Title: Complicating utopian and dystopian views of automation: An investigation of the work and knowledge involved in call centre offshoring

Abstract:
Offshoring is motivated by the relocation of organizational services to distant environments to achieve substantial cost efficiencies. Standardized business practices aided by information technologies are assumed to simplify the process of re-embedding existing practices in new contexts. However, such relocation involves substantial effort in managing the confluence of diverse social worlds in new organizational contexts. Each social entity that participates in recreating the outsourced services is driven by different expectations and logics. However, together they create abstract boundaries within with such offshoring services are viable. In this paper, we examine some boundary objects that bring together diverse communities in the offshoring industry in India. Data from several interviews with managers and consultants in the call centre industry reveal interesting insights that complicate the utopian and dystopian visions of a call centre.

Introduction:
The effect of the embedded IT artefact, on the transformation and creation of industrial practices, is an important subject. An important topic related to this is the various attempts to use IT in order to redistribute industrial work to other regions through offshoring. Examples include the offshoring of advice and software development, to near-shore or off-shore countries. In these particular situations, various IT artefacts and managerial practices are developed and deployed in an attempt to redistribute, replicate and control service work in a new region. Often, the motivation for this redistribution of work is an expectation of cost reduction with similar or improved service delivery (e.g. Ang and Straub, 1998).

However, the offshoring of work confronts a number of social and technical challenges in a new geographical region. Differences in work force skills and training, language, culture, institutional contexts, and industrial practices provide numerous challenges to the redistribution of work (Krishna et al, 2004). In response, significant effort and numerous people are involved in the construction of IT and industrial systems in order to recover and recreate the work practices in a new region. We refer to these activities as boundary work and boundary object production, as various logics and artefacts are produced to shape and deal with industrial and contextual differences between the original and the new region. Boundary work is significant, and involves the construction of objects which mediate and preserve the nature of exchange across heterogeneous groups, while accommodating and preserving the identity and local practices of these groups (Star & Griesemer, 1989).

In this paper, we explore the boundary work and objects involved in the offshoring of a call centre to India. We interview Indian call centre managers, industry analysts, and consultants from several call centres responsible for advising several major North American companies wishing to outsource their customer support. We examine the challenges of constructing boundary objects that link the heterogeneous interests of diverse groups –employees, managers, customers, and offshoring clients – to each other. We draw upon the definition of boundary objects from Star & Griesemer (1989) as "both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough o maintain a common identify across sites…Like a black board, a boundary object 'sits in the middle' of a group of actors with divergent viewpoints" (Star & Griesemeber, 1989, p. 46).

Boundary objects have been used in IS research to understand boundary spanning across communities through IT artefacts as boundary objects (Gasson, 2005). Such boundary objects hold important implications for the design and use of IT artefacts (Karsten et al, 2001). The boundary objects we consider in this case – Offshoring Logics, Process Controls, Training and Operations Management – are used in an attempt to enrol and translate heterogeneous groups and interests in the production of a call centre. In doing so, we address and complicate both utopian and dystopian views of call centre work, and illustrate how boundary object studies contribute to an embedded and institutional understanding of the IT artefact.

Case Background:
Call centres play an important role in managing customer relationships with a company, serving as contact centres for product and service assistance. A call centre is defined 'as a dedicated operation in which computer-utilising employees receive

inbound – or make outbound - telephone calls, with those called processed and controlled either by an Automatic Call Distribution (ACD) or predictive dialling system' (Taylor and Bain, 1999, pg. 102). Call centres use a number of IT tools to manage telephone calls, customer data, workflow processes, and quality control systems.

A utopian vision of a call centre is as a flexible, friendly and knowledge based workplace staffed by 'co-operative employees, smiling down the phone' as they help the customer, who enhance the image of an organization (Richardson & Howcraft, 2006; Frenkel et al, 1998). This view of a call centre shows employees as empowered in their identification of customer needs, and to provide relevant service through appropriate support from information technology (Frenkel et al, 1998). Some go so far as to provide a utopian vision of call centre consultants as team workers in a flat organization, using various levels of discretion and knowledge, in order to strategically engage with customers (Frenkel et al, 1999; Korczynski, 2002).

