Transaction Based Pricing in BPO:
In Tune with Changing Times
Raj Agrawal
Current Designation
Raj heads the Platform Solutions Unit at TCS. In his career spanning over 19 years in TCS, Raj has played multiple leadership roles in the past – as CRM Practice Head and Enterprise Solutions Practice Head.
In his current role as Business Unit Head of Platform Solutions in TCS, Raj holds overall responsibility including P&L responsibility for the unit.
Raj is a Bachelor of Technology in Electrical Engineering from India's premier technology institute, the Indian Institute of Technology, Kanpur.

Sudhir Varma
Current Designation
Sudhir has been with TCS for more than 12 years. He has been involved in multiple business strategy, CRM and IT consulting and implementation assignments for Fortune 1000 clients.
In his current role, Sudhir manages the Pricing function in the Platform Solutions unit which includes creating transaction based pricing models for offerings and participating in determination and decision of pricing and commercial terms for bid responses.
Sudhir has a Masters degree in Management and a Bachelors degree in Engineering.

Jay Ludhwani
Current Designation
Jay has been with TCS for 2 years. In his current role as pricing executive with Platform Solutions unit, he is involved in creating transaction based pricing models for offerings and participating in determination of pricing and commercial terms for bid responses.
Jay has a Masters degree in Management and a Bachelors degree in Management.
Abstract

With rapid growth of Business Process Outsourcing (BPO) in the past two decades, there is a need for new pricing models that meet the changing expectations of customers. Initially, most of the BPO value proposition was built on simple manpower replacement, which led to widespread use of FTE based pricing model. Increasingly, customers have started looking for benefits beyond cost savings and service improvements. This has led to emergence of pricing models like transaction based pricing and outcome based pricing.

This white paper focuses on discussing transaction based pricing model with the aim to make the reader aware of its suitability in meeting present-day BPO objectives and its superiority over FTE based pricing model. The white paper covers what, why and how aspects of transaction based pricing including how it works in practice, which business processes are suitable for this type of pricing, what challenges are posed by it and how it is superior to FTE based pricing model.
Background

Business Process Outsourcing (BPO) has grown rapidly in the past two decades. This has brought with it increased level of maturity in the way BPO pricing gets structured. Initially, the BPO pricing was built on simple manpower replacement which led to a pricing model that compared directly with what it replaced - the cost to the company per employee. In third-party outsourcing, this meant pricing on the basis of Full-Time-Equivalent (FTE) or FTE pricing.

Gradually, as outsourcing matured, customers started looking for benefits that went beyond cost savings and service improvements to providing broader business value and impact. This led to emergence of pricing models like transaction based pricing and outcome based pricing. These pricing models are more representative of this change in BPO objectives as they link price to either customer’s usage of service, as in the case of transaction based pricing model; or to meeting a minimum success criteria or a business outcome, as in the case of outcome based pricing model.

This white paper focuses on transaction based pricing model for BPO services. It aims to make the reader aware of its suitability in meeting present-day BPO objectives and its superiority over FTE based pricing model. The white paper provides an in-depth discussion of the following aspects related to transaction based pricing:

- What different pricing models are used in BPO?
- What is transaction based pricing and how does it work?
- How transaction based pricing compares with FTE pricing?
- Which business processes are suitable for transaction based pricing?
- What are the benefits of transaction based pricing?
- What are the challenges in adopting transaction based pricing?
- How can these challenges be overcome?

Transaction based pricing is also called by various other names like output based pricing or utility based pricing or variable pricing or pay-as-you-go pricing or pay-as-you-drink pricing or pay-per-use pricing. For the sake of consistent understanding, we would use the term ‘transaction based pricing’ in this whitepaper.
Pricing Models for BPO Services

The various pricing models that are being used in BPO fall into any one or a combination of the following three types of pricing models:

