Risks Identification in an Offshore - Onshore Model based IT Engagement

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ABSTRACT

The aim of this paper is to build a framework to classify and categorize all the risk that IS (or specifically IT) projects face in an offshore-onshore model based engagement. We have developed a Risk Map (along with a risk migration plan and a risk mitigation plan) with different regions of Risks which will help us to classify all the risks arising both at offshore and onshore end and put them in their right region. The map will classify all known and unknown or unforeseen risks and will help assigning owners and responsibilities to each and every risk. Risk Prioritization and risk migration are an important aspect Rick management. The Risk map will help us achieve this as well.

General Terms

Outsourcing, offshoring, onshoring, Risk, Vendor, Client

Keywords

Risk Map, Risk prioritization and migration Path, Division of responsibilities, Business blackout, Risk Regions, Risk Management, Offshore Service provider (OSP)

1. INTRODUCTION

Globalization and Offshoring of Software report from ACM Job Migration Task Force [1] defines Outsourcing as "to having work done for a company by another organization. Offshoring refers to having this work done in another country, whether or not it is done by part of the same company". Thirty percent of the world's largest 1000 firms are offshoring work with prime Offshoring Industries being India and China.

Companies like Infosys (from Service provider perspectives) has no doubt pioneered the global delivery model but the success rate of projects completed within the timeline and budgets are still a very small proportion of the total successful projects in such a model. This is primarily because we either fail to identify all the risks in a project at a sufficiently early stage or fail to identify the crucial ones at all. In both cases-not identifying risks at all or identifying them late in the project may overshoot our predictions of cost, time, recourse and thus impacting the delivery of the project as a whole.

Software industry as unlike other areas of engineering like Biotechnology or mechanical is still evolving and standardized approaches, tools and principles are being set. But to avoid or reduce such failure rates in offshore IT projects, it is equally important to understand; besides formal practices that why a good knowledge of all the risk that a project may face is as important as the knowledge about the project itself. Some of the imperative reasons are
- To keep the project goal in terms of cost, time, resource utilization and profits within bounds.

- To identify smaller but substantial challenges at offshore and onshore and an approach to manage them.
- To understand how client- vendor relationships should be managed when partnering with offshore firms and designing offshore IS project teams.
- Build a transparent reputation among our clients and motivate them to encourage offshoring while eliminating myths about risks at offshore.
- Shifting delivery focus at offshore.
- If the issues are known in advance, a lot of exercise, escalations and interpersonal differences can be avoided.

To help senior people who are engaged in the delivery of the project from an organizational perspective is to set clear expectations to the client in terms of what should and should not be expected from offshore, a clear demarcation of responsibilities is a must. Besides understanding our role in the project and in the delivery as a whole, this will also require identifying and classifying all the risks as and when they are faced in the project and put them in their right place of ownership.
A lot of risks go dangerously unnoticed just because of the lack of clarity of the ownership of it.

2. CHALLENGES IN DECIDING WHAT TO OFFSHORE AND WHOM TO OFFSHORE?

2.1 What to offshore: From a client's perspectives, making the right decision about what to offshore is critical for the success of the business. As a basic fact, organizations should seek to outsource the business which support them in doing their key business and not their key business themselves.
For example, Banking organizations may choose to outsource 'client support', infrastructure and warehousing (hardware outsourcing), Application maintenance work, custom application development or testing, data entry, customer service and technical support business while doing the banking business themselves.

2.2 Whom to offshore: Companies who are looking for outsourcing their business to offshoring locations should first realize the fact about what competencies are matured at offshoring locations they are looking for. This will require least of the knowledge transfer effort from their end. Outsourcing for these services will incur less overhead in terms of transferring business knowledge and additional offshore staff trainings, thereby reducing the risk factor [B] and [A] (Refer Fig 2: Risk Map below).

Additional consultancy services like Infosys, TCS and Accenture in India, preferable based in offshoring locations only may help such overseas organizations to choose the best

partner for them. Looking at the past success history of the offshore providers, their CMM level capabilities, making formal / informal visits to the vendor site and having discussions with people to understand their business knowledge and maturity in dealing with offshore-onshore model based projects.[2]

3. CLASSIFICATION OF RISKS

In any offshore-onshore model based engagement, there are certain kinds of risks that are known and certain other that are unknown throughout the course of a project. Broadly speaking, all types of risks that a project may encounter during its course from beginning to the end can fall into three main classes.

- Type A: Risks related to Project factors.
- Type B: Risks related to People factors (including macroeconomic Risks[6])
- Type C: Risks related to Governance of the project (including overall relationship of the two organizations).

We have made an attempt to classify all risks based on their visibility to clients and to vendors and plot them in a Risk Map (Fig 2: Risk Map).

We have identified that all such risks that a project may face can be categorized into one of the 6 regions in the risk Map. And then, every region may have risks that will be from one, or two or all the above three types. Since both offshore and or onshore location can face such risks, hence it is important to consider that risks may rise as well at either of these locations. This type of classification of risks based on their visibility will be useful for

- Making sure that all risks are identified.
- Defining boundaries of a risk where it actually belongs – to client or to a vendor- and who is responsible for it.
- Making sure that risks are visible to people who are involved so that proper plans can be put in place.