The opposite and dystopian view is that call centres are an 'electronic panopticon', where complete control over the employees is possible through the integration of telephony and computing (Fernie and Metcalf, 1997). Call centres are characterized as sweatshops, with rows of consultants in cubicles, answering call after call, while under constant surveillance and pressure by management (Belt et al, 2000). Employee "consultants" as they are often called, are often stressed because of the continuous flow of calls, a need to engage with customers in a friendly and courteous conversation, and a need to complete the call as quickly as possible, without rushing. The conversations may even be scripted, prompted through computers, with consultants using systems to answer queries and record data from the customer. This integration of technology can be considered an attempt by management to control every aspect of the conversation, from the consultant greeting to the conversational length. The process is labelled as 'assembly line in the head' (Taylor & Bain, 1999) or 'Taylorisation of the white-collar work in call centres' (Richardson & Howcroft, 2006).

Several studies highlight 'routinisation, repetitiveness and absence of control, often with information and communication technologies being used as a lever to industrialise the work process', with employees racing to meet increasing targets with little chance of promotion (Richardson & Howcroft, 2006). Inevitably, the constant pressure on staff to perform leads to employee stress. As a result, call centres also suffer high attrition rates. The cumulative effect has been that call centre work is often portrayed as unexceptional (Holman, 2004). The structures of a typical call centre only serve to enhance the image of a sweatshop (Taylor & Bain, 2005).

Even if the vision of a Foucauldian 'panopticon' may be an overstatement (Bain & Taylor, 2000), the problems associated with call centre employment persist (Richardson & Howcroft, 2006).

Arising from the use of telecommunications and semi-automation, call centres are increasingly being re-located to remote countries in order to take advantage of cost savings. Constant cost-efficiency pressures with Western companies has led to a large-scale migration of call centres to lower cost countries, such as India, Philippines or the Eastern European Countries. While offshoring call centres is considered

difficult and problematic, companies are motivated by the possibility of tremendous cost savings (Taylor and Bain, 2005). Call centre costs in India can be one third the cost in western countries, largely through cheaper labour costs (Dossani and Kenney, 2003).

Despite the cost savings attraction, Richardson & Howcroft (2006) suggest that the complete routinization and standardization of the call centre is very difficult. For example, attempts to recruit certain employees who can speak a language and be socialized in order to decrease employee turnover have been problematic (Callaghan & Thompson, 2002). We believe that these attempts reflect a larger problem of managing the quality and quantity in call centre settings (Taylor & Bain, 1999), and in the construction of boundary objects, such as computer systems and training practices, which translate and enrol diverse participants in the outsourced call centre. In summary, call centres are initially and perhaps always a dream and fiction, built from complex socio-technical logics that need to be attracted and enrolled. This includes outsourcer and outsourced, employees, management, customers, technology, and numerous contextual and institutional influences which increase boundary work and boundary object production. We explore these struggles next.

Methodology:
A qualitative case study of three call centres in India was conducted between 2003 and 2007 (Yin, 2003). Data was primarily collected through semi-structured interviews with various managers and call centre consultants. The companies examined were all located in Bangalore - the hotbed of IT off shoring in India. The interviews were focused on understanding the nature of managements' work, and their struggles to manage the heterogeneous groups and interests involved in the call centre. In addition, industry analysts and advisors were also interviewed in order to gain general insights into the development of the industry in India. These analysts were typically consultants to organizations locating their call centres in India, and have experiences with several organizations.

The conversations with these individuals were mostly guided through open-ended questions to understand the state of the industry and to gather insights from analysts' experiences across several organizations. The 23 interviews were recorded and transcribed, and all interviews involved note taking during and after conversations. The data was interpreted and organized according to themes in relation to the idea of boundary work and objects, and are discussed in the findings section (Walsham, 2006).