Input Based Pricing Model

This refers to a pricing model where payment to service provider is based on an estimated amount of input provided. In most cases, this input is “manpower”. FTE-based pricing model is the most commonly used input based pricing model. The price is quoted as an average FTE rate per hour along with the number of FTEs required.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Simple to understand and implement</td>
<td>- Does not create incentives for service provider to pursue efficiency</td>
</tr>
<tr>
<td>- Can be effectively used to compare price across vendors</td>
<td>- Not closely related to customer’s business needs or outcome</td>
</tr>
</tbody>
</table>

**Commonly Used When**

- Transaction volumes are unknown
- Transaction volumes are not closely tied to service provider’s cost drivers
- Output cannot be defined or isolated to service provider

Transaction Based Pricing Model

This refers to a pricing model where payment to service provider is based on the number of transactions processed by him. Typically, a base price is provided for a specified volume band, with a negotiated increase or decrease in price as usage fluctuates around the specified band.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Closely tied to customer’s business cycle</td>
<td>- May not be directly tied to customer’s business outcome</td>
</tr>
<tr>
<td>- Enhances visibility into consumption pattern</td>
<td></td>
</tr>
<tr>
<td>- Encourages productivity &amp; efficiency improvement</td>
<td></td>
</tr>
</tbody>
</table>

**Commonly Used When**

- Output can be defined
- Transaction volumes are known and predictable
- Transaction volumes are tied to service provider’s cost drivers
Outcome Based Pricing Model

This refers to a pricing model where service provider is paid based on the business result achieved by the customer through service provider’s contribution, such as a percentage of increased profits or reduced operating expenses. The mechanisms for paying the service provider vary, but generally payment is made in one lump sum when the result is achieved; or over a short period of time, so that the provider can recoup its investment in a timely manner.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closely tied to customer’s business outcome</td>
<td>Difficult to isolate service provider’s contribution and quantify its impact on outcome</td>
</tr>
<tr>
<td>Properly aligns customer’s and service provider’s interest to encourage partnership, innovation and continuous improvement</td>
<td>Service provider’s ability to achieve outcome may be restricted by customer’s people, processes, systems, etc.</td>
</tr>
</tbody>
</table>

**Commonly Used When**

- Desired outcome and accountability can be defined and captured
- Innovation is critical

A comparison of these pricing models on outcome, risk and relationship maturity axes is depicted in the figure below:
What is Transaction Based Pricing?

Before discussing transaction based pricing, it is important to understand the following terms:-

Transaction - is a sequence of steps with defined input and output, which achieves a business purpose. In other words, it is another name for business process or sub-process. Examples of transaction include payroll processing, invoice processing, etc.

Transaction Unit - is a unit of measure with which a transaction can be objectively measured. Examples of transaction unit are 'per payslip' for payroll processing transaction, 'per invoice' for invoice processing transaction, 'per purchase order' for purchase order processing transaction.

Transaction based pricing refers to a type of pricing where a deal is priced on the basis of number of transactions that service provider processes for a customer. More the number of transactions processed by service provider, more is the payment and vice versa. It is similar to the way payment is made by consumers to electricity companies - amount paid varies depending upon consumer’s usage of electricity, measured in units.

Since, in transaction based pricing, service provider is paid on the basis of number of transactions processed, it is important to determine the mechanism by which transactions can be distinctly determined and objectively measured. This is typically achieved via ‘transaction unit’. Determining the right transaction unit, therefore, is important in transaction based pricing. Transaction unit is usually determined by identifying the unit that best represents the underlying transaction - in terms of operational processing and the costs related with processing that transaction.

In transaction based pricing, what and how many resources are involved and how much time is taken to process the transaction while also meeting quality and service level agreement (SLA) requirements, are the variables that are typically managed by service provider. This essentially means that variability and risk associated with customer’s business activity is transferred to service provider. Service provider manages this risk by utilizing resources efficiently across multiple customers and by charging an appropriate risk premium in the transaction price. In addition, service provider is motivated to maximize output or number of transactions processed with same or lesser input, which typically leads to innovation and better use of technology resulting in lesser cost for customer in the ultimate analysis.