Risks that are unidentified for long in the project and remain invisible may impact the project when discovered later. If the risks are identified early in the project, their impacts can be minimized. The curve of cost of fixing and eliminating a risk threat Vs the time at which the risk is identified in the project is nearly a straight line inclined 45 degrees to both the axes. If the risks are identified late in the project, more will be the cost to fix it.

The graph above is basically a y=x curve (or straight line curve).

From offshore perspective, we have identified three main categories of risks based on their visibility to offshore management and people and to the client.

These are [1] Open risks- that are visible to client and offshore, [2] Closed risks –that are visible only to the people at offshore and client may not be aware of these risks. Closed risks may arise due to factors that originate completely at offshore location. These may include factors such as different work conditions and timing limitations and the third kind are [3] Invisible risks- that which are neither known to the client and nor to the vendor.

For some examples on these three different kinds of risks refer **Appendix A**.

3.1 Risk Map

Referring to the Risk map below, Fig 2, The triangle shaped interior region that starts from the eye and increases horizontally and symmetrically along x axis and along y axis is the universe of all risks and covers all the risk regions viz.

Region ([A] + [B] + [C] + [D] + [E] + [F]). All the type of risks that such an engagement can face can be put in one of these risk regions.
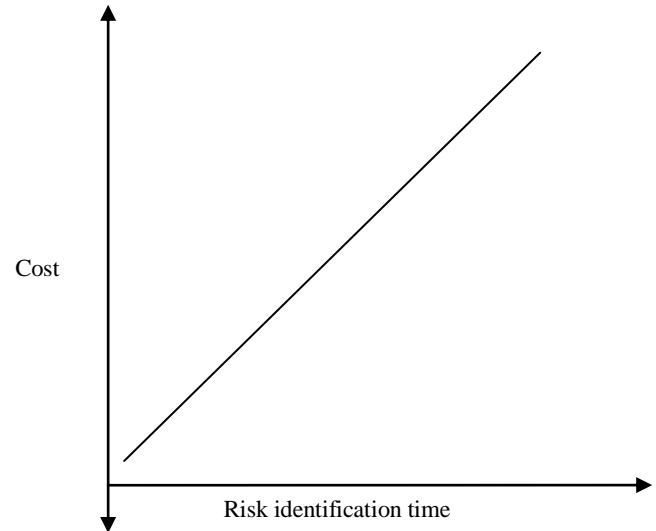

Fig 1: Cost Vs Risk identification time Map

Region [A]: Light yellow Eclipse -horizontal: Onshore Risk Perspectives.
Region [B]: Open risk eclipse: Light yellow Eclipse -Vertical: Offshore Risk Perspectives.
Region [C]: Closed risks: Light Orange region inside the eclipse within the line of sight of the main eye.
Region [D]: Light Orange region inside the eclipse outside the line of sight of the main eye.
Region [E]: The rest of the region within the line of sight.
Region [F]: The smaller arrow shaped region behind the region [A].

3.2 Features of the Curve

The Risk Map below is divided into 6 different regions. [A], [B],[C], [D], [E],[F] and the bigger vertical dashed eclipse-the eclipse of inflated risk sector. The curve is symmetric across an imaginary horizontal line drawn from the eye as centre and runs parallel to X axis. As mentioned above, all the risks that can be identified at offshore may be put into one of these 3 regions, [B], [C], and [D]. Hence total Risks at offshore = Region ([B] + [C] + [D]).

If outsourcing at offshore increases, all three types of risks increase proportionately, as seen by the bigger circle.