In order to understand the nature of the industry, and the role of information technology in relation to call centre work, we have chosen to analyze the data at an industrial level, rather than the organizational level (Chiasson & Davidson, 2005). This analysis strategy allowed us to focus on the role of the embedded IT artefact within an industrial population, and its relationship with other partners and disciplinary practices within an institutional field. The role of IT in both establishing and shaping the redistribution of call centre work to India is of empirical and theoretical interest in exploring the embedded use of IT in the attempted redistribution of work.

Findings -- Boundary Objects:

Various boundary objects were important in managerial attempts to create and stabilize the offshoring of call centre work. These include offshoring logics which promote the redistribution of call centre work from Western to developing countries, various process controls and training practices used to recover and standardize call centre work, and operational procedures used to manage the distribution, training and retaining of employees.

The Offshoring Logics:
Since the mid-nineties many organizations have offshored their services to developing economies such as India. Consequently, Business Process Outsourcing (BPO) is one of the fastest growing sectors in India since the mid-nineties. There are diverse reasons why organizations decide to offshore their call centres to India. Primarily, the liberalized Indian economy produces thousands of fresh graduates with limited employment opportunities after graduation, resulting in low starting wages. As a result, organizations often save up to 90% when they move their operations to India, with up to 80% savings on labour costs alone (Dossani and Kenney, 2003). The success of early adopters, such as American Express and General Electric, has convinced others to consider the same. A General Manager (GM) of a captive call centre commented: *'Obviously, India represents a very large English speaking population, its got a very large technically qualified population and which was the reason they marketed themselves and given the time zone differences, that if you give work to us during the daytime, by the time you come to office the next morning you will find a resolution already there -- fairly good in servicing prime time US which is late night Indian Standard Time.'*

IT is often believed to facilitate the standardized of business processes anywhere in the world. Through IT, a typical organization operates its call centres from various geographical locations, and routes its voice calls among consultants in the same or different countries. Shared databases across several call centres and consultants create seamless connectivity among them. Since the 1990's, telecommunication companies have invested several billions in improving global telecommunication links, which has dramatically reduced call centre cost while improving connectivity. This has prompted increased efforts towards standardized business processes, driven by the possibility of producing low-cost and flexible 'virtual organizations'.

The literature on call centres characterizes them as modern day 'sweatshops' (Richardson and Howcroft, 2006). However, the managers we interviewed believe that given India's developing economy, the consultant salaries are still relatively good for fresh graduates in a job market with limited opportunities. One industry HR manager comments: *'All call centers are like that – if you look at the population, the profiles of people working in call centers – most of them will be fresh college grads - people with 2 to 3 years of experience – whom the rest of the industry or the rest of the world wouldn't touch 4 to 5 years ago. Today these guys are going in there and making as much money as anybody else did sometime back.'*

In contrast with these initial conditions, however, the rapid growth of the industry in India has lead to new call centres opening every other day. Trained staff are now being poached with small salary increments, which has rapidly escalated salaries and recruitment costs. Also, in an employee market, consultants often change jobs in

search of more comfortable ones which do not impose taxing night shifts or provide better salaries or benefits or provides a method of working with a group of friends.

Despite abundant employment opportunities, call centres are also not recognized as permanent career options by consultants. Most consultants do not progress from answering calls to managerial roles. As a result, fresh graduates enter the industry to earn money before moving on to other career options. In a counter-response, a general manager told us that negative perceptions of call centre careers are a misconception: *'I think the media is behaving pretty irresponsibly. They just have not given this industry the visibility – the positive visibility that this industry requires – you know - to the extent that it's a lot about night shifts and how the night shifts upset the body clock. ... I haven't heard negative press about people who work in airlines. Pilots, airhostesses, ground staff, don't they follow nightshifts?! ...But there are people who leave because the press says that there is no career in it, rite?! I remember years back, even a master's degree, wouldn't get you anywhere. ...Today – graduates are being chased. You're being picked up from your doorstep and you're being dropped back – even managers in the MNC companies don't get this. This is luxury.'*