Transaction price is typically quoted as “price per transaction unit”. For example, for payroll processing, the transaction price may be quoted as “x dollars per payslip”; or for invoice processing, the transaction price may be quoted as “y dollars per invoice”. However, since business activity does not remain at a constant level throughout, there needs to be a mechanism which can determine how the transaction price varies for different levels of business activity.
To address this, transaction price is generally mentioned as applicable for a specified transaction volume range. Such a volume range is known as ‘dead band’ which is typically derived by analyzing historical transaction volumes data. For variations in transaction volumes beyond the dead band, a negotiated increase or decrease in price becomes applicable. Usually ARC/RRC (Additional Resource Charge/Reduced Resource Credit) framework is used to arrive at the price outside the dead band. A simplified explanation of the ARC/RRC mechanism is provided with the help of an example below:

Example:

Let us assume that:

Transaction Price is $4 per unit  
Base Volume is 20,000 units  
For variation within +/- 10% of the base volume, there is no change in price  
For variations > 10% and < 20% from the base volume, the ARC/RRC price is $3.5

With this, let us see how the effective price payable by the customer changes with change in volume. The effective price is calculated using the following formula:

Effective Price = [(Base Volume X Transaction Price) + (Incremental Volume X ARC/RRC Price)] / Total Volume

<table>
<thead>
<tr>
<th>Month</th>
<th>Volume</th>
<th>Transaction Price Calculation</th>
<th>Effective Transaction Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month 1</td>
<td>20,000</td>
<td>(20,000 X $4)/20,000</td>
<td>$4</td>
</tr>
<tr>
<td>Month 2</td>
<td>22,000</td>
<td>(22,000 X $4)/22,000</td>
<td>$4</td>
</tr>
<tr>
<td>Month 3</td>
<td>18,000</td>
<td>(18,000 X $4)/18,000</td>
<td>$4</td>
</tr>
<tr>
<td>Month 4</td>
<td>24,000</td>
<td>(20,000 X $4 + 4000 X $3.5)/24,000</td>
<td>$3.92</td>
</tr>
<tr>
<td>Month 5</td>
<td>16,000</td>
<td>(20,000 X $4 - 4000 X $3.5)/16,000</td>
<td>$4.13</td>
</tr>
<tr>
<td>Month 6</td>
<td>23,000</td>
<td>(20,000 X $4 + 3000 X $3.5)/23,000</td>
<td>$3.94</td>
</tr>
</tbody>
</table>
As can be seen in the graph below, for months 1, 2 & 3 when volume is within +/-10% of the base volume, effective price per unit remains $4. In months 4, 5 and 6, when volume variation is more than +/- 10% from the base volume, transaction price is applicable for the base volume and ARC/RRC price is applicable for volume above/below the base volume. Hence, effective price for months 4, 5 and 6 is different from the transaction price of $4 per unit - it is more when volumes are less and less when volumes are more.

**Is Transaction Based Pricing Suitable for Any Business Process?**

From customer’s perspective, transaction based pricing is favored for business processes which can be clearly defined, measured in discrete units, have a well defined and measurable service level requirement (which remains stable even if number of transactions or users fluctuate), have fairly accurate baselines and experience fluctuations in consumption.

From service provider’s perspective, the ability to deliver profitably in transaction based pricing scenario is tied to achieving volume and scale. Therefore, this type of pricing is usually favored for business processes that are standardized, transaction-intensive and demand-driven.
In practice, therefore, transaction based pricing is suitable for business processes or transactions that have the following characteristics:

- **Well Defined**: Transaction should be such that both service provider and customer understand what it constitutes and what is excluded from it.
- **Measurable**: Transaction should be such that it can be easily measured for operations processing and performance and is auditable by service provider and customer for accurate and timely counting of transactions that serve as the basis for billing.
- **Volume Driven**: Transaction should be of short duration and is carried out repeatedly in sufficiently large volumes.
- **Standardized**: Transaction should be amenable to high level of standardization - standard inputs, rule-based processing and standard output - so that service provider is able to drive economies-of-scale via automation and delivery of similar services to multiple customers.
- **Demand Variability**: Transactions where volumes vary in a short span of time are more suited to be priced via transaction pricing mechanism than via any input-based mechanism.
An indicative list of business processes (with commonly used transaction units) that possess the above-mentioned characteristics and are, therefore, amenable to transaction based pricing, is provided below:

