

## A MULTI DIMENSIONAL ANALYTIC APPROACH FOR OFFSHORE OUTSOURCING

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“The Offshore transition invariably exceeds budget and timelines”  
– IT Manager & Vendor

“Certain applications upon offshoring have led to an actual service level deterioration and increasing costs!”  
– CIO

“We are deploying more than the originally planned resources for this application under offshoring. If only we had the means to know upfront, we could have planned more diligently during the initial phases...”  
– Vendor

In the changing business and geopolitical climate of today, IT organizations are forced to find innovative methods to reduce costs, show and heighten the value of IT applications to their business partners. The imperative of reining in IT costs has prompted many IT organizations to re-think and examine the ideal mix of internal and partner capabilities that can provide a superior level of IT service delivery effectiveness. Offshoring of IT support and software development/maintenance activities have become a prominent and proven approach for lowering maintenance spend on IT while raising capabilities.

While the application outsourcing/offshoring industry has come a long way over the past few years by way of acceptance and general recognition of economic value delivered, the approach of planning an offshoring exercise is still performed in an often ad-hoc, subjective and a “gut-feel” way.

**Traditionally huge subjectivity and individual discretions are involved in planning towards any outsourcing exercises**

Typically, the identification of the applications to be offshored and the planning of its subsequent transition and resource distribution are often done on the basis of very subjective reasoning and in many cases under the guise of “past experience.” Past experience is undoubtedly a powerful weapon in any vendor’s armory; however if it cannot be quantified and translated in an unbiased and systematic

approach and mapped onto the specific attributes and needs of a client’s application portfolio, it invariably leads to riskier propositions.

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Furthermore, crucial management decisions on strategizing and slicing the portfolio towards offshoring are often made on the basis of individual application manager's arguing power and influence, which if left unaddressed, can lead to sub optimal business cases or ultimately even to failure. Similarly many times, the transition and resource distribution planning are left to the sales pressure of the vendor, and subjected to the same biases and sub-optimal subjective reasoning.

### Problems with the "Gut Feel" Approach

In the typical planning exercise, candidate applications are chosen on the basis of a few basic dimensions like the application support towards a core business process, existing cost of maintenance and the degree of business-IT interaction involved in supporting the application etc. While these dimensions are important ones, such a generic subset, like any subset, neglects a host of technical and business parameters that have proven to play a crucial role in determining offshore suitability and transitioning. Cognizant's experience in providing offshore support for thousands of applications and hundreds of customers has revealed a large set of technical and business factors that can dramatically alter offshore planning.

The fundamental limitation of the "gut-feel" approach is that it reduces a large number of significant parameters to a fewer and a more readily comprehensible set; but in doing so, masks latent parameters that have shown to have significant impact on all the planning attributes of offshore outsourcing.

For instance, the number of interfaces an application has to external applications and systems may geometrically increase the complexity of support needed for that application. Sample parameters such as the language the application is written, the type

of data it operates on, the frequency of usage, the percentage availability of documentations, the supporting infrastructure, and the number of products integrated as part of the application portfolio can all dramatically alter the transition and resource equations. Thus various factors such as volatility, stability, criticality and complexity etc. of applications need to be comprehended and studied as part of any offshore planning analysis.

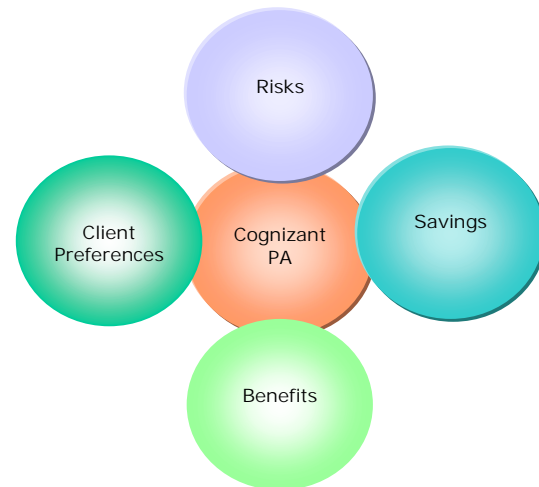
In summary, any offshoring planning exercise needs to take into consideration the multi dimensional nature of potential risks and benefits. A unified quantifiable analysis of these facets performed in an objective manner is a must for mitigating any offshore planning risks. Hence a robust methodology and a scientifically driven framework – right from the identification of offshorable-suited applications to recommending an optimal transition, resource and cost plans – needs to be in place.

