

An Overall Review of the Software Companies in Bangladesh

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Introduction

Our task was to visit some of the software companies in Bangladesh to understand the overall condition of the software industry in our country. We have to find out if the "Software Engineering practices" exist in our software industry. To accomplish this goal, we have visited 6 organizations and asked some questions. This report contains the answers related to each question and a distinct review of each company. At the end of the report, we have reached a conclusion about the condition of our software industry.

1. Company 'A'

1. How do they approach?

'Company A' has a domain of working. If the type of the project matches with their domain, then they start working on it.

Before proceeding towards technical tasks, they communicate with the customers. So that they can understand the client's objectives and can gather requirements properly.

Then, they plan what is to be produced, which technical tasks should be conducted to achieve the goal, what are the risks, what are the resources required and then they make a schedule.

Then they start coding. After the coding phase, comes the testing phase and then, the deployment that is the product is delivered to the client and after evaluating the product the customer gives feedback. Necessary changes are made after the deployment phase.

That means, 'Company A' follows the process framework properly.

2. How much importance is given on requirements analysis?

At the very beginning, requirements analysis is done.

They gather requirements from the client which must be detailed to avoid problems in the future.

They don't think, documentation is a waste of time. They believe that, gathering requirements carefully is necessary for defining software features and functions.

That is, they don't believe in the practitioner's myth.

3. Which method do they follow?

They actually don't follow the bookish way rigidly.

Instead, they have their own way of working that best suits their employees. They control the degree to which the customer and other stakeholders are involved with the project, the level of autonomy given to the software team and degree to which the team organization and roles are prescribed.

They follow the agile process.

4. How's the process? Linear or iterative?

They proceed through continuous assessment with the client.

After collecting the requirements once, they find out if there is something missing. And if the requirements don't seem enough, they discuss with the customers again and again and find out necessary information.

If the client isn't aware of a specific feature that is necessary, they tell the client about it and add it as a new requirement.

5. How much time is needed for requirements analysis?

‘Company A’ don’t think that only 20% time is needed for coding and 80% for documentation.

According to them, 80% time is needed for coding, and 20% for documentation. It may be 60%-40% sometimes. It varies project to project. But the time needed for coding is always greater than that for documentation.

6. Do they take advantage of the reusability of components?

We have learnt about Hooker’s 7 principles. One of them is to “Plan Ahead for Reuse”.

According to Hooker, reuse saves time and effort. Achieving a high level of reuse is arguably the hardest goal to accomplish in developing a software system. The reuse of code and design has been proclaimed as a major benefit of using object-oriented technologies.

They developers of ‘Company A’ take full advantage of this fact. Such as, they use the UI with same font and design is almost in every project. Just the fields vary with the projects. They don’t spend much time on new LU.

7. What’s the main concern while working?

The main concern here is efficiency for both the client and the organization. Clients want efficient system, they actually don’t care about the UI design. A user-friendly UI is enough for the clients.

8. How's the deadline fixed?

The deadline is fixed on the basis of mutual agreement. The client proposes a deadline, and the organization accepts or denies it depending on how much time they actually need to finish the project.

9. How quality assurance is done? When?

Quality assurance can be of two types.

If the whole problem can be compartmentalized, then after finishing working on each module, quality is assured through testing. If the problem cannot be divided into modules, then quality assurance is done at the end of the work.

10. Do they outsource tasks?

Tasks are accomplished by the employees of the organization, they don't outsource tasks.

11. How's the structure of the team? Hierarchical or Lateral?

The team is hierarchical and command-based.

Overall review about 'Company A'

We see that, 'Company A' actually follows the process framework. They do proper documentation, approach iteratively, emphasize on building an efficient system and follow an agile method. It can be said that, they are on the right track.

2. Company ‘B’

1. How do they approach?

At first, they gather requirements through a formal meeting.

In most of the cases, the clients don’t give sufficient information. They try to figure out the requirements, prepare an SRS and show that to the client just for maintaining formality. In most of the cases, the clients don’t give any effective feedback. They just agree with the documentation given to them.