<table>
<thead>
<tr>
<th>Function / Vertical</th>
<th>Business Process</th>
<th>Transaction Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Management</td>
<td>Payroll Processing</td>
<td>payslip</td>
</tr>
<tr>
<td></td>
<td>Recruitment</td>
<td>recruit</td>
</tr>
<tr>
<td></td>
<td>Travel Planning</td>
<td>booked trip</td>
</tr>
<tr>
<td></td>
<td>Expense Management</td>
<td>expense report</td>
</tr>
<tr>
<td>Finance &amp; Accounting</td>
<td>General Accounting</td>
<td>journal or chart of account entry</td>
</tr>
<tr>
<td></td>
<td>Accounts Payable</td>
<td>invoice</td>
</tr>
<tr>
<td></td>
<td>Accounts Receivables</td>
<td>invoice, % of collection</td>
</tr>
<tr>
<td></td>
<td>Fixed Assets</td>
<td>fixed asset line item</td>
</tr>
<tr>
<td>Mortgage</td>
<td>Lead Generation</td>
<td>lead</td>
</tr>
<tr>
<td></td>
<td>Loan Processing</td>
<td>loan application</td>
</tr>
<tr>
<td></td>
<td>Loan Servicing</td>
<td>loan</td>
</tr>
<tr>
<td></td>
<td>Collection</td>
<td>% of collection, invoice</td>
</tr>
<tr>
<td>Insurance</td>
<td>Policy Issuance</td>
<td>policy issued/underwritten, quote</td>
</tr>
<tr>
<td></td>
<td>Claims processing</td>
<td>claim</td>
</tr>
<tr>
<td></td>
<td>Billing/payment processing</td>
<td>invoice</td>
</tr>
<tr>
<td></td>
<td>Collection</td>
<td>% of collection</td>
</tr>
</tbody>
</table>

Transaction Based Pricing v/s FTE Based Pricing

Having discussed transaction based pricing, let us see how it compares with FTE based pricing. The example below discusses the price that customer is required to pay under both the pricing models. While doing so, it also highlights the key differences between these models and their implications – on operational, business and financial fronts - for customers and service providers.

Example: The customer has outsourced ‘Accounts Payables’ process to a service provider. Based on the data available for the past few months, invoice volume expected to be processed per month is ~25,000.
FTE Pricing:

The service provider has quoted $12.5 per hour per FTE and has estimated approximately 50 FTEs to perform the work. Assuming that service provider bills customer for 8 hours per day and for 20 days in a month, the customer would pay an amount equal to $100,000 every month.

From customer’s perspective, the low hourly rate makes it a compelling option. However, the capacity to process invoices would remain at 25,000 per month. If the volume is less than 25,000 invoices, as in months 3, 4 and 5 in the figure below, customer will still have to pay this amount to the service provider. In case, it is more than 25,000 invoices, as in months 2 and 6, customer would either face diminished service levels or would have to provide sufficient time to service provider to scale up the resources. This invariably leads to unfavorable impact on customer’s business.

![Billing (USD) Chart]

Also, customers normally expect service providers to improve productivity and efficiency beyond year-on-year productivity improvements that service providers typically agree for in contracts. This is because customers expect service providers to bring in the much needed automation to facilitate faster processing of tasks and pass on productivity and efficiency related gains. But, from service provider’s perspective, there is no real incentive to improve productivity and efficiency beyond what is agreed in the contract. This is because any such efficiency improvement would mean reduced requirement of FTEs and since the pricing model is based on the number of FTEs, this would mean reduced revenue for service provider.
Transaction Pricing:

Service provider has quoted $4 as the transaction price for each invoice processed. Invoice volume expected to be processed per month is ~25,000 and there is no change in price for volume variation within +/- 30% of invoice volume.

From customer’s perspective, this is an attractive option because all the risk related to increase or decrease in volume of transactions is borne by service provider. For the months when transaction volume is more than 25,000, the service provider would put in extra resources to meet the service levels. For the months when transaction volume is less than 25,000, the service provider utilizes extra resources for another customer. The customer, therefore, pays service provider only for the transactions processed in a given month.