Cognizant's approach removes subjectivity and guesswork in identifying applications and the subsequent planning for offshoring. The entire approach is driven through scientific/statistical means based on analysis of over 250+ factual data parameters

## Cognizant's Portfolio Analysis (PA) – A Unique Approach

A very novel and a distinct approach has been developed and practiced in Cognizant. In Cognizant's proprietary approach, application suitability and the planning for offshoring is characterized on the basis of a scientifically driven, multi-dimensional statistical analysis - dimensions that fully capture the different aspects of potential risks and benefits. Thus every part of the offshore planning is done through a unified perspective of multiple dimensions.

The approach (say for example, towards the dimensions related to risk) is analogous to that of an insurance actuary, collecting a host of client specific "underwriting risk" parameters, normalizing that data set against our database (or actuarial tables) to surface the offshore support risk per application. Similar is the case with different key dimensions that covers the different aspects of savings, benefits, and client preferences.



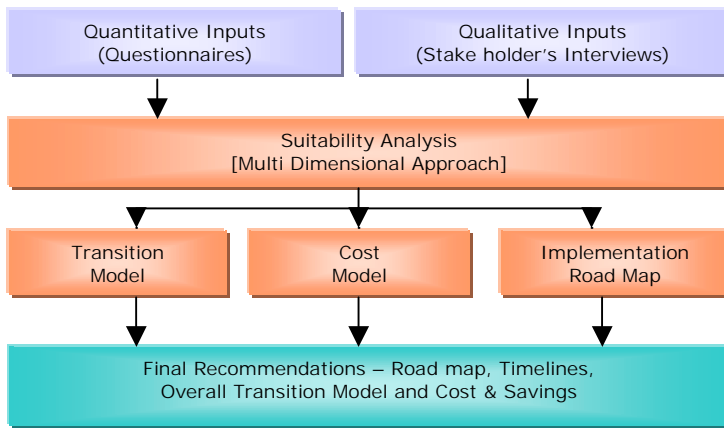
These dimensions also subscribe to the tenets set forth by the software Capability Maturity Model - CMM and as such represent the comprehensive set of core pillars for determining the success of any offshoring exercise. Objective analysis of these dimensions through Cognizant's methodology ushers in new perspectives and significantly changes the horizon of any offshoring suitability and planning exercise. It also allows for showcasing the tangible and quantifiable benefits and costs to the client while at the same time helps the vendor foresee and takes remedial steps to alleviate risks at the very early planning stages itself.

A suitability score is derived statistically based on these dimensional scores. Further along with the suitability score and a host of additional parameters, transition and cost models are derived - again by scientific means thereby eliminating subjectivity and providing an implementable and manageable plan to the satisfaction of one and all.

## Cognizant's Process

Cognizant's PA process starts with a collection of a wide range of more than 250+ quantitative attributes at the application and the system levels. These data represents the quantifiable realities of the application. These data form the foundation of the PA approach under the unified multi dimensional statistical analysis. Each of the dimensions in this analysis, are built on norms; norms are categories with distinct behaviors – behaviors that characterize the suitability, ease of offshoring and effort estimation etc.

In reality, the individual data points collected at the application level normally vary widely depending on the overall character of the portfolios such as mainframe applications, ERP applications and Web based applications etc. and thereby impact the spread of the norm values. Hence these data need to be first normalized upon a relative scale for comparison.



Using statistical normalization techniques like average, standard deviation, variance etc. a normalized view of the data is created.

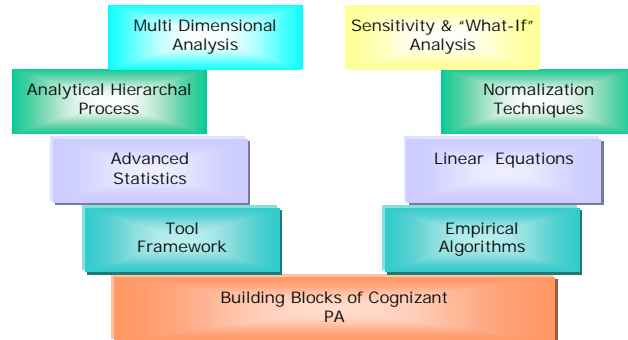
Furthermore, since norms are made up of multiple attributes, powerful relationships between the attributes that constitute a specific norm need to be defined in a credible way. Cognizant being a pioneer in the 4th

generation offshore model has used its tremendous experience to build these complex empirical algorithms and the relationship between the attributes and the norm definitions thereupon.

Subsequent to the individual norm analysis, these need to be analyzed together to get a meaningful insight into its relative contribution on the overall portfolio. The weights on the importance factor of these norms are derived using the statistical principle called Analytical Hierarchical Process (AHP). AHP is based on the mathematics of simultaneous linear equations and optimization. The AHP methodology compares criteria, or alternatives with respect to a criterion, in a natural, pair-wise mode to determine the appropriate weights.

Individual preferences of qualitative importance can also be factored into AHP – weights which can be tweaked into a linear additive weight for each alternative. The resultant is then used to compare and rank the qualitative factors.

