



Software Development Guide:

for everyone who plans to launch a project
development

This guide is designed to help you launch a project development. The document describes main stages of software development process. It also gives information on how to place orders with third-party developers. We recommend that you read this guide to the end before closing a deal.



Contents

1.Main collaboration models3

1.1. Fixed price3

1.2. Hourly payment/Hourly payment with budget restrictions3

1.3. Dedicated development center3

2.Main stages of software development process.....3

2.1. Pre-project analysis, technical specification creation and project estimate3

2.1.1. Pre-project analysis3

2.1.2. Project estimate4

2.2. Project or project phase development.....6

2.2.1. Technical specification composition.....7

2.2.2. Project architecture design7

2.2.3. Design7

2.2.4. Program code creation7

2.2.5. Layout8

2.2.6. Project testing8

2.2.7. Project deployment.....8

2.2.8. Project Maintenance8

3.How can you participate in the development process?8

3.1. Project Management system8

3.2. Version control system9

4.Main deliverables9

1. Main collaboration models

There are 3 main collaboration models: fixed price, hourly payment/hourly payment with budget restrictions, dedicated development center.

1.1. Fixed price

This model is suitable for projects with strictly defined requirements and a ready specification. With a fixed price model Provider will normally ask for a pre-payment. Pre-payment timeframe and amount are to be negotiated individually.

1.2. Hourly payment/Hourly payment with budget restrictions

Hourly payment or Time and Materials can be applied to all types of projects, but is usually used in two cases:

- Product development without a Technical Specification
- Product maintenance (product modifications, bug fixing)

The payment is done monthly according to the amount of hours worked over a certain period of time. Pre-payment timeframe and amount are to be negotiated individually. Hourly payment with budget restrictions might be suitable for you if you are going to develop a product but have no ready Specification, and you need to define restrictions of the development budget. The payment is done monthly according to the amount of hours worked over a certain period of time. With hourly payment model with budget restrictions we ask for a pre-payment. Pre-payment timeframe and amount are to be negotiated individually.

1.3. Dedicated development center

If you need a team to develop a new or existing product we can help you gather a group of professionals according to your requirements and preferences. The payment is done monthly according to the amount of hours worked over a certain period of time. Pre-payment timeframe and amount are to be negotiated individually.

2. Main stages of software development process

2.1. Pre-project analysis, technical specification creation and project estimate

2.1.1. Pre-project analysis

In any company everything starts with a pre-project analysis. Only in some companies it is done more and in some - less deeply.

On the whole pre-project analysis may include the following stages:

- 1) business goals determining, concept composition
- 2) project feasibility estimate
- 3) realization platform determining, hardware and software requirements determining
- 4) project timeframes and labor costs determining

In our company pre-project analysis is offered free of charge.

The outcome of the pre-project analysis is a set of recommendations as to how to choose a realization platform, software and hardware, finalized project concept and a brief description of functionality, additionally, labor costs and project/tasks delivery timeframes. Having such data enables you to effectively perform the set tasks at most and minimize project administration expenses. In some cases it is possible to choose a platform, technologies and programming languages at the stage of [project architecture creation](#).

When delivery timeframes and budget are confirmed, the project is transferred to the development department. If you have a ready project description or specification, then we proceed directly to architecture design and programming. Otherwise, we shall start development with a technical specification creation.

2.1.2. Project estimate

Before choosing a Provider, make sure all the activities necessary for your project launch and correct functioning are included into the estimate.

Main activities included into the Project Estimate:

- Analytics (Specification)

This stage includes Technical specification creation consisting of certain artifacts:

- user stories – options of user interaction with the system;
- interface templates of the projected system;
- functional requirements to the system;
- non-functional requirements to the system (that is performance, reliability, usability, security requirements, etc.);
- various schemes and diagrams to illustrate user-system interaction and different structural units interactions (pages, forms, interaction types, etc.).

