



SW DEVELOPMENT DELIVERY STRATEGY

2019

Table of Contents

INTRODUCTION	3
1. Assigning SPOC Persons	4
2. Setting up a Communication/Collaboration Plan	5
3. Requirement Analysis Phase	6
4. Onboarding Development Team	7
5. Preparing Solution and Architectural Design	9
6. SW Development Process	11
7. Operational Process	12

Revision History			
Version	Revision Date	Reason for Change	Author
V1	04/05/2019	Initial Version	Adnan Pekdemir
revA	08/10/2019	Addition of Operation part	Adnan Pekdemir
Rev B	01.112019	Adding some new tools/techn	Adnan Pekdemir

INTRODUCTION

This document describes VirtuDev's working Processes and Procedures for providing remote SW development of a Products, Solutions or Services in Izmir for a *PARTNER/CUSTOMER* that request these specific services.

The aim of presenting this Process document is to identify the WoW principles to make the operation smooth, effective and valuable for both parties based on following key aspects:

- Mutual Trust, Honesty and Accountability
- Continuous Collaboration, Traceability and Transparency
- Constant Communication, open for Feedbacks
- Mutual Alignment on every Milestones of the Project

This process and procedures are also combined and enriched with useful tools in order to catch the key aspects mentioned above.

In the otherhand DevOps, Agile Methodology and other SW development blueprints & Technology standards are considered as the guideline for this process which is applicable for following options:

- Option-1: For the *PARTNER/CUSTOMER* who requires to develop a new SW Product/Solution/Services from the scratch.
- Option-2: For the *PARTNER/CUSTOMER* who already has a Product/Solution and requires from Virtudev to be responsible to develop all or specific parts of this.

SW DELIVERY METHODOLOGY FOR NEW CUSTOMER

1. Assigning SPOC Persons

Before starting any remote SW development activities, it is crucial to identify SPOC persons on both side in order to run the activities in a harmony.

SPOCs can be preferably senior/lead technical persons that can manage and supervise the all technical and project management related activities on their sides. SPOCs should keep continuously communicated and aligned with each other and can call each-other anytime when they think it is needed. These open and continuous communication are vital for successful delivery, for thoughts and accomplishments sharing, getting to know about blockers and bottlenecks, and staying accountable and be aligned with each-other.

SPOCs -with help of management- should create clear project guidelines for productivity, teamwork, and accountability so all employees in the project know what to expect. They should present the idea of the project and describe what to be done in detail. The expectation for the project will depend on what you communicate to the development team. Then, development team can start developing requested product/service faster and give more precise output if SPOCs provide them the vision for the project clearly.

In short, SPOCs -on the other words “technical leads”- will be totally accountable and responsible for successful delivery.

Apart from their continuous communication they have to crate internal communication process including other team members to avoid interpersonal gaps that we will explain on the next chapter in details.

The first and very important task is setting up a communication and collaboration plan and then leading the activities to collect, and analysis the Business and Software related Requirements issued by the *PARTNER/CUSTOMER* and make