This statistical exercise is performed and normalized across to arrive at a suitability score for each application. This suitability score can also be interpreted as the “Ease of Offshoring” index.



## Parameters Governing the Suitability of Application

A sample set of norms and their behaviour against the dimensions are presented in the adjoining table. As can be seen, the behaviour of the norms against the dimensions can be of

Applicationwise Suitability Score Card [Application 1]				
Dimension /Index	Sample Norms	Dimension/ Index Behaviour [as Norm score increases]	Attributes [Over 200+]	Index Score [Max Score = 1]
Dimension 1	Volatility	↓	No. of system downs No. of critical bugs ... Criticality of application ... Service level requirements Architecture, Design, Testing, ... ...	0.48
	Criticality	↓		
	Doc Availability	↑		
	...	...		
Dimension 2	Standards	↓	Design Standards Quality Procedures ... Scope of Automating Testing Scope of Improving Testing procedures ... ...	0.83
	Testing	↓		
	...	...		
Dimension 3	Maturity	↑	Application Maturity Score Base Resource Level Ramp Down Percentage ... Client's resource cost Inflation Rate ... ...	0.59
	Transition	↓		
	Cost	↓		
	...	...		
Dimension 4	Limitations	↓	Data related security issues High resources dependency ... ...	0.52
	Pain Areas	↓		
	...	...		
OVERALL NORMALIZED SUITABILITY SCORE				0.61

any direction and the same needs to be appropriately factored for the overall suitability score. For example, if an application scores low in one dimension, it may be higher risk (depending on the specific dimension definition) and hence could be offshored but only with additional effort. At times, it could be deduced that such effort far outweigh the returns and as such, the application may not be a good candidate for offshoring. Similarly higher the value of a different dimension can bring more benefits to the application and hence may qualify it to become a good candidate for offshoring. A third dimension would quantify and surface the limitations and pain areas in the existing system that would need to be addressed upon offshoring the applications. It is to be remembered that the actual behaviour of the norm

will be based on the dimension definitions.

## A Sample Four Dimensional Analysis to Determine Suitability

While individually, each dimension can lead a high suitability rating, it becomes more complex

Dimension 1	Dimension 2	Dimension 3	Dimension 4	Degree of Suitability (High to Low)
High	High	High	High	Applications falling under this group are ideal candidates for offshoring as they score a <i>High</i> value in all four dimensions under consideration
High	High	High	Low	Applications falling under this group are also good candidates for offshoring as they score <i>High</i> in atleast three dimensions under consideration. Still a subjective analysis on basis client's needs on dimension in which the application has scored low is performed to pick the application for offshoring
High	High	Low	High	
...				Applications falling under this group can either be considered or not considered for offshoring as they score <i>High</i> in 2 dimensions and low in 2 others. A subjective analysis on these kind of applications is required to pick applications for offshoring
High	High	Low	Low	
High	Low	High	Low	
...				Applications falling under this group are not really suitable for offshoring but still since these applications score high in atleast one dimension, a subjective analysis on basis of client needs has to be done before totally ignoring them
High	Low	Low	Low	
Low	High	Low	Low	
...				Applications falling under this group can better be left as it is as they are in any way not suitable for offshoring
Low	Low	Low	Low	

when some of the dimensions contradict each other. Thus in this case, a unified four-dimensional analysis is needed. The normalization factors on the individual dimension indices and the point of separation between high and low for each of the indices may vary on a case-by-case basis.

In reality, it becomes very complex since these indices may contradict each other thereby prompting the need for advanced normalization

Once the suitability score is frozen, Cognizant's methodology focuses on the optimal transition and cost analysis. The transition model for each application, apart from various

Tier	Division	Applications	2004												
			N	D	J	F	M	A	M	J	J	A	S	O	N
1	4	App 9													
	3	App 2													
2	2	App 5													
	1	App 7													
3	3	App 1													
	2	App 6													
4	1	App 10													
	2	App 4													

other parameters (parameters based on Cognizant's experience and capabilities and Client's organizational state – all quantified meaningfully), will also depend on the application's suitability score towards offshoring. As a result the transition timelines and resource distribution are also dependent on the suitability analysis just outlined above. A very powerful scientific model to

comprehend the transition based on the various parameters and the suitability score is in place. Once the transition and resource distribution are derived, the cost model is built, using total cost analysis principles. Finally, a detailed implementation roadmap is derived.

This quantitative, actuarial approach has ushered in a revolution in the way in which the problem of planning an offshoring initiative is approached. This unique approach has been

successfully utilized with numerous clients and have consistently seen high degree of correlation between the portfolio analysis recommendations and the success and savings clients enjoy upon actual application offshoring.