That means, the ‘Company B’ conducts the task “Inception” –they develop a basic understanding on what the problem is, how the client is, what kind of solution is desired by the client and they ensure a preliminary communication with the client. But they can’t successfully accomplish the task “Elicitation” - as the client doesn’t provide them with enough information, they face the “Problem of Understanding”. They also face “Problem of Volatility” as requirements change overtime. But they keep extra time in their schedule to handle this problem and provide the customers with what they want.

They conduct the “Elaboration” properly. That is they expand and refine the information they have, create user scenarios, analysis classes, define attributes and responsibilities of each class and develop diagrams, so that the client get a clear view of the whole problem and solution.

Now if the client has any objection, or any demand, he may tell it to the organization and they add that in the requirements list and update it. They also go through “Negotiation”. But if the customer doesn’t give any feedback, then the SRS remain unchanged.

Then they develop a specification so that they can proceed smoothly. It

May be a written document including graphical models.

As they don’t collect requirements properly, problems occur

During deployment. And then they work again on fixing the problems.

That is how they work.

2. How much importance is given on requirements analysis?

According to the Head of the Engineers, in the past, the organizations didn't give much importance to requirements analysis. They used to jump directly to coding. Eventually, they felt the lack of necessary documentations and realized the necessity of requirements analysis.

Now, through the requirements gathering phase, they carefully conduct the tasks that should be done. They agree with the fact that; requirements analysis can't be avoided and should be done with great care.

3. Which method do they follow?

They follow the agile method. They don't follow anything rigidly to accomplish their goal. They adapt their method depending on the type of the project.

4. How's the process? Linear or iterative?

They always follow the iterative process. They believe it's always better than any other process.

5. How much time is needed for requirements analysis?

'Company B' emphasizes on requirement gathering and other types of documentations. But they said, coding needs more time in the whole process.

6. Do they take advantage of the reusability of components?

They also follow the Hooker's Principle - "Plan Ahead for Reuse".

7. What's the main concern while working?

Obviously, quality and efficiency are the main concern of 'Company B'.

8. How's the deadline fixed?

As we have seen for 'Company A', the deadline is fixed on the basis of mutual agreement. The client proposes a deadline, and the organization accepts or denies it depending on how much time they actually need to finish the project. The same stand for 'Company B'.

9. How quality assurance is done? When?

They also try to compartmentalize the whole problem into smaller modules. After finishing working on each module, testing is done and if there's any error, they work to fix that. This compartmentalization is very effective for quality assurance. It's easier to handle smaller modules, find out the errors and fix them than testing the program at the end of the project.

But if the problem cannot be divided into modules, then frequent quality assurance is not possible, they have to wait until the whole thing gets done.

10. Do they outsource tasks?

Tasks are accomplished by the employees of the organization, they don't outsource tasks.

11. How's the structure of the team? Hierarchical or Lateral?

The team is hierarchical and command-based. But the team leader is very cooperative with the members. This provides a friendly environment for accomplishing the goals together.

Overall review on ‘Company B’:

In ‘Company B’, the working environment is nice. According to the need of the project, the roles of the employees swap. They emphasize on quality assurance. They follow the agile method.

One thing which is not good is – their approach of requirement gathering, which leads to “Problem of Understanding” and “Problem of Volatility”. Proper requirement gathering is appreciated everywhere for its effectiveness. But as ‘Company B’ don’t do it at the “Deployment”

phase, they have to deal with problems newly occurred which might be avoided if requirements were gathered in a systematic way at the start.

3. Company ‘C’

1. How do they approach?

This is basically an outsourcing company as they do not get local clients, rather this company handles foreign software projects and delivers product to them within a fixed deadline.

They just perform the implementation and testing part of the project as everything else is already done when the work is received. The company arranges regular meetings with the Indian and American branches. The company also sends a few employees to the American branch to understand future project patterns and work on it.