The economic needs of India are another reason invoked by managers to justify and encourage call centre work. They suggest that the industry has had wider economic implications, apart from the effects on the workforce. The GM believes several ancillary industries have developed as a result of call centres: *'for example you've got to feed the manpower –Then you've got the facilities management... it is another huge industry which has started working because of the BPO space...– transportation and transportation management – which typically the facilities management company takes under its purview... HR in terms of – you know – consultancies in terms of bringing people in – training consultancies have seen a huge uptake because of the BPO space.'*

Responding to criticism that call centers add little value to the economy, NASSCOM, the software industry trade body in India has commented that the low-cost and BPO services represent very little of the overall growth of the software industry in India today. Though offshoring is initially driven by cost-efficiencies, they claim that changing economic conditions and social influences have produced numerous institutional pressures and conditions that mediate and influence the initial 'offshoring logics' of low-cost. The result is that the heterogeneous interests of various groups are managed, if incompletely, by various boundary workers and objects.

Process Controls:
Within the call centre, organizational processes are facilitated by numerous IT systems, such as shared databases of customer information, call routing, load balancing, monitoring etc. The systems mediate the heterogeneous interests of the various participants involved in call centre development and use. For example, when a call is routed to a consultant, the system displays relevant customer data and related process information. In some call centres the system even prompts a standard script that the consultants can read off the screen to their customers, in an effort to both standardize and quickly manage consultant interaction with the customer. The consultant is expected to handle the conversation in a manner that is precise, clear and as short as possible.

Standardized scripts are meant to preserve and manage key managerial objectives in the conversation, including the necessity to deal with calls quickly. In organizations where such scripts are not provided, other practices are used to manage call content and process. This includes the checking of 30-40 conversational elements in recorded calls. The parameters include greeting, proper addressing of customer, identifying customer queries, providing relevant advice, identifying sales opportunities, etc. The analysis results are then fed back to the consultant, through their coach or team leader.

To assess the call, information systems capture a random sample of calls which allow quality assurance people to examine customer's voice, consultant's voice and screen capture of the consultant's terminal during the call. Consultants feel the pressure since their work is measured down to the minute every day, and their performance is compared within and across teams in the organization. The head of quality at a call centre commented: *'it allows teams of people who listen to calls to identify systems aspect problems and various processes and then give feedback back to management. So the focus here is on very specific processes and these people are process experts and they listen to thousands and thousands of calls a day… and this feedback goes back to the management.*

The management is generally interested in increasing the quantity of calls, but has to balance quantity and quality. The head of quality notes: *'it is an extremely numbers driven organization, a numbers driven business in fact, where numbers are both quantity as well as quality. In this business – you don't deliver the goods – somebody is going to pull the plug. But that having been said – I think India has shown tremendous cost savings compared to the US markets, and while there has been a huge deflection in the cost, there is a not so huge difference in quality. But yes to bridge that gap – might take us some time… that's where most of our energies are focused on.'*

The consultants are also interested in clocking as many calls as they can in their shift. For some, this becomes their sole focus. In response, various groups of small teams organize competitions with weekly giveaways that encourage achieving higher targets with minimal quality triggers. Such competitions get institutional support to enhance performance as noted by a consultant: *'From Monday, from next week – we have to control our call time and the competition is growing – [a new system in being implemented] so that is going to stretch our call time and we are going to lose! But they let us use this [old system] for now – because tomorrow is the last day – and next week we will be starting off with the new month'.*

One issue that is often highlighted in discussions on offshore call centres is the accent of the consultants. A GM suggests it isn't peculiar to Indian call centres: *'Given the geography – that's India - and given the four – or five zones that is east, west, north, south and central India, typically there are accents associated with each of these regions pretty much like the US has. US has a Brooklyn accent which is extremely prominent - you go a mile away - you get another accent which is again very prominent.']*

Instead of accent, many consultants often do end up with a pseudo Westernized name, though it is not enforced or required in all call centres. A consultant commented: *'I*

recently took up that name – because people had problems pronouncing my name – Oh! I have never heard this name before – so I changed my name to Mike. And now I am very comfortable.' This is often done by consultants to keep calls short, by avoiding long discussions about unique names.