Table 1: Approximate Area coverage of Risks on the Risk Map

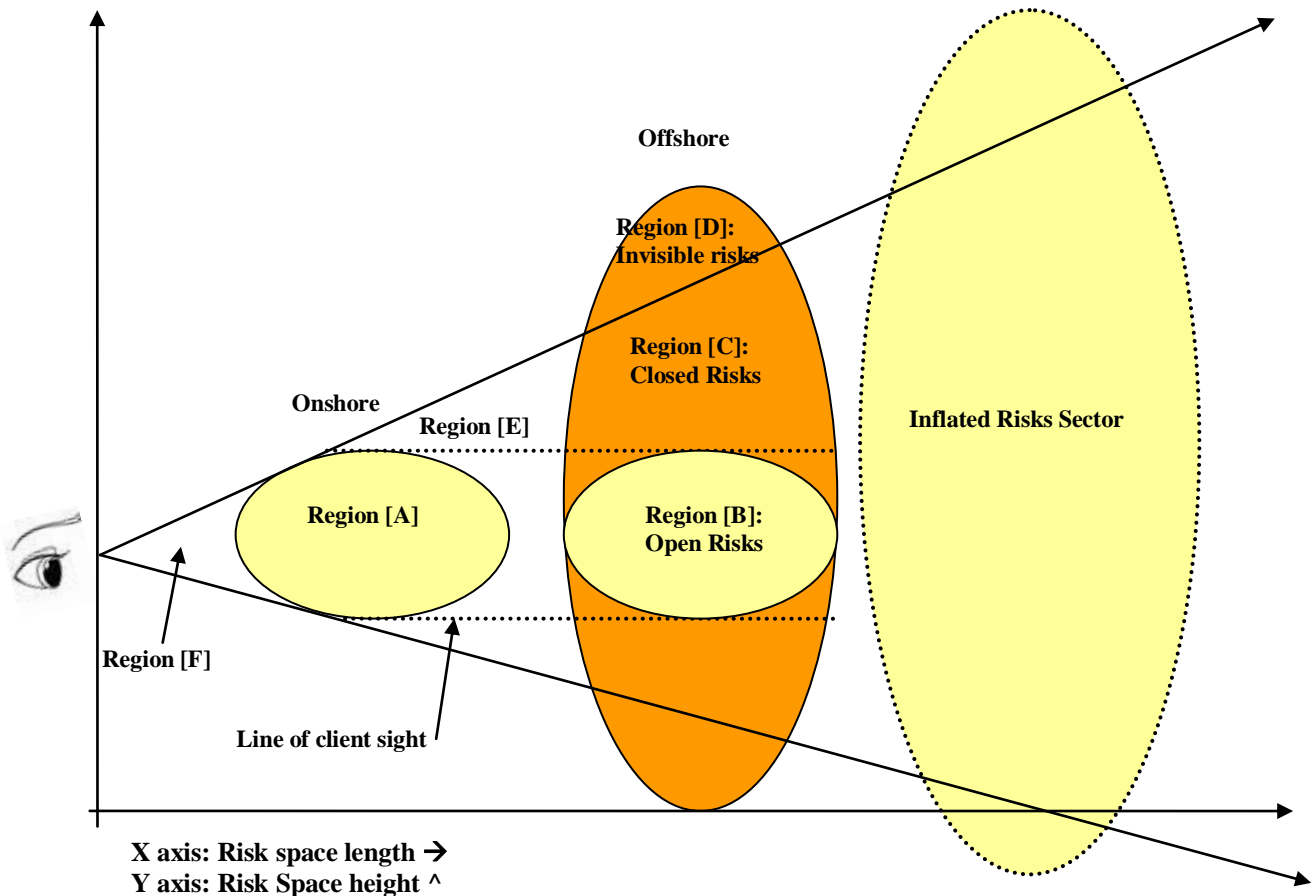| Region	[C]	[E]	[B] = [A]	[D]	[F]
Area on risk Map	Max. ----------------------------Min.				

Fig 2: Risk Map showing different regions to classify risks.

3.3 Risk Regions

3.3.1 Region [A]: Risk at onshore

This region consists of Risks and challenges within the internal organization of the client at onshore. These include risk as seen by your client at onshore solely from onshore perspective. These risks may not be visible to people at offshore. These may include Risks that are to be managed by Client solely without offshore intervention. For example risks due to change in requirements, contractual obligations, and high Management risks fall in this region.

These risks are also defined by what type of engagement we are actually in with the client. For example, if the vendor is outsourced only for testing services and not for the development, then delay in the code delivery will not be a responsibility of vendors and hence client has to solely manage the other vendor who is into development and all the risks associated with it.

The two important features of these risks are they re not visible from the offshore location and are to be managed and governed by client.

It is important to identify these types of risks and separate them from the rest of the others so as to set right expectations in front of the client.

3.3.2 Region [B]: Open Risks

These are the risks at offshore that are visible to both the client and people at offshore with nearly the same perspective and hence the Area of Region [A] and region [B] is same. Since the client is aware of these risks, we need to make sure

that proper mitigation and contingency plans are in place to avert any time, quality loss in project due to these risks.

These may include risks like issues with client network connectivity at offshore.

Again, it's important to make the client aware that solutions for these risks may not lie completely within the offshore management.

In terms of visibility, these risks are most visible across the project and senior management people at both ends and hence should take the highest priority to solve them.

The study in the Paper[4] identifies several key relation factors that affect the success of offshore IS projects that are strategic in nature and lay emphasis that organizational and interpersonal cultural differences governs the success of projects to a large extent and hence the need to remove risks arising due to these factors.

These risks may fall in region [B] of the Risk Map. Figure below from the same Paper [4] points that if the tasks complexities are high and relationship maturity are low, this may lead to high project risks and high relation ship specific risks.

The paper also brings out two major classes of risks –relation ship specific and project specific. The relation ship specific risks may fall under 'Governance Risk' (Type C), as is it essentially a matter how the relation ship between the service provider (vendor) and client are interacting on a more finer level, how the Lack of language proficiency, cultural non awareness, non flexibility of workers in these countries to counter time differences between the two sides are being managed.