2. How much importance is given on requirements analysis?

Requirement analysis is given much importance but by the foreign company. Orion does not have to gather any requirement as everything comes pre-processed when they get the project orders.

That is, they don't need to believe in the practitioner's myth.

3. Which method do they follow?

When a project comes they just distribute their man power according to necessity. The size of each project group may vary.

They control the degree to which the customer and other stakeholders are involved with the project, the level of autonomy given to the software team and degree to which the team organization and roles are prescribed. They follow the agile process.

4. How's the process? Linear or Iterative?

They proceed through continuous discussion with the designers.

But continuous discussion is not necessary in this branch located in Bangladesh, because the model and design is well formed before them starts to work their part. Thus we could say that the process is somewhat linear if we consider this specific branch only.

5. How much time is needed for requirements analysis?

Actually we cannot answer this question in software engineering in case of 'Company C', because no requirement analysis is done here.

Thus all the time in a project is spent in implementing and testing the project.

6. Do they take advantage of the reusability of components?

This is one the major key areas of efficiency for this company. As coding is one of the key tasks of 'Company C', thus, while handling similar kind of projects, they need to reuse the modules. Thus reusability is a key component for this company.

7. What's the main concern while working?

While working on any project, they are concerned about the fact that, whether their developers worked on similar projects in the past or not. If not, then they prepare the developers by giving them proper training. And of course they focus on proper implementation and testing.

8. How's the deadline fixed?

The deadline is fixed by the client party. Adjustment can be made if necessary.

9. How quality assurance is done? When?

A separate team is deployed for testing after the implementation is done. This team tries to find out and fix bugs and report other branches.

10. Do they outsource tasks?

No. They are the one being outsourced to.

11. How's the structure of the team? Hierarchical or Lateral?

The team is hierarchical and command-based.

Overall Review on 'Company C'

'Company C' does not actually have to follow the process framework because of the working policy.

4. Company 'D'

1. How do they approach?

'Company D' works as a domestic software company. That is, they handle government projects or local business or android app development projects.

As soon as they receive a project, they form a software team that generally comprise of a project manager, 1-2 lead developers and 2-5 junior software developers. Though the team size varies from project to project, this is usually the case.

'Company D' usually rejects projects with which they have not dealt in the past. They try to work on similar kind of projects, as the developers are more comfortable with it.

They also worked on some government projects. Their approach is different in case of government projects. As the government releases a circular about a job, they prepare a model and approach the client for receiving the project.

2. How much importance is given on requirements analysis?

Requirement analysis is given importance but not that much. Because the projects that they worked with in the past, they did not face much difficulty due to lack of proper requirement analysis.

That is, they believe in the practitioner's myth to some extent.

3. Which method do they follow?

They always try to follow the scrum methodology of the agile development process. As they try to work on similar projects they don't face any problem while following the same methodology in almost every project.

4. How much time is needed for requirements analysis?

According to one of their corporates, they try to give every stage of the development equal priority and time. They try to gather all the requirements at the beginning, but often they set a meeting with the client to modify the requirements.

5. Do they take advantage of the reusability of components?

As they work on similar projects they must reuse similar components. They said that they are very much comfortable with working with android apps. Thus they have many such components ready for reuse.

6. What's the main concern while working?

Their main concern while working on any project is that, whether their developers worked on similar projects in the past or not. If not, then

They prepare the developers by giving them proper training. They want effectiveness.

7. How quality assurance is done? When?

Quality assurance is maintained in the development stage as a separate unit. After that the lead developer gives clearance that the product is ready for deployment.

8. Do they outsource tasks?

They handle the project from the start till the very end on their own.

9. How's the structure of the team? Hierarchical or Lateral?

The team hierarchy is exactly the same as that of scrum agile methodology.

Overall review on 'Company D'

'Company D' makes the most appropriate time management among the companies we have visited, as in other companies, the coding phase is given the most time and importance whereas 'Company D' gives every stage equal priority.

