- 2.8. Rank the types of attitude you are expecting from Sri Lankan labor force according to your priorities (from 1-4)
 - a. Dynamic and self motivated (3)
 - b. Positive minded (4)
 - c. Pleasant and smiley (5)
 - d. Challenge taker (2)
 - e. Others (Pl. specify) (1)
- 2.9. What is the average monthly salary of a call center operator in your organization
 - a. Less than Rs. 3000.00 (1)
 - b. Between Rs. 3000.00 - 5 000.00 (2)
 - c. Between Rs. 5000.00 - 8 000.00 (3)
 - d. Between Rs. 8000.00 - 10 000.00 (4)
 - e. Between Rs.10 000.00 -15 000.00 (5)
 - f. Between Rs.15 000.00- 20 000.00 (6)
 - g. Above Rs. 20 000.00 (7)
- 2.10. What is the current labor force strength in your organization
 - a. 1-30 (1)
 - b. 30-50 (2)
 - c. 50-100 (3)
 - d. 100-500 (4)
 - e. 500-1000 (5)
 - f. 1000-3000 (6)
 - g. more than 3000 (7)



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3. Neighbor country influence

- 3.1. Name the source country, which provided the knowledge and technology to set up your call center in Sri Lanka
.....
- 3.2. Rank according to the weightage of importance(1-4), factors you received from the source country
 - a. Foreign investment (4)
 - b. Management (1)
 - c. Technology (2)
 - d. Prospective customers (3)
- 3.3. Select the level of investment you received from source country
 - a. Below US \$ 50 000 (1)
 - b. Between US \$ 50 000 - US \$ 100 000 (2)
 - c. Between US \$ 100 000 - US \$ 200 000 (3)
 - d. More than US \$ 200 000 (4)
- 3.4. What is your evaluation on the impact from Indian call center industry to your existing business
 - a. Positively affect to Sri Lanka (2)
 - b. No impact (0)
 - c. Negatively affect to Sri Lanka (1)

4. Government influence

- 4.1. What is your evaluation on the level of assistance you received from government authorities (e.g.: BOI) to set up and operate a call center in Sri Lanka.

- a. Highly satisfied (3)
- b. Satisfied but need to improve (2)
- c. Not satisfied, but can be improved (1)
- d. Not satisfied at all (0)

4.2. Did you received a tax concession when setting up the call center in Sri Lanka

- a. Yes (1)
- b. No (0)

4.3. If yes, what is your evaluation on it?

- a. Highly satisfied (3)
- b. Satisfied but need to improve (2)
- c. Not satisfied, but can be improved (1)
- d. Not satisfied at all (0)

5. Time Zone difference

5.1. What was the significance of Time zone difference between source country and Sri Lanka, when selecting Sri Lanka as the destination country of your business?

- a. Yes it was a major motivation factor (2)
- b. Yes, but it was not a major factor (1)
- c. No, it was not considered at all (0)

5.2. Do you believe, time zone difference with source countries is an advantage to Sri Lanka over other competitive countries (eg: India, Philippine)

- a. Yes it is a major advantage (2)
- b. Yes, but it is not a major advantage (1)
- c. No, there is no impact on it. (0)

5.3. What is the average time zone difference between the source country and Sri Lanka(in case of multiple source countries, pl. specify main three)

.....

6. Development of Call Center industry

6.1. What is your evaluation on the time period taken for the initial setup of your call center business

- a. Completed before the schedule (3)
- b. Completed on schedule (2)
- c. Completed after the schedule (1)

6.2. Please fill in the following table showing the expansion in your labor force during last 5 years

Year	Labor force
2003	
2002	
2001	
2000	
1999	
1998	

6.3. Please briefly mention any future expansion plans of your organization within Sri Lanka.

.....

6.4. Which of the following statement best describes profitability of your Call center?

- a. Profitability is increasing from inception (3)
- b. Profitability is decreasing (1)
- c. Still the call center made no profit (0)
- d. Profitable, but not increasing (2)

THANK YOU FOR YOUR KIND COOPERATION.