3.3.3 Region [C]: Closed Risks:

This class consists of the Risks and challenges within the internal organization at offshore. These are the risks at offshore that are NOT visible to the client and only people or management at offshore or only the *vendor* is aware of it. Hence they are called as closed risks (closed from Client perspective). These may include risks like Non availability of optimum resources at offshore or non availability of technical expertise at offshore that may result in unclear reporting from offshore or lack of a proper reporting format for day to day activities or even include social or work environment related factors at offshore such as people not willing to work in the project.
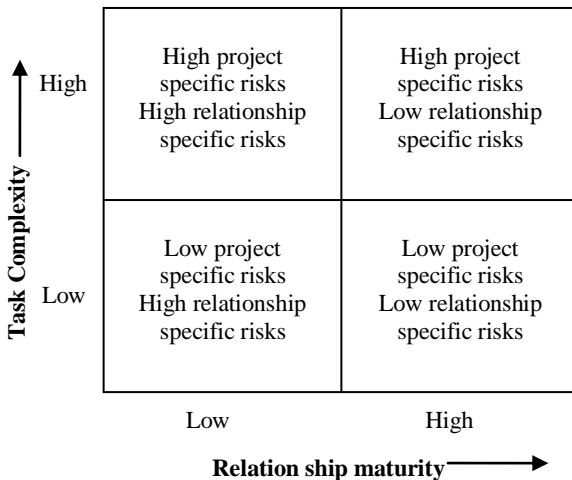

Fig 3: Task Vs Relation Maturity [6]

These risks have to be resolved and mitigated wholly by the vendor or senior management at offshore without affecting the delivery aspect of the project.

These risks may be the most tough to manage due to below factors

- Since they are not visible to the client, the management may not take these risks seriously only until they began affecting the project timelines
- Not always it is possible to find good working solutions for these risks. For example, if workload of the people at offshore are not managed and monitored properly it may give rise to a situation where people start feeling 'burn out' and may not be able to give their best to the project impacting its growth.
- Lack of proper recognitions to good candidates may also contribute to such work-environment related factors.

3.3.4 Region [D]: Invisible Risks.

They are neither visible to offshore, nor to the client and usually are unrecognized through the course of projects.

They may or may not have the impact on the project parameters but if the offshore eclipse is bigger, - for example in case of a bigger engagement with the client– the offshore eclipse will be similar to the bigger light yellow eclipse – and hence these risks, along with all other risks may be ample enough to affect the project as a whole.

This region also include unforeseen risks for example in case of a critical resource leaving the project in between, unseen may also add to the concern and may become a viable risk to the project.

3.3.5 Region [E]: Unpredictable Risks

In terms of visibility, risks that fall in region [E] are similar to risks that fall in region [A]. They are differentiated on the fact that some risks at onshore may not be considered as risks as such and can be averted by minor adjustments or risks that happen very infrequently. People at offshore need not be aware of these risks. This may also include risks that fall outside the boundary of the project. Hardware or software issues with the systems that may lead to untimely 'business blackouts' (an event where no business activity can be done due to several factors) etc can be captured as part of this risk region. If the resources are spending a lot of time in meetings, events, this may also affect the client deliverables and may be considered as an invisible risk.

From the above two examples it is clear that a major characteristic of this region is that these risks may arise at offshore in the same manner as they would arrive as onshore.

3.3.6 Region [F]:

This region includes risks that hidden from clients as well and as from a service provide or vendor. From a governance perspective of the project at macro level, vendors we may not have any interest in these risks. They may even not be regarded as risks at all for many occasions. For example lack of language proficiency or cultural awareness. These mainly include non technical risks.

This is to be noted again that depending on the engagement type, these risks may not be as minimal as they would in a different engagement. For example, if a vendor is engaged in BPO, then lack of language proficiency in people may be a high risk as compared to a software development outsourced engagement.

3.4 Risk prioritization and Migration path

All the above type of risks mentioned above are further grouped into 1- High, 2-Medium and 3-Low categories depending on the severity of the impact they have on project parameters.

For example, Fig 3 above gives a Service provider risks distribution perspective based on task and relationship attributes[6] and classify risks of Type B (project specific) and type C (relationship specific). When the task complexity is high and relation maturity within the team, i.e. relationship and understanding within the peers or between employees and their managers is low, it give rises to risks of 1-High complexities.

Hence this relationship maturity matrix can be drawn for all three types of risks, Type A, Type B and Type C.

Region [D] is supposed to be the 'Least preferable region' for risks to be in. partly because of the reasons mentioned above and partly because these risks tend to affect the project more than the visible risks of region [B] and [C]

And lead to a situation where' even after planning everything, in terms of development, code delivery and code freeze date, testing, reporting, we may fall in a situation where we have to extend planned dates and things fall apart out of the plan. Since they are inherently not visible, they are hardest to find and remove.

As an attribute of a healthy project or to avoid any unseen issues or escalations, we should try to minimize these risks and bring them under offshore visibility. - In Region [C] to region [B].

Periodic Feedback sessions with managers, Appraisals sessions with people involved in the project and discussions

about the ongoing problems in the project may help unearth these kinds of risks.