Even if all calls are not monitored, every second of a consultant's time is measured and possibly monitored. In some sense there is a shared and agreed understanding of their 'panopticon'. The official purpose is quality assessment according to the management; but it does so through reminding consultants that they are being monitored, and that they need to achieve objective organizational targets.

Consultant Training:
Organizations relocate call centres based on the premise that achieving a certain quality of interaction among western native English speakers and Indians speaking English is possible at a huge cost savings to the organization. However, the call is affected by numerous cultural, language and accent differences with the customers. With only process knowledge, consultant conversations with western customers involve two complex and competing objectives. They have to work at keeping the conversation 'natural' and in 'neutral' accent, while also completing the business process within a certain time period.

To do so, significant work is required in call centre training. Consultant training generally lasts six weeks, and spans general skills as well as business processes. Especially at a time when western organizations were receiving flak for outsourcing jobs to low cost economies, there were numerous efforts to disguise the call centre location from customers. Organizations began by training consultants with 'American' accents, but many now use a 'neutral' accent as a result of difficulties in training non-native speakers. Instead they train consultants to choose and use common phrases familiar to target customers, rather than mimicking customer accent. A GM said, *'Part of the soft skills training is what we refer to in the working industry is voice and accent neutralization. ... We also generate what is known as the awareness of American culture, ... So a lot of it deals with the common phrases that the Americans use... these little things are dead give-aways on a call, and the emphasis is to get people to start speaking in a manner that Americans can relate to. That's pretty much what training is all about.'*

Through emphasizing these softer skills, the training involves difficult and complex boundary work to recreate culture. One head of quality suggests that as the industry matures, the responses of Indian call centre agents will begin to match western expectations: *'[quality] doesn't have to do with the process. But it has to do with the confidence level, it has to do with a lot of 'software' issues, confidence with which the majority of the people in the US will approach the call or take the callers is much higher than a consultant over here. They take control of the call whereas over here, many of them would be a little subservient. ...You don't take control over it, as a result you don't control the flow of the call, as a result the call stretches to well beyond the time that is required to actually solve the problem ... and the person may do very badly in the call. As far as the process side they know, but it's all on the softer side, confidence, empathy, speaking too fast or speaking in a monotone.'*

Despite the dominating and controlling logic of call centre training, the consultants believe the training prepares them to talk to people from diverse cultures, and provides an opportunity for a better job. They are trained to speak in certain ways, look for cues in the customers' conversation, and to familiarize themselves where possible with customer's local info such as sports, weather etc. To the organizations, training helps standardize quality of service, while preparing consultants to manage call quantities.

Some consultants make an effort beyond their training, to accommodate customers in other ways. A consultant commented: *'when people call up billing – they usually call up with a problem – that's the reason they are calling. So I really like to make the call interesting by getting to know who they are – or how was their day – or what are their hobbies – sort of just put something – then tell them that we done this and their problem is solved.'*

Operations Management:
Despite process standardization and extensive training and boundary work, various institutional environments in India in this new industry have required new operational responses. For example, the new BPO's were affected by poor public transport in large cities, which created difficulties in achieving operational stability as consultant shifts begin. One industry analyst noted, '*We had to arrange transport, and even organize lunch to ensure employees were available when their shifts began'*. A GM at a Call centre commented: '*People are picked up and dropped from their residence - door to door pickup. No other industry is doing that today. They get a free duty meal. This duty meal is checked on a regular basis. The dieticians who control the amount of calories. The Food committee which comprises of people in this organization who lay down what they like. So we kind of align ourselves - that we are here for you right?! And comfort is certainly very high.'*

As the industry expands rapidly, experienced employees are often poached, fuelling competitive attrition and instability in workforce expertise. Managements find it difficult to comprehend the attrition despite the 'comfortable' work environment in call centres. A coach in a call centre commented that he does not comprehend why consultants would leave, since they were earning more than what would have been possible for fresh graduates and were employed by a fortune 500 company. Managements believe a comfortable work environment should stem attrition. A consultant however saw attrition as a result of routine work: *'basically call centers have thousand employees – you can make people take calls for a year – two years – there should be a lateral shift - …that is why you have this attrition rate…that is why people come and work here for 3 months, 4 months. The stress level is also very high. So we're taking calls for the past 15 months – with the same problems to be solved, day in and day out.'*