III Raw Data

Level of Telecom infrastructure development (X1)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	17	25	68%
Org. 2	17	21	81%
Org. 3	18	25	72%
Org. 4	19	25	76%
Org. 5	18	25	72%

Degree of Attraction of Labor force (X2)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	27	45	60%
Org. 2	27	45	60%
Org. 3	31	45	69%
Org. 4	33	45	73%
Org. 5	30	45	67%

Level of influence by neighbor countries (X3)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	5	10	50%
Org. 2	3	10	30%
Org. 3	9	10	90%
Org. 4	6	10	60%
Org. 5	8	10	80%

Level of government influence (X4)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	1	4	25%
Org. 2	3	4	75%
Org. 3	1	4	25%
Org. 4	5	7	71%
Org. 5	7	7	100%

Level of effectiveness of Time zone differences (X5)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	2	4	50%
Org. 2	1	4	25%
Org. 3	3	4	75%
Org. 4	1	4	25%
Org. 5	4	4	100%

Degree of development of Call Center industry (Y1)

Organization	Total weight	Max. Weight	Value (%)
Org. 1	6	6	100%
Org. 2	5	6	83%
Org. 3	5	6	83%
Org. 4	4	6	67%
Org. 5	5	6	83%



IV Telecom Standards in the Call Center Industry

(Source: <http://www.callcenternews.com/resources/standards.html>)

Open standards allow small companies to develop for larger platforms; they create innovations and add value to systems that might otherwise lumber into the elephant graveyard. The telecom and computer industries have for decades relied on standards as a kind of quality control—in the old days, you couldn't hook a modem up to the phone network without assuring that it met certain specs. Now, with everybody trying to access the carrier network for data, and with parallel networks carrying voice, and all of them crossing each other at multiple points, and unimagined hardware coming out every year that pushes the envelope on all of it, standards are of *utmost importance*.

The problem with standards is that there are two kinds:

The kind everyone agrees on.

The kind that get forced on you by a dominant player in the market.

The latter is more a de facto standard than an agreed-upon standard. It's interesting, though, that the kind of standards that get rammed down an industry's throat by a powerful Redmond-based company are often more effective in the long term; if not the most technologically well-founded. Standard-creation by fiat, while ham-handed, is at least comforting. People like to be told what to do, especially when it's the market that's pulling them in a particular direction.

It's complicated business to try to round up all the standard-making bodies and consortiums, especially in this interdisciplinary arena. This list, a work in progress, is a starting point. From these groups you can find out what standards are in place, what they're working on, and often you can put your 2 cents in.

Here is a working list of the telephony protocols that we're aware of, and some of the "near-telephony" standards that are useful to know about, especially as call centers become much more diverse and things like IP networking make their way into this sector.

H.320 The ITU standard for the public circuit switched network. This umbrella standard allows audio and video to be shared among conferencing systems from various vendors

over ISDN. It includes the H.261 video standard, G.711, G.722, and G.728 audio standards, and the T.120 data conferencing standard.

H.323 The H.323 standard provides a foundation for audio, video, and data communications across IP-based networks, including the Internet. From the International Telecommunications Union (ITU), H.323 sets standards for multimedia communications over Local Area Networks, including packet-switched TCP/IP and IPX over Ethernet, Fast Ethernet and Token Ring network technologies. The H.323 specification was approved in 1996 by the ITU's Study Group 16. Version 2 was approved in January 1998. The standard includes both stand-alone devices and embedded PC technology as well as point-to-point and multipoint conferences. H.323 also addresses call control, multimedia management, and bandwidth management as well as interfaces between LANs and other networks.

Javatel (Sun Microsystems) The standard API for computer telephony applications running under Java.

MAPI (Messaging Application Programming Interface—Microsoft's proprietary interface) (www.microsoft.com/win32dev/mapi/wmapi.htm) *Simple MAPI*: a C-language API which allowed programmable access to the features of MS-MAIL. *Extended MAPI or XMAPI*: Extended MAPI includes Simple MAPI; includes OLE Messaging, which is a set of OLE Automation interfaces to messaging, for use in Visual Basic.