Table 2: Preference indicator for Risks

Region	[F]	[A]	[B]	[C]	[D]
Preference on the Risk Migration Map	Most-preferable				Least preferable

The preference for Region [F] is maximum and for region [D] is minimum. Idle risk migration path would be from the Least preferable region towards the Most preferable Region i.e. from Region [D] - > [C] -> [B] - > [A] - > [F]

Idle place for a Risk is Region [A] as risks and concerns in this region has nothing to do with the issues arising at offshore and client is solely responsible for managing and averting these risks. However, as a sign of Good relation and for better future engagement, we as a senior management people at offshore may help identify these kinds of risks as well, where ever possible.

Table 3: Risk Priority Scale

Region in the Risk map above	Visibility to client	Visibility to offshore	Priority Scale (0 –maximum priority 5- minimum priority)
[A]	Yes	No	3
[B]	Yes	Yes	0 (Maximum priority)
[C]	No	Yes	1
[D]	No	No	2
[E]	Yes	No	4
[F]	Partially Yes	No	5(Least priority). May Not essentially regarded as risks.

Risk Prioritization is an important aspect of risk migration. In the best possible case, all the risks have to fall within [B]. Or we should be making an attempt to make all risks fall within [B] which are visible to both client and at offshore. This is because if a particular risk is visible to client and offshore, its impact on the project can be estimated with maximum inputs and accuracy and proper governance can be established as to who is responsible for the risks. A risk which is invisible, wither to client or to offshore or to both is least preferred over risks that are visible to either or both.

The worst of all these types of risks are [C], which fall outside of either side visibility. This is because type [A] can be identified at onshore and resolved, while [B] types are known to both sides.

Risks that fall in region [C] are most difficult to find and manage. Examples

[A]: Behavioral or mismanagement of people at offshore, people at offshore taking more leaves but client is unaware of this fact.

[B]: Client network connectivity is not good.

[C]: Communication gap between offshore and onshore people. This may also lead to offshore working on old project requirements, and are unaware of the new updated requirement changes happened at business end or client end. They are unaware of the change requests and are developing

or testing the functionality, as the case may be, based on the old requirements.

Solutions: If Risks of type [A] are uncontrolled or can not be resolved at offshore, client should be made aware of this. This may pose a threat to the outsourcing business, but in the benefit of the customer and project should be highlighted.

Offshore should made attempt to identify risks of type [C] and notify client of the same. There aren't any specific area of risk which is visible to client but not to offshore

3.5 Risk Mitigation Plan

In case of a risk is being flagged by either of the team, a simple plan to handle the risks is given below.

1. Highlight issues before they become risks.
2. If risks are identified, put them into their right region of ownership ion the risk Map.
3. Identity your role to eliminate it.
4. Eliminate it.

A lot of discussion, plan and additional challenges may be identified while trying to eliminate risks. For every additional challenge found, the steps should be followed recursively. Role of effective communication at both people and project level is an important constituent of the solution to avoid risks and issues.

For all the risks which are identified, ask these Questions before finding a solution to help them putting at right place in the Risk Map.

- Does your client know all issues that offshore is facing?
- Does your manager know about the risk?
- Is it people, project or Governance related
- Are all the risked mapped to the correct regions and responsible owners informed?

Risk mitigation plan will also help clearing certain myths about onshore and offshore as enumerated in the table below.

Table 4: Myths and Facts about offshore and onshore

	Myths	Facts
Myths about onshore	Onsite is responsible for delivery.	Project Success is governed by delivery from Onsite in complete coordination with Offshore. Onsite may be responsible for 'delivering' and not for delivery.
	People at onsite are best in Client interactions and Presentations	Best resources are distributed at both sides and never concentrated at either of the one place.
	Client knows all the facts about Offshoring.	Client knows the facts which he has been told and not all.
	Onsite is all alluring.	Its working almost same as offshore but with more responsibility and pressure.
	People at onsite try to push back work at offshore.	Work should be always shared and distributed among offshore and onshore. Except some cases of reporting which are to be driven by

		onshore.
	People at onsite are always in touch with business.	Both offshore and onshore teams have to be in touch with business for all project changes all the time.
Myths about Offshore	Offshore is more work than Onshore with less responsibility	Offshore is nearly equal work with equal responsibility
	Client doesn't know offshore people	Client is aware of all resources at offshore.
	People are self driven	It's Onsite's responsibility to drive them if they are stuck
	Only the best are called at offshore	Driven by client's need, specific to work requirement and off course based on Good feedback

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3.6 Division of responsibilities to avoid risks

It is eminent that offshore team needs to be aware what is the nature of the delivery of the project that the client is expecting from us as vendors. For e.g. in a testing project, it is the result of the testing we perform, scenarios tested, test plans and test templates used.

For a development project, it is the code delivery of the modules of the software itself.

Table 5: Division of responsibilities

People	From client end	From Vendor (service provider perspectives)	
		Offshore	**Onshore**
Division of responsibilities	**Project Team** • Business people • Project directors • Contractors **Governance Team** • Key stakeholders • Governance board	**Project Team** • Team members • Leads • Project Managers **Governance Team** • Account heads • Delivery Managers • Intermediaries	**Project Team** • Onsite Anchors • Onsite Leads • Project Managers **Governance Team** • Account heads • Delivery Managers • Intermediaries

To help achieving this goal, defining and communicating goals at a periodic basis is a must. This communication can happen by various ways.
- Daily morning calls with onsite anchors
- Audio or video conferencing between offshore and onsite on a weekly basis
- Sending daily issue list (an issue tracker can be build for this purpose) along with status report from offshore to

help onsite team know about the issues and put in place proper solutions.

