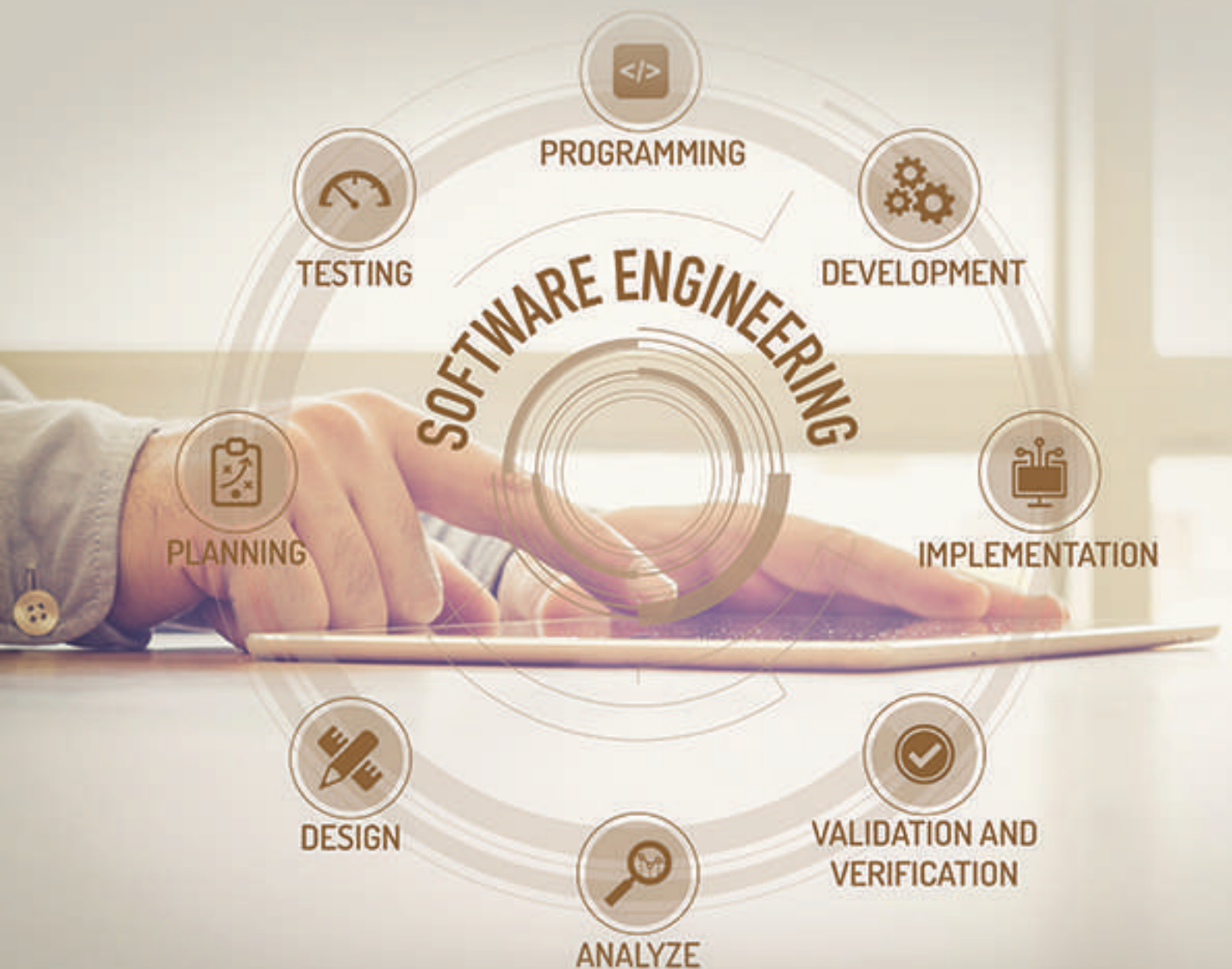


Software Development Models Comparison Introduction



Introduction:

One of the important steps in the realization of successful and efficient product is to choose suitable engagement and development models. Wrong decision may cause additional costs, loss of time and even nerves. The majority of problems can be avoided long before the first line of code is written, if the right engagement model, project management methodology and contractor chosen at the initial stage. In this whitepaper, we compare the most popular engagement models (fixed bid, time and material, dedicated team) and project management approaches (such as Waterfall, Agile, Scrum, and Kanban) that are widely known across the market, and most commonly offered by the contractors, to help you understand, which one will better suit you, your company and developed product. Also, this whitepaper can be used as a step-by-step guide on how to choose the right software development model when outsourcing your product development.