Let us see the cost that the customer incurs in different months for the above two options:

<table>
<thead>
<tr>
<th>Month</th>
<th>Invoice Volume</th>
<th>Customer’s Cost in $ (FTE Pricing)</th>
<th>Customer’s Cost in $ (Transaction Pricing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>2</td>
<td>29,000</td>
<td>100,000</td>
<td>116,000</td>
</tr>
<tr>
<td>3</td>
<td>17,500</td>
<td>100,000</td>
<td>70,000</td>
</tr>
<tr>
<td>4</td>
<td>18,000</td>
<td>100,000</td>
<td>72,000</td>
</tr>
<tr>
<td>5</td>
<td>20,000</td>
<td>100,000</td>
<td>80,000</td>
</tr>
<tr>
<td>6</td>
<td>27,000</td>
<td>100,000</td>
<td>108,000</td>
</tr>
<tr>
<td>Total</td>
<td>136,500</td>
<td>600,000</td>
<td>546,000</td>
</tr>
</tbody>
</table>
The additional cost that customer incurs in transaction pricing model in months 2 and 6, should be weighed against opportunity loss or diminished service levels that customer would face in FTE pricing option. Invariably, the cost of opportunity loss or diminished service level would more than outweigh the additional cost that customer pays in transaction pricing model.

Therefore, in the overall analysis as depicted below, transaction based pricing turns out to be more cost effective as it leads to additional savings - as a result of improved efficiency of operations and avoidance of opportunity loss - beyond labor arbitrage gains.

Benefits of Transaction Based Pricing

The preceding discussion brings to the fore some of the benefits of transaction based pricing vis-à-vis FTE based pricing. Apart from these, some of the other significant benefits that this pricing model provides to customers as well as service providers are discussed below:

- From customer’s perspective, the benefits of transaction based pricing are:
- More flexible and scalable pricing model as payment is for consumption only
- Effective monitoring of costs due to enhanced visibility into consumption pattern
- Lower per unit cost due to improved efficiency
- Makes it easy to compare and select service providers by comparing their per transaction price along with SLAs
From service provider’s perspective, the benefits of transaction based pricing are:

- Improve profit margin by charging more for value created and higher risk owned
- Better control of service delivery as people ramp up/down and re-allocation becomes easy
- Offer commercial differentiation (higher savings) due to standardization and innovations that result in higher output for lesser input

Challenges in Adopting Transaction Based Pricing

While, there are significant benefits from transaction based pricing for customers and service providers both, there are a few challenges, discussed below, that one needs to be aware of:

- Complexity: Designing transaction based pricing model is complex and requires a good understanding of transactions and their cost structure by both customers and service providers - right transaction, scope, unit of measure, cost determination, etc.

- Predicting Volumes: Predicting future transaction volumes with reasonable level of accuracy, providing minimum volume commitment for economies-of-scale and planning for volume variations is a complicated exercise that only a few customers are able to perform in a systematic and consistent manner.

- Lack of Availability of Benchmarking Data: Lack of availability of reliable external benchmarks, in addition to unreliable internal benchmarks, hamper customers’ ability to ascertain commercial competitiveness of service provider quotes.

- Lack of Standardization: Lack of common technology and operational business processes within customer organization limits service providers’ ability to achieve standardization and associated cost effectiveness.

- Loss of Control: Since day-to-day resource decisions and productivity information are not apparent to the customer, there is a perception that transaction based pricing leads to loss of control.