Table 6: Ownership of Risks in Division of responsibilities

Risks region ownerships

	Client	Offshore	Onshore
Project Team	[A], [B]	[B], [C], [D]	[B], [C]
Governance Team	[A], [F], [E]	[C], [D]	[C]

3.6.1 Roles of onsite anchors / team
It is the responsibility of onsite anchors to
- Keep offshore up to date of all the necessary project changes (e.g. requirement)
- Leveraging right information at the right time,
- Getting offshore involved with business and client interactions as far as possible (bringing offshore to an equal capability level)
- Removing the Myth of offshore information need is 'Need to know bases,
- Don't let any issue blow up but find early solutions to it
- Set daily goals at the beginning of the business day and track their completion at the closing of business day and communicate to offshore people and offshore managers and that they are being tracked efficiently
- Making sure that goals are divided appropriately among teams and that 'Starving while food' scenario never occurs in business (Which means that some desks are empty of works - starving while others are overburdened – having enough food situation. This is a poor macro management practice.)
- Establish proper knowledge management practices in the team and allocate responsible people as knowledge anchors
- Encourage well-doers

3.6.2 Roles of onsite managers
It is the responsibility of onsite managers towards their team to
- Making sure that offshore deliveries are as expected from client in quality on a daily basis.
- Act as a bridge between offshore and onshore.
- Consolidating all offshore issues – project or non project specific and making an effort to resolve them.
- Encouraging team to produce quality deliveries by making peer reviews.
- Daily Offshore status monitoring and weekly progress review meetings with offshore managers
- Knowledge about available resources at any time at offshore
- Collecting feedbacks
- To lead the effort in bridging cultural gaps

This will also foster a complete Transparency to the client by making client aware of all the issues faced or identified by offshore.

3.6.3 Roles of offshore
It is the responsibility of the team at offshore to keep their onsite counterparts abreast of all the known Challenges at

offshore and as well as trying to find out unknown but likely challenges at offshore.

Requirement gathering, in the form of excels, functional specs, spreadsheets, word documents etc, can't be done by offshore. But what they can contribute is to go through these requirements, given to them by onshore team members and analyze them for queries and gaps.

4. CONVERTING RISKS INTO OPPORTUNITIES

As with any other challenges, there are numerous opportunities in every region of risks to convert them into opportunities for better client relation. The blue region area in the risk Map may also be used to picture opportunities and Relation Management aspects as seen at onshore.

Clients are always appreciative of the fact how we handle certain risks without affecting any aspect of the project.

If Risk are migrated properly from unknown (invisible) corner of the risk map to the known corner and ownership is established as per the Table Ownership of Risks in Division of responsibilities, we can monitor its progress and find alternate solutions if a particular solution is not working.

In doing so, we may encounter additional challenges or hidden opportunities.

For example, if in a testing project, the test case scripting is not done as per scheduled date or not as the quality, we may hold discussions to improve the quality and may come up with a template for the test case. If the template is approved, we can use it across all the scripting work, thereby standardizing the scripting work and eliminating the chance of this problem occurring again in future. This is just one example of how small risks or problems can be turned into opportunities for client appreciation.

5. CONCLUSION

A lot of papers and studies (such as [3][8][9] et. al) has highlighted the fact that due to numerous rising factors such as Cost benefits & Availability of Cheap labor, the Phenomenon of outsourcing of business at offshore will continue to rise and will fuel more Offshoring Rise in the demand of labor.

While overseas companies in US, Australia and UK are making a choice for their Offshoring centre, their first obvious choice is to look for the highly-skilled workers in countries like China, India for the obvious cost reasons. But in turn, this has also fuelled a drastic increase in the demand of IT skills in these countries and countries where Offshoring is usually preferred over the last decade. The lure of potentially massive savings in wage and benefit costs may continue to fuel the global offshoring movement.

Table 7: Average Wages comparison in outsourced countries

Role	Country comparison	Pay roll Clerks
Average Programmer	U.S – India (California – Bangalore, Delhi)	$15 / hour - $2 /hr ($78,000 in U.S as opposed to just $11,000 for the same job in India)
Test Analyst / UAT Tester	Aus – India (Contractual agreement in Aus may pay even higher)	$6.9 / hr - $1 / hr ($60,000 AUD in Aus as opposed to just $7,200 for the same job in India)

Like in any distributed-geography engagement between two organizations, offshoring too has risks associated with it hence it's not only the cost that should matter.

The study [3] emphasizes that participating organizations need to look farther from just wages to consider employee benefits, training and other costs before they outsource. The study also points out that an unrelated, but equally important aspect in managing offshore is to have the just right Offshore: Onshore ratio of people for any jobs that overseas companies are eager to outsource in order to not introduce a job-less situation, depression of wages and social tensions at their home country.