The list of artifacts for each project is defined individually depending on the type and project scale. The smaller the project, the fewer artifacts there are. In our company there is a division into levels. Each artifact has several levels, and the smaller the project, the lower the artifact level is, and vice versa.

Besides, at the stage of Technical specification composition a test-plan is created, the document describing the whole amount of [testing](#) work (the object for testing, the aims of testing, testing strategy, testing schedule, testing environment, test cases).

- Design

If have no opportunity to perform the design on your own, this item is also included into the project estimate. Initially make sure the designer is not going to use other designers' works. In case the designer is going to purchase images, ask him to show you payment documents. If the designer uses free images, you should make sure their usage does not violate ownership rights.

- Layout

Secondly, you should determine the type of layout. Depending on the layout method there are box and tabular layouts.

- 1) Box layout is a layout done by means of boxes (tag <div>) and style tables to describe them (CSS), it realizes the concept of semantic layout.
- 2) Tabular layout implies that frames are made with the help of tables, modular networks are set, color background is created, items are aligned, etc.

Besides, depending on the layout template there are the following types of websites:

- 1) Fixed layout is a type (tabular or box one) where the column/image width is set in pixels, that is defined accurately.
- 2) Fluid layout is a type where the column/image width is set as a per cent to the current screen resolution.
- 3) Adaptive layout is a type that adapts to the screen size including box shifting from one place to another or their replacement with blocks that are displayed with a particular resolution only.

- Project architecture design

Some Providers make a separate estimate for this activity, others include it into the development estimate. If you don't see this activity in the project estimate, ask Provider whether it is included in it. The estimate should include at least minimum time for architecture design.

In our company architecture design is divided into several difficulty levels. The more highload project is the more difficult architecture is.

- Program code development

Then there is a development estimate divided into tasks or blocks (frontend/backend).

- Code documenting

Code documenting is an integral part of program products development. It aims at additional requirements description of what exactly the code performs.

Code documenting is an important aspect that greatly influences readability and plainness for other developers. Make sure that Provider documents the code.

- Software testing

Software testing is a program product trial run that aims at two different things:

- 1) Demonstrate developers and customers that the software meets the requirements.
- 2) Find out conditions when the software behavior is wrong, unwanted or does not meet the requirements.

You get familiar with the existing testing types [here](#).

All methods do not necessarily have to be included on the estimate. Necessary testing types are included depending on the tasks, project type and size. With the Provider specify the reasons why various testing types are included on the estimate.

Make sure the Provider has all the necessary equipment to provide the testing (hardware, devices, etc.)

- Code placement on the customer's server

The source code (the text of computer program in one or another programming language or markup language) is placed on the customer's server. You can refuse from this service, if you plan to place the code on your server or your hosting provider's server on your own.

- Maintenance

Maintenance is included on the estimate on request (in case if upon launch Customer will need Provider's help to have the product modified and debugged). The main aim of the maintenance stage is monitoring of the resulting product performance. Project maintenance can as well be agreed shortly before launch.

- Training

Training can be included on the estimate upon request. If you need a training to study how to work with the resulting product, ask Provider for this service. Provider can teach Customer by several means:

- compose a product operation guide;
- organize a training event (meeting, skype-conferences);
- prepare a teaching video.

2.2. Project or project phase development

So, you have decided on a certain Provider.

When the project development is launched plan ahead a reporting schedule. The recommended frequency is getting reports once or twice a week. Do not leave the project unattended.

The project development team includes:

- Project Manager

- Analyst
- Developers
- QA specialists

In our company there are dedicated Project Managers assigned to particular projects, this service is not charged separately. Project Manager is your main contact person over the whole development period. He manages the project team, monitors the budget and timeframes, answers all the project questions, keeps reports.

Below are possible stages of product development process.

2.2.1. Technical specification composition

Technical specification includes all the project requirements.

Technical specification development enables reducing development costs and describing the requirement as accurately as possible, which will allow the developers to clearly understand the goal and final results.