In response, significant work is now focused on responding to high attrition rates, by providing incentives to retain staff, and modifying organizational practices and labelling. For example, new job titles were added to accommodate career progression for consultants. The consultants now progress through designations such as consultant, senior consultant, team leader, senior team leader, coach etc. These designations are designed to create 'illusions' of career progression, along with small regular increments to their remuneration. Though the job description itself does not

vary much, the gradual change in designation has led the consultants to believe that career progression is possible in their 'careers'. Despite this, the introduction of new titles has not generally stemmed attrition rates.

Since promotion hasn't helped, an emphasis has been placed on people management. The consultants were put in small teams, and senior consultants and managers started to focus on managing consultants' motivations. A coach commented about his relationship with his team: *'The coach plays a very important role in keeping the team intact. Half of them who stay in the company – they love their coaches' work. ... My team would – my team I would say is fun loving – they just look forward to the weekly offs ... we hire a transport or a cab – and go for Kaveri fishing camps, overnight stay in forests and things like that – so we have had 10 or 12 trips like that so far. ... I maintain a kind of emotional relationship with my consultants – not like an outsider...little bit of common sense.'* Entire teams are known to have switched jobs due to 'bad' coaches. Organizations now emphasize good leadership skills among coaches to encourage team cohesiveness, in order to address attrition.

As the industry changes, attrition management is now the obsession of call centre management. However, attrition continues to range from 60% to over 100% per year. Despite management perceptions of call centre work as comfortable, good salaries and a good position for surplus graduates, the attraction of consultants remain the biggest problem for call centre industry continuance and expansion. The industry now has to respond by increasing salaries, which may eventually undermine the original reasons for the industry's creation (Caldwell, 2002).

Summary of Findings:
Call centres are outsourced on the premise that low cost graduates with a good knowledge of English can provide adequate quality of service to western consumers. Managements also believe the pay is enticing to these graduates, who turn up with expectations of career initiation and advancement. Initial training and various organizational processes try to mediate western company expectations of quality and cost, with consultant expectations for pay and work.

However, the monotony of call centre work and changes in the pay-scale and industrial logics continues to challenge and increase the boundary work of managers. Call centres are often identified by analysts as the worst offenders in not compensating their employees adequately while utilizing their services to serve more call volumes and profiting from such spikes in call volumes. Captive centres with greater corporate responsibilities often have to incur extra costs to achieve the additional targets in call volumes, thus squeezing their western customer's bottom line. Such work environments affect consultants' perception of work at call centres. Once realized, they attempt to maximise earnings through job switching or 'career progression' within the same organization.

Call centre management has responded to such pressures by changing the organizational practices of work, through layers of hierarchy, incentives and providing 'comfortable' work environments. The expectation is that such work environments would convince their staff to stay with the organization. They have also responded with increased social contact through smaller teams and additional layers of leadership. However, there has been little improvement in attrition.

Despite these recruitment struggles, the industry remains important to many groups. There are still many economic benefits to organizations and India in locating their operations within India. Management practices have evolved in response to local cultural and geographic issues in transporting and training consultants, and creating appropriate business practices. Various efforts to market the continued viability of call centres in western countries appears to fuel growth in the BPO sector.

Discussion:
Despite new complexities in managing call centre operations, the offshoring logics, training, process control and operations management boundary objects continue to bring together offshoring organizations, consultants, managers and local economic influences in the offshoring industry in India. Their practices evolve as the demands and needs of the offshoring organizations and consultants' change. The typical call centre employee profile in western countries is perhaps different, but the call centre practices appear to have been recreated in India. Even with different social contexts, call centres appear to be very similar – but the immense work behind their production suggests they are as much a continuing vision as a reality.