As any kind of complex process, software development contains various approaches aimed to fulfil the same need – deliver necessary product with less time and money expenses, and with higher efficiency and quality. The solution on this task lays in the sphere of project requirements evaluation. A lot of things have to be considered: from the project size (including budget, development team size, estimated implementation time) to the technical requirements (platforms, integration, functionality, etc.).

Outsourcing software development team may cover key needs and significantly reduce costs while accelerating the development time but only if a customer selects the most rational approach for him and his initiative.

Why is it important to choose the appropriate engagement model?

An engagement model is required for managing the development process as it covers such significant points as payments, flexibility, level of client involvement, and others. There are three main engagement models: fixed bid, time & material, and a dedicated team, – each has its pros and cons and can effectively work for some particular projects. Detailed comparison is presented below as well as some tips on which one to choose.

Fixed Bid

This type of contract is ideal for small-size or urgent projects. Fixed bid perfectly works when the project specifications are clearly defined and unlikely to change. Such engagement model implies that a client has a clear understanding of how the final result should look like and the work is clearly stated in the SRS (Software Requirements Specification).

- Efficient for projects with clear, stable, and settled requirements
- The final cost to develop a solution is fixed unless there are no additional changes
- Minimal client involvement and communication

Time and Materials Contract (T&M)

The main idea of Time & Material contract is in its name, it is more flexible and transparent for a client. In a T&M contract, the customer usually gets an estimate on the number of hours needed for project implementation and an hourly rate to calculate the total software development cost. Any additional work can be easily evaluated based on the preliminary discussed hourly rate.

- Ideal for projects that don't have clear requirements or expected to change
- Flexible price and estimated development time
- Suitable for large and long-term projects

Dedicated Team (ODT)

Dedicated Team or ODT's meaning is a bit wider. It is not all about developing a complete product it is more about leveraging additional resources. This kind of software development model is a perfect solution for any business willing to augment the development productivity, extend current team and/or reduce additional expenses on hiring extra staff or investing into other resources. The dedicated team model is a perfect choice for large and long-term projects and businesses planning to expand in the foreseeable future. This approach implies customer's full control and involvement, which simplifies the implementation of all emerging business needs.

- Full development team control and complete customer involvement
- No hiring efforts, lower TCO, ability to quickly scale up in-house team
- Monthly fee only; predictable and weighted costs for the long-term projects

Workflow

After choosing a type of software development contract, it is time to decide on the most suitable type of workflow. The most popular today are the following software development methodologies: Agile, Scrum, Kanban, and 'old faithful' Waterfall. Each one of them is more applicable for certain projects depending on many factors.

Waterfall. Waterfall software development is ideal for static projects, when the customer's requirements are set and the changes are not likely to happen through the development process.

- Works well for small scope projects where requirements are clearly defined
- Reliable budget and time estimation
- No overlapping as all the tasks are sequential

Agile. Agile development methods are more efficient when the final goal of the project is not defined and the customer wants the development team to react to the changed requirements rapidly and effectively.

- Emphasis on the experimental software development and flexible design pattern
- Oriented on the teamwork environment and collaboration
- Stands for evolutionary development and adaptive planning

Scrum. To manage the development of complex software in fixed-length iterations, the Scrum approach could be the best matching. The development process is divided into sprints, and the team interacts with the customer once the sprint is completed.

- Ideal for the swing project development
- Testing is performed throughout the development
- Changes are anticipated along the way

Kanban. This approach is based on Agile but involves a bigger visual component. The benefit of Kanban is that it gives businesses an opportunity to be reactive towards customers' demands instead of trying to predict the needs.