Make sure that while making mockups Provider will not use similar existing interfaces as a basis. As mentioned above after Technical specification is created it is time for architecture design and programming.

2.2.2. Project architecture design

As a rule, a prototype of the project or of some part of it is created at the project architecture stage. Customer's task at this stage is to spend as much time as possible to test this prototype. The earlier non-conformances are discovered the cheaper the corrections will be.

2.2.3. Design

As for the design, it can be implemented either at the stage of project architecture design or program code creation.

2.2.4. Program code creation

Normally with [Time and Materials](#) model, the customer is given the access to the source code. With Fixed Price model the customer will have to initially agree with Provider after what stage to hand the source code over to him.

Depending on the chosen collaboration model different tools to manage Provider's work are possible. In case of Time and Materials model time tracking systems should be used. With Fixed price model you should focus more on intermediate stages acceptance.

2.2.5. Layout

The layout can be done simultaneously with program code development or right after it. If the layout is done simultaneously with the development, the delivery time reduces, but the budget increases, and vice versa: if the layout is done after the development, the delivery time increases and the budget decreases.

2.2.6. Project testing

At the [analytics](#) stage test plan should be composed. According to this plan the product testing is performed. With the results of the testing a bug report is put together.

When Provider has handed over the tested product to you, take the opportunity to test it yourself.

2.2.7. Project deployment

The deployment stage implies placing the source code on the customer's server (or on customer's hosting provider's server), and project documents handing over to the customer (for example user manual), if such has ever been created. In our company the exclusive ownership rights are handed over to the customer.

Please note that Provider cannot manage changes on the server that are done by the hosting provider (for example, software change) which can bring to invalid product functioning. That is why we recommend that you agree with the hosting provider to be informed about the maintenance works in advance. You thus will be able to inform Provider about that to prevent unforeseen faults in product functioning.

2.2.8. Project Maintenance

When the development stage is completed and the product is put to the operation projects are often transferred to the maintenance stage. The maintenance includes:

- software faults and defects preventions;
- timely software update to provide its correct functioning;
- necessary software modifications to maintain and increase its demand in the market;

We recommend ordering project maintenance with Provider, since the team already know the product and can easily deal with coming requests. Besides, somebody else's code is always "bad" 😊.

3. How can you participate in the development process?

3.1. Project Management system

The project management system is ultimately aimed at tasks planning and distribution between the team members, and performance management. There are various project management systems: JIRA,

TrackStudio, Unfundle, Bugzilla, Redmine. In project management systems communication is done task by task to avoid confusion. With that, if you prefer communication by email, skype or other ways, Provider shall give you options.

In our company we use Redmine, project management system, we also have experience working with all the above mentioned systems. The access is given according to collaboration model: on hourly rate projects right upon the start; on fixed price projects there is no access as a rule. If you wish to use your own system, we shall always meet your needs.

3.2. Version control system

The version control system provides united storage for program code of the whole project. There are various version control systems: Subversion (SVN), Git, Mercurial and others. As it was mentioned above, with Time and Materials model the customer is given access to the source code. With Fixed price model the Customer should negotiate with Provider after what stage the latter will hand the source code over to him.

Our company is currently using Subversion (SVN) and Git.

4. Main deliverables

Upon development completion make sure you have agreed with Provider the transfer of the following deliverables:

- Result of [analysis](#) – technical specification;
- Result of [project architecture design](#) – architecture document;
- Result of [design development](#) – components of graphical design, and source files in PSD, Adobe Illustrator and other formats;
- Result of [program code creation](#) – product source code with comments and code building guide or run file, code deployment guide;
- [Testing](#) result – test plan and bug report (for all types of manual testing), and source code (in case of automated testing);
- In case when you order a new product [training](#), the result might be an operation guide or a teaching video.

We hope you will find our guide useful and helpful in taking most details into account and avoiding pitfalls while making a software development agreement.

If you have any questions concerning this guide do not hesitate to contact us! We will be happy to help you.

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We wish you successful projects!