S.100 (ECTF) API specification for developers writing CTI applications in C for a client server environment. Created to simplify the development of telephony media applications (fax, IVR, ASR, etc.) and to make them independent of the server platform and hardware. S.100 allows programmers to find and reserve resources, group and connect them together, dispatch commands to them, manage communication among them and funnel events back to the applications. S.100 also defines a system service called the System Call Router (SCR) which provides a simplified call control model for media processing applications that want to delegate line management and call progress to the S.100 framework. For more complex call control applications, the SCR can be used on top of existing call control APIs like TAPI and TSAPI.

S.200 (ECTF) S.200 defines a client server protocol corresponding to the S.100 APIs. It defines the messages that are exchanged between the client application and the resource server. S.200 will enable the mixing of applications and servers from different vendors.

S.300 (ECTF) S.300 makes it possible for developers to easily add different vendors' technologies to a computer telephony server without the need for rewriting applications.

S.900 (ECTF) Simplifies administration and maintenance tasks in client server computer telephony environments.

SCSA (Signal Computing System Architecture—proprietary Dialogic standard). SCSA provides a common set of hardware and software specifications that manufacturers can use to build computer telephony systems so that their products will work with other vendor's products. SCSA specifications extend from low-level bus and hardware interfaces to high-level applications programming and software interfaces. SCSA was announced in 1993.

SGCP (Simple Gateway Control Protocol—sgcp.bellcore.com) SGCP is primarily designed as a simple "remote control" protocol, that the call agent uses to program gateways according to instructions received through signaling protocols such as ISUP, H.323 or SIP. Currently in the process of defining version 1.1, which will allow for control of voice gateways, network access servers, and unified servers that combine the two functions.

T.120 The data conferencing protocol that specifies standards for file transfer and white boards. Application sharing has been submitted to the ITU for ratification as part of the T.120 standard.

TAPI (Telephony Application Programming Interface—Microsoft proprietary API). An interface to the Windows Telephony Services. Used to let apps control telephone calls from a PC running Windows. A future release of TAPI will support applications in a client server environment.

TSAPI (Telephony Services Application Programming Interface—Novell's, later Versit's proprietary API). A call control API developed by AT&T and Novell, later absorbed by the Versit coalition. Does for NetWare what TAPI does for Windows.

V Series Recommendations ITU standards for data transmission over a telephone network. These form the core for traditional modem connectivity. Some of the series also coordinate ISDN B-channel transmissions, and hence ISDN terminal adapters are covered by the V series.

VoxML The VoxML markup language for voice applications allows developers to simply and easily add speech interfaces to their Web applications or content. The VoxML language uses Internet technologies and standards, so developing VoxML apps is similar to developing Web applications. These dialogues are interpreted by voice browsers, just as HTML pages are interpreted by web browsers. Theoretically allowing anyone to connect with Internet information from any telephone or voice-enabled device.

X Series Recommendations ITU standards for transmission over public data networks.

Here are a few of the key X-level standards:

X.1 The spec that defines the various classes of service in a packet-switched network.

X.25 One of the oldest and most important of the packet switching protocols. X.25 is the global spec for the bottom three layers in what is known as the OSI 7-Layer Model. (This is a cumbersome way of laying out a 7-step framework for the ways in which communications protocols interact. The bottom three layers have to do with data transmission and routing; they are: *Physical*, *Data Line*, and *Network* layers.

The top three are "higher" up the food chain: *Session*, *Presentation* and *Applications*. In the middle is the fourth layer, *Transmissions*, which is the glue that sticks the routing to the application. Sounds like nonsense and mumbo jumbo, but it's a reliable framework, and it works, and it allows for the creation of a whole set of standards, X.25 being one of hundreds.)

X.25 has a heavy emphasis on error control and checking. It regulates direct connections between devices (i.e., mainframes, terminal equipment, etc.) and packet networks. Some now believe that it requires too much overhead to be of much use in modern networks. But it was the trailblazer.

X.110 International routing principles and routing plan for public data networks.

X.135 through X.139 A fascinating series of specs that govern the performance of public data networks when providing international packet-switched services.