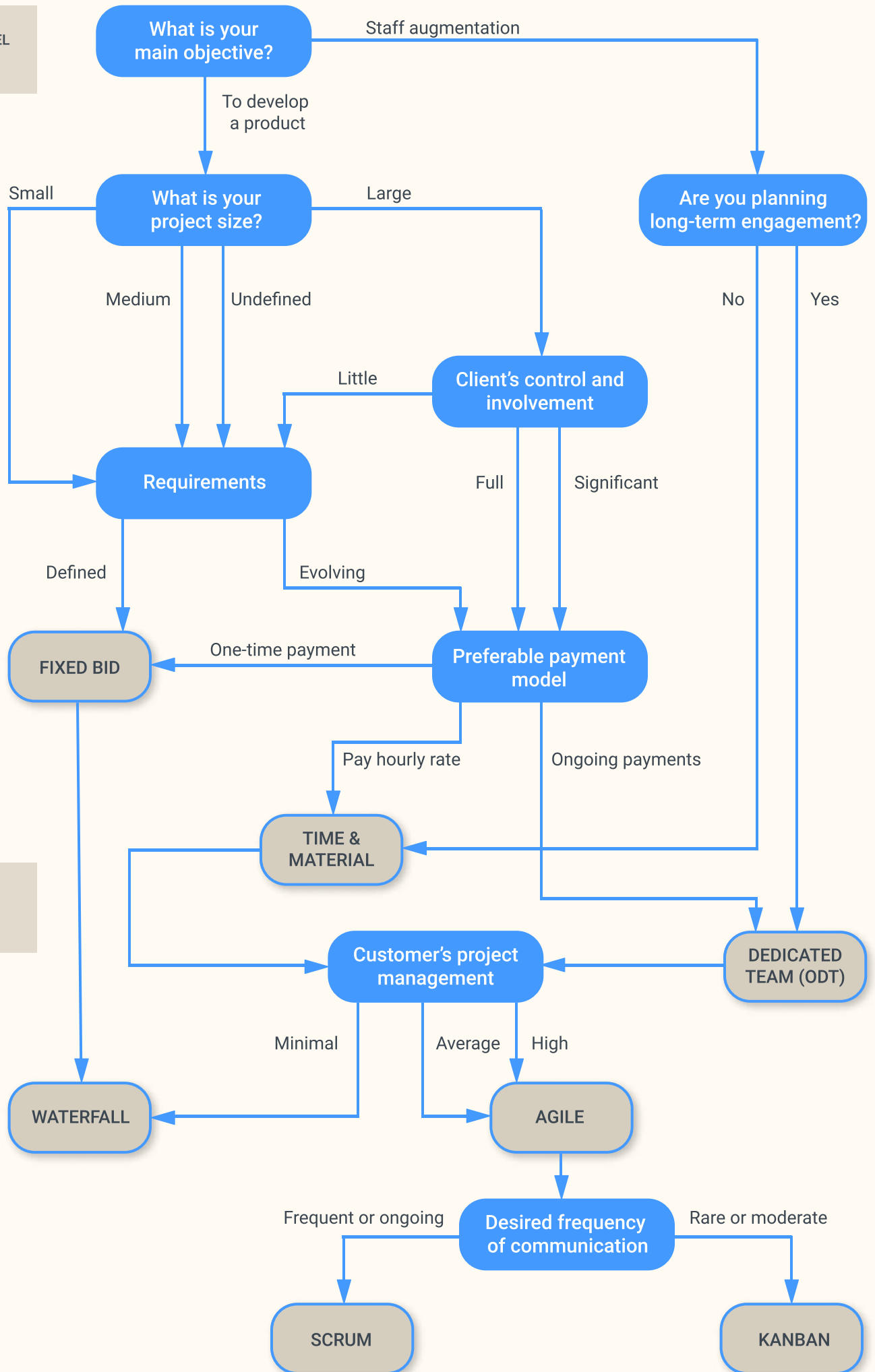
- Increased flexibility
- Visual component makes it easy to learn
- Optimized workflow

Efficient Mixed Models

It is quite obvious that different business objectives and conditions require different approaches to the software development process. Hence, each engagement model and software development method can be applied to the projects that make its perfect match. Here are some of the most effective and efficient combinations to develop a high quality product in adequate term and with suitable price.

1. **Fixed Bid + Waterfall:** such a choice might be called 'pure classic'. It fits clear and well-defined small and mid-sized projects. If the owners prefer this model they need to "write SRS - order a development team - wait until your product is ready" without any additional involvement.
2. **T&M + Agile / Scrum / Kanban:** depending on some project particular needs the choice of software development model may vary, but the main aim is in providing the most flexible approach to deliver innovative products to a rapidly changing market.
3. **ODT + Kanban:** while working with a dedicated team such combination allows bringing some additional visual components to significantly improve project management processes.

ENGAGEMENT MODEL CHOICE



SOFTWARE DEVELOPMENT MODEL CHOICE

Conclusion

Mentioned above variants can be used as a guideline, but there is no universal solution that will cover every project needs. The choice of any software development model is a complex decision that requires analysis and depends on individual project features or other circumstances, such as budget, deadlines, industry, etc. However, if it seems difficult to make a choice of a suitable engagement model and workflow, use our simple scheme above.

About SCAND

SCAND Ltd. is an Eastern European company, located in Minsk, Belarus. The company is focused on custom software development outsourcing across multiple technologies including .NET, Java, PHP, JavaScript, and C++. With more than 19+ years in IT and 600 successful projects for dozens of customers globally, and over 250 highly experienced engineers on board, we are rated as one of the top software outsourcing companies in Eastern Europe.

Have questions? Feel free to contact us: info@scand.com