But one thing that is not appreciated is, they don't give importance on the practice of requirements analysis, as they hadn't faced that much problem in the past despite of its absence. This doesn't mean that they will not face problems in the future. So before they face the consequences, they should be aware from now and focus on proper requirements analysis.

5. Company 'E'

1. How do they approach?

'Company E' is a very large software company that deals with every kind of software project known in Bangladesh.

The company has different departments for different type of projects. As a result, when the company takes on a project it is handled by the corresponding department. Each department has its own style of handling a project.

On the other hand, the development procedure may also vary within each department based on the nature of the project.

2. How much importance is given on requirements analysis?

Requirements analysis is given much importance, because the company faced a few problems dealing with clients in the past. Now, 'Company E' does not start implementing a project before determining the customer requirements properly. If there is a gap in communication between two parties, then they try to bridge the gap as soon as possible.

3. Which method do they follow?

This was very difficult to answer by someone working for the company itself as the company is quite large and divided into smaller units. Thus each department follows the method best suited for them. At the same time, they consider the type of the project. They try to use agile method if possible.

4. How much time is needed for requirements analysis?

One of 'Company E''s corporates could not tell exactly the percentage of the time required for requirements analysis. But he said that, they give most priority to design and requirements analysis. Quite often, requirement analysis is not absolute, and, while modeling the software, they face problems and return back to the requirement analysis phase.

5. Do they take advantage of the reusability of components?

As projects are handled by the corresponding divisions, the components are maintained by the respective department. Thus, when they face similar project they can reuse those components.

6. How quality assurance is done? When?

Quality assurance is maintained in the development stage as separate units. After that the lead developer gives clearance that the product is ready for deployment.

7. Do they outsource tasks?

No. Instead, they handle the project from start till the very end on their own.

8. How's the structure of the team? Hierarchical or Lateral?

The team hierarchy is exactly the same as that of scrum agile methodology.

Overall review on 'Company E'

Honestly, our team members were surprised after questioning about 'Company E', because among the companies we've interviewed in Bangladesh this is the most organized company. The similarity of their practice in software development and the text book is the closest. They give proper emphasis on modeling, documentation and requirement analysis. When we asked about the time given for coding portion, they replied that around 35%-40% time is spent on coding which is by far smaller with respect to the time given in the entire project.

6. Company 'E'

1. How do they approach?

'Company F' is an international company, which manufactures their products, works for the development of the operating systems and makes some synchronized applications. Everything is authority-dependent here. They define and distribute works in various branches and control it from the head office of 'Company F' located in South Korea. The employees and junior software developers don't need to know details about the project.

2. How much importance is given on requirements analysis?

They give much importance on requirement analysis. After completing the documentation, they proceed according to the requirements.

3. Which method do they follow?

They follow mostly agile development process model.

4. How much time is needed for requirements analysis?

This actually varies from project to project, and from client to client.

5. Do they take advantage of the reusability of components?

Yes, they take a lot of advantages by reusing codes smartly and efficiently.

6. What's the main concern while working?

Fulfilling the requirements properly and maintaining the deadline is the main concern. They need to finish the tasks according to the documentation.

7. How quality assurance is done? When?

After the product is ready, they send it to the testing team. The testing team then find out the bugs and thus maintains quality.

8. Do they outsource tasks?

No. They do everything on their own.

9. How's the structure of the team? Hierarchical or Lateral?

The structure is always hierarchical.

Overall review on 'Company F'

The 'Company F' gives much importance on requirement analysis, they reuse the components. The whole process is iterative. The team structure is hierarchical. They focus on quality assurance and customer satisfaction.

Conclusion

After considering the facts described till now, we can see that, most of the companies feel the importance of requirements gathering and they do proper documentation. From their experience, they have learnt the importance of these steps. So they are concerned regarding these facts.

But they don't agree with the fact that, requirements analysis takes more time than coding.

According to them, coding takes more than 50% of the total time.

They follow the process frameworks. They follow the agile method so that they can adapt with any changing situation. They don't follow linear models like the waterfall model.

They focus on quality assurance, they proceed towards the solution systematically.