Besides these above factors that are seeding grounds of risks, other equally important factors that are to be considered even before the organizations actually involve and begin outsourcing are the rules and terms of the country and company where offshoring is performed for the simple reason that You can not just hire an employee in India and expect him to follow Australian or US work policies and work ethics.

All these factors contribute to risks in one or the other region of the Risk Map. From both client and vendor perspectives, Regardless of the offshoring model chosen, mutually it has to be agreed that we have policies and practices in place to avoid risks at the early stage, establishing the right ownership for all the risks identified, resolve conflicts or any issues arising half a world and at a difference of many time zones, respect differences and motivate people working at these far locations to help them deliver the project as expected.

Risks can never be avoided completely or precaution completely, but having identified, understood and classified the risks will help reduce the impacts and threats of it and hence definitely averting the damage it may cause.

6. A BRIEF STUDY OF SOME OF THE EXISTING COMPARATIVE LITERATURES ON THE SUBJECT AND FURTHER STUDIES

There is extensive literature available on identifying various risks in an offshore IT projects, specifically from a vendor perspective but little on the study of how to classify and categorize these risks, quantitatively managing, averting and mitigating the risks that arise within an offshore project. We haven't come across any existing framework that helps to model a contingency plan or helped organization follow a well defined standard and methodology for risk mitigation in case of risks being faced.

There exist however a little literature on the study of risks for particular models of project [11], [12], [13] teal. Paper [13] identifies risks at a more governance level which falls under Type A. This paper also uniquely discusses the "Risk management standards and concludes that a successful outsourcing project needs to perform suitable risk analysis and quality control process.

Study also exist on the analyzing and reviewing factors behind successful outsourced software products like [14], [15] teal. Paper [16] identifies the Risk profiles across domestically- and offshore-outsourced projects, studies their similarities and differences and identifies three types of risks in general. First, "those that appeared in both contexts" i.e. domestic and offshore, secondly "those that appeared in both but were exacerbated in the offshore context" i.e. primary a risk in

offshore based projects and thirdly "those that were unique to the offshore" context i.e. uniquely a risk in offshore projects.

It is to be noted again that the Risk Map that we have built in our paper however classifies risks only for offshore-outsourced projects from both vendor and client perspectives.

Like Paper [16], the Paper [17] too is based on identifying risks primarily on the basis of conducting surveys and collecting data from experienced project managers at vendor site and then doing an empirical analysis on the achievements of experienced offshore projects. Paper [18] studies risks and benefits on a macro level and from an industry perspective and not about the risks within a particular off shored software project to establish a paradox that certain factors like Cost, which might appear as a benefit for oversees clients due to availability of cheap and skilled labor in offshoring countries, might also be a risk such that it can incur more hidden costs in the engagement as a whole. Paper [19] develops a framework to study the interdependency of various risks which are associated with system development failure.

An important conclusion which is drawn in this paper is no risk (project, technical, people or governance) is outside the bound of the organizational factors and it is required to develop a non –traditional (one which may seem obvious and predictable) viewpoint of organizational risks.

Another important conclusion that we may infer, however that requires more study is, it is not always advisable to assume that all the risks can be predicted based on experiences. The Risk Map region of invisible risk speaks for this important characteristic of project risks.

For a further study of major risk categories of offshore IT outsourcing, the readers are encouraged to specifically refer the citations [20] and [21].

7. SCOPE OF ENHANCEMENTS TO THIS PAPER

Following additional studies can be carried out with respect to our work.

1. Once we have categorized all the known and unknown risks on the Risk Map from both offshore and onshore perspectives, ample work can be done to identify the parallels across the risk profiles of offshore-outsourced projects from vendor and client perspectives and suggesting common remedies and mitigation for similar risks. Such areas can then be overlapped in the Risk Map.
2. As said above, risk migration from a high to a low priority scale and thus lowering its consequences on the project parameters is an important aspect of Risk Management. This paper further can be enhanced to include a more detailed framework for risk migration based on the data available on real projects.
3. As stated earlier, study of risks in an offshore software outsourcing business involves studying risks from the perspective of both vendor and clients. A more detailed risk perspective from client end can be developed with detail examples.

8. ACKNOWLEDGEMENTS

9. NEW TERMS COINED

1. Business blackouts (3.3.4)
2. Division of Responsibilities (3.6)
3. Risk Map (Open Risks, Closed risks, Invisible Risks, Risk Regions (Fig 2: Risk Map)
4. Risk Migration (3.4 Risk prioritization and Migration path).
5. 'Starving while food' scenario (3.6 Division of responsibilities to avoid risks, Roles of onsite anchors / team)

10. REFERENCES

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11. DIGITAL LIBRARIES REFERRED

Following digital libraries of journals were also revisited for latest papers and research on the subject. Since most of these online journals are not free, hence it was difficult to refer to the full text of all the papers we were interested in.