- Organization Change: Transaction based pricing leads to changes in quite a few areas like budgeting (tracking inconsistent monthly/quarterly service cost); corporate finance (ensuring that invoices reflect accurate charges and credits); functional departments (effecting business process change); all departments (inculcating demand forecasting practices).
Suggestions to Overcome the Challenges

While some challenges are real, others are more a matter of perception. However, both can be addressed by ensuring a collaborative effort from service provider as well as customer. Some suggestions in this direction are indicated below:

- Choose the right transaction unit for pricing the deal – one that aligns both parties’ interests. For example, in case of insurance, if the transaction unit is ‘no. of policies issued’, then the interest of service provider and customer are aligned - more the number of policies issued, more is the payment to service provider and more is the premium collected by the customer. As against this, if the transaction unit is ‘no. of leads’, then the interest of the customer and service provider are not necessarily aligned as more number of leads would definitely translate into more payment for service provider but may not translate into more policies issued and thereby, premium, for customer.

- Establish a mutually agreeable mechanism to address volume fluctuations. A few such mechanisms could be:
  - Define an ARC/RRC framework to handle volume variations beyond the base volume
  - Adjust the baseline volume periodically using average volume experienced in the past few months thus allowing both parties to share the risk of volume uncertainty and allowing service provider sufficient lead time to absorb volume fluctuations
  - Agree for less stringent service levels for service provider if actual volumes materially exceed those forecasted

- Agree on defining and measuring SLAs during the initial phases of the engagement and use this data for base lining them for the remaining term of the engagement

- Plan for a comprehensive change management effort which includes top management support, syndication of key stakeholders and end-user education programs

- Exercise high level of transparency in sharing data and details between the parties to develop an environment of trust
Conclusion

It is essential to decide which pricing model should be used in structuring BPO deals. Customer will always look for capital investment avoidance, minimum risk, high quality of service at a low price, maximum price flexibility and transparency. On the other hand, service provider will look for minimum operational and financial risk, consistent and predictable profit and revenue growth, longest contract term possible and commercial viability. An effective pricing model would be one that helps in aligning the interests of customer and service provider. It should help in arriving at a price that is competitive yet profitable, flexible, simple and easy to apply, representative of business realities and maximizes benefits for both the parties.

Given the right business processes and proper design, transaction based pricing offers significant benefits to customers. It is inherently flexible, as cost to customer over a period of time, can fluctuate without any need to re-negotiate commercial terms. It also encourages innovation by service provider because, the more efficiently he can provide service per unit, the more profitable providing those services becomes. Hence, it enables alignment between customer and service provider by ensuring that both parties act in the interest of the partnership.

As BPO environment matures and increasingly shifts to “managed services”, BPO services would get bundled and transaction based pricing model would find more favor with customers than FTE based pricing model. With better understanding of how transaction pricing works and appreciation of how it benefits both parties, some of the challenges in transaction based pricing can be resolved by ensuring closer cooperation between customer and service provider and effective change management. Other challenges would reduce considerably as players gain maturity and experience from increased adoption of this pricing model. Wider adoption of transaction based pricing would ultimately lead to overall cost reduction, greater efficiencies due to standardization and improvement in service levels.

It, therefore, becomes imperative for customers and service providers to adopt transaction based pricing in right earnest. Charles Darwin once said “It is not the strongest of the species that survives, or the most intelligent. It is the one that is most adaptable to change.” The time to change BPO pricing model from FTE based pricing to transaction based pricing, is now.
About TCS Platform Solutions

TCS has been one of the earliest providers of Business Process as a Service (BPaaS) cloud solutions that combine business process services, applications, and infrastructure. Our platform solutions help large and mid-sized enterprises worldwide achieve greater efficiencies, standardized processes, and improved performance on business metrics and service level agreements (SLAs).

We provide solutions for Human Capital Management (HCM), Accounts Payable (AP), Finance & Accounting (F&A), and Analytics. The solutions are hosted on reliable, scalable, and secure infrastructure.

We deliver transformational value through standardization and consolidation of fragmented global processes. Our clients benefit from faster time to market and lower upfront investment as well as total cost of ownership.

Contact
For more information about TCS’ Platform Solutions, contact platform.solutions@tcs.com

Subscribe to TCS White Papers
Feedburner: http://feeds2.feedburner.com/tcswhitepapers

About Tata Consultancy Services (TCS)
Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India’s largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at www.tcs.com

IT Services
Business Solutions
Consulting

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties. Copyright © 2014 Tata Consultancy Services Limited