V Common Product Categories used in Call Center Industry

ACD software applications
Autodialers, predictive
Call accounting
Call center simulators
Computer telephony middleware
Customer relationship management software
Data warehousing
Database marketing
Design & furnishing for centers
Disaster contingency services
Headsets
Help desk (internal or external)
Interactive fax
Internet/call center products
IP telephony
IVR
Monitoring & call recording
Music & messages on hold
PBXs
Power protection
Sales automation software
Speech & voice recognition
Systems integration
Telemarketing software
Toll-free/long distance services
Transaction processing systems
Voice boards
Voice processing systems & applications
Workforce management software



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VI Telecom City project

With an interest in moving Sri Lanka Telecom's (SLT) innovative new enterprise – Telecom City project was initiated on 5th of January 2004. This event heralded the first phase of an ambitious project located at 148/14 Dannister de Silva Mawatha, Colombo 8 (behind Welikada Prison.) The full implementation is expected to come to fruition by 2010 with an estimated investment of Rs. 50 billion by stakeholders.

Telecom City – a SLT landmark venture that will provide a truly globally accessible service from Sri Lanka – is a showcase for all the technologies that Sri Lanka has to offer to the degree that the integrated levels of communications and technology will, eventually, totally encompass a complex the size of a cityscape. This heightened technological city will then be able to provide an enhanced infrastructure of the highest global standard for international call center operations interested in exploring markets such as Sri Lanka. This project will be SLT's pioneering initiative in bringing Call Centre operations into Sri Lanka. It will also be the first to cater to the outsourcing of Information Communication Technology (ICT) to many segments of the marketplace.

Telecom City services will be offered in 4 basic areas; call centre operations, data storage and management services, communications hubs and vendor businesses supported by SLT's high technology infrastructure with its abundant capacity, bandwidth and security. The necessary personnel training also will be provided by SLT through already operational training centres. These services will be ideally offered to those who are stakeholders in the SLT network so the company's clientele, worldwide affiliations and business partners will allow an advantage in acquiring clients for Telecom City.

One key attribute to be offered by Telecom City will be its facilities which will make it the ideal destination for any company looking to outsource their customer care functionalities to professionals at competitive costs. This amalgamation of many call centre options, offering international standards of customer care and SLT's innovative use and quality of technology, is expected to lead to the employment of 12,500 skilled Sri Lankans by the end of second phase. It is further anticipated to create approximately

100,000 jobs by the end of its third phase in 2010 for support personnel to keep the city systems running at peak efficiency.

Telecom City is also expected to attract a varied selection of foreign expertise to Sri Lanka which will allow Sri Lankans the opportunity to further enhance existing technologies with the cutting edge learning from countries that are leaders in value added technologies such as Communications and Information Technology. In fact this reverse "brain drain" will also allow for a shortening of learning curves thus allowing new technologies to be more easily integrated into existing systems, shortening of lead times etc.

The services that this facility will offer will allow it to become a One Stop Shop for Calling Centre functions in the region as well as disaster recovery options such as providing data storage, back up services etc. There will also be IT and communication vendor outlets and booths for retail and wholesale distribution levels with further emphasis and benefits given for those outsourcing services for research and training requirements.



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The realms for innovation also abound as this complex will go beyond just a communications company – it will have every opportunity to become a showcase for all technology and communications have to offer. The scope for new product premieres, Communications and Technology related events and proving grounds for product innovations and trials etc., are anticipated once vendor businesses are set up.

Clients to be wooed will be mainly international companies while many local companies too would be able to benefit by the fully equipped offices complete infrastructure. This international standard complex will also provide recreational facilities.

As a stakeholder within SLT's network, clientele will also be backed by a total One Stop Shop allowing the lowest cost Plug and Play facilities on offer with guaranteed bandwidth directly accessing submarine cables and a full range of IT support services such as networking, software engineering, etc. This stand out hardware system will be further backed by a highly literate Sri Lankan work force as well as BOI incentives and government recognition.

Sri Lanka Telecom is one of the Sri Lanka's most vital utility companies with an annual turnover in excess of Rs. 25 billion. The company employs a workforce of more than 7,000 and possesses an island-wide network. The company, after its initial sell out of a 35% stake and management control to NTT of Japan, has had a rapid improvement in its service and productivity by tripling its network strength from 250,000 to 700,000 connections whilst maintaining the same staff strength.



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