As a result, boundary work and object production is a useful way to think about the effects of the embedded IT artefact. The theory helps us ask, how does IT support the minimal exchange of resources (money, expertise, time, activities, and practices) necessary to link together heterogeneous interests? In asking this question, we investigate how IT supports the portability and relocation of industrial practices, but how new institutional and contextual influences affect and shape the embedded use of this IT. The extent and nature of boundary work emerges where boundaries are crossed. In the case of call centres, information technology has made possible the delivery of advice by Indian workers to worldwide customers, but within a complex and situated setting where extensive work is required to link telecommunications, call centres, Indian management and employees, outsourcing logics, and western customers with each other. Boundary work and object production illustrates the work involved in attempts to redistribute, replicate, and control industrial practices in new settings.

In the case of call centres, the portability of these practices depends upon the dream of supposedly universal and abstracted practices through IT. The case provides insights into the work involved in producing replicated call centre practices in a new institutional setting. Institutional differences, such as culture, work force training, language and other contextual influences, consistently confront and disrupt simple replication. Our interviews with managers illustrate the language of various heterogeneous human and non-human participants in call centre work, and the work involved in translating these various interests. The relations across these diverse groups and interests are here, very tenuous. It is also here that we find the effort, skill, and interests of the various participants, moulding and being moulded by diverse institutional logics.

Offshoring to India was initially driven by cost advantages, and is now an important contributor to the Indian economy. The government has responded with incentives to sustain the development of the industry in India. However, the offshoring industry has also lead to a changing industrial logic that requires further boundary work – for

example, the demand for skills, struggles with training and attrition, employee disappointment with the work. The result is that all groups are compromising: the government is happy to count the employment figures, regardless of attrition issues; western organizations are happy to save costs, while achieving passable quality of service; call centre employees are moving towards neutral instead of American-only accents. As a result, the embedded IT artefact will need to be increasingly understood at higher levels of analysis, including industrial and national levels.

Contributions & Conclusion:
This raises a number of substantive contributions. Call centres are contested spaces where the various and diverse interests among the groups are negotiated and temporarily connected through boundary work and boundary objects. These boundary objects often include the embedded IT artefact in an attempt to replicate and stabilize work practices and their effects. The result is more of a negotiated truce than a stable order, rendered possible through boundary objects and detailed work. This work illustrates that the easy replication of call centre work in other regions hides the cost and naivety of such expectations, because the preservation of inter-group ties involves difficult work – especially as groups feel their interests are not being met in the Indian call centre industry, and could be met through other groups and industries. In this case, IT extends the possibilities for western and Indian companies to experiment with new and emergent industrial forms.

A boundary object and work perspective on call centre work also casts doubt on a purely dystopian and utopian view of call centre work. In the dystopian case, workers are restricted and imprisoned pawns with few options, while in the utopian case, workers have pure and unrestricted agency to pursue their own careers. In contrast, our case show that mechanistic attempts to render the dystopian sweatshop by management have produced high employee turnover and the poaching of employees to other firms. This suggests that the employee is not a complete prisoner of circumstances. At the same time, the utopian views, which suggest that call centres are an important part of the new Indian economy and a stepping-stone for development, need to experience the hard and monotonous conditions of call centre work, driven by a need to satisfy quality (i.e. standardization) and cost-related interests. The boundary work and object view of call centres illustrates many emergent and competing outcomes for the various groups, which appear through attempts to reconcile these diverse objectives. In the case, information technology has increased the reach of numerous practices and logics which can influence and colonize other spaces.

Here, the IT artefact plays a political role in a complex game of attraction and separation, unlike the ones found purely in utopian and dystopian views of call centre work, but in the post-structural possibilities of "productive" engagement, made possible by an active engagement of various interested participants. The work here is immense and complex, and the cost-centred hopes of western companies and the career aspirations of Indian call centre workers confront a complex reconciliation and dissolution of their diverse interests.

The design of systems, through boundary object development and work, can be seen to involve the disembedded and reembedding socio-technical effects, possible from the implementation and use of information technology. The extent of the boundary

work depends on an emergent and to some extent unpredictable mixture of diverse group interests, disciplined to the extent that a suitable exchange can occur between the groups, so their interests are (or are perceived to be) furthered by this engagement. This provides a revised direction and focus for call centre research and practice.

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