- ACM Digital Library (http://dl.acm.org/)
- Science direct portal (http://www.sciencedirect.com)
- IEEE explore (http://ieeexplore.ieee.org)
- Springer Link (http://www.springerlink.com)

APPENDIX A:

Project type: An online wealth management platform for the customers of a leading An Investment Bank, based at New Jersey. The project has to be deployed on the client's legacy infrastructure system.
Client: An Investment Bank, based at New Jersey.
Offshore Vendor: Testing and development based at India.
Profile: Revenue of ~350 Million USD with the governance size of 95 people (65 offshore, 30 onshore).

The Table 8 below provides some typical examples of Risks of three Types A, B and C and categorizes them on the basis of their criticality and put them into their right regions ion Risk Map for the following engagement example.

Table 8: Examples of risks in a typical Software project Engagement as categorized in the Risk Map

Type /Class of Risks	Risk Map		Examples of Risks		
	Risk Group	Regions in Risk Map	1-High	2-Medium	3-Low
Type A - Project Example of this kind [1] Technical Risks [2] Risks due to Process Immaturity.	A From client's perspective	A	Frequent business Requirement changes [1].	Lack of client auditing and review process.	Lack of tools/ third party software/ licensing issues etc
		E-Unpredictable	Platform / Infrastructure outages.	Security issues with intellectual/ project artifacts.	Other unforeseen circumstances.
		F	Client driven deviations from set norms from project perspective, introduction of additional project phases.	Lack of issues reporting.	Too many mandatory organizational policies and norms/certifications.
	B From vendor's perspective	B-Open	Delay in code delivery, poor quality of code, Testing ineffectiveness	Risks due to Process Immaturity [2]	Lack of tools/ third party software/ licensing issues etc

		C-Closed	Lack of technical expertise and experience of resources	Lack of proper backups in case of code crunch.	Lack of transparency or visibility of information between onshore and offshore.
		D-Invisible	No Defect or issues prioritization process in place.	Lack or proper and ambiguous reporting.	Too many mandatory organizational policies and norms.
Type B - People Example of this kind [1] Behavioral risks, [2] Relationship specific risks e.g. Relation ship immaturity between participatory organizations etc	**A** From client's perspective	A	Lack of business guidance.	Non flexibility of working conditions and of people.	Geographical Time, language and performance differences.
		E-Unpredictable	Too frequent movement of people in and out of the organization.	Unpredictable business off days.	Other unforseen circumstances with individual people.
		F	Lack of language proficiency.	Organizational and interpersonal cultural differences.	Cultural non awareness.
	B From vendor's perspective	B-Open	Lack of initiatives/support to bridge internal differences.	Non flexibility of working conditions and of people.	Geographical Time, language and performance differences.
		C-Closed	Non availability of resource (with technical expertise) at offshore	Behavioral mismanagement.	Disinterest of the people towards organizational policies of the client.
		D-Invisible	Disinterest among the people towards the work.	Lack of good work ethics / professionalism.	Lack of proper appreciation [3].
Type C - Governance Example of this kind [1] Project Management. [2] Resource Risk- example Hardware/Software/infrastructure [3] Budgetary Risk etc	**A** From client's perspective	A	High Management risks.	Contractual or legal obligations	Frequent changes in org. structure.
		E-Unpredictable	Unscheduled or long business outages	Business blackout situations like s/w or h/w failure	Too many escalations.
		F	Unrealistic cost saving expectations / inflated expectations from vendor.	Third party vendor Non coordination, non synchronization.	Frequent movements of people between offshore and onshore.
	B From vendor's perspective	B-Open	Lack of proper knowledge transfer as needed.	Lack of proper work distribution (Starving while food condition)	Lack of proper engagement of senior people in issue resolution.
		C-Closed	Poor accessibility of client resources, Non availability of optimum resources at offshore [4]	Lack of proper channels of communication example AV conferencing etc	Management gaps.
		D-Invisible	Too much time spent on extraneous or non project related activities.	Lack of Trust in offshore service provider (OSP).	Frequent re-evaluation of roles and responsibilities.

Table Legends:

[A] Primarily seen from client perspective / client owns the major part of these risks (Region A+E+F in the Risk Map)

[B] Primarily seen from offshore perspective / vendor owns the major part of these risks (Region B+C+D in the Risk Map)

[1] Change in business requirements, introduction of too many change requests or addition of new functionalities, non availability of proper documents that captures change like wireframes, unclear SRS etc.

[2] Lack or non adherence of formal practices and approaches (CMMi, SigSigma), Lack of Auditing, poor configuration management and review processes. This may also result in Poor quality of technical outcome (poor code, lack of proper testing etc.)

[3] Lack of proper appreciation of good candidates may also pull down the morale of people making them less dedicated and dissatisfied towards work

[4] Poor client network connectivity at offshore, providing dedicated systems to offshoring people, establishing communication links, making sure that offshore accessibility to other useful client communication and intellectual property systems is made.

Note:
Some Risks (like Lack of tools/ third party software/ licensing issues and Non flexibility of working conditions and of people) may appear at more than one place in the table above. This is because such types of risks are owned by both the sides in equal proportions and has to be worked upon together. These risks may appear in both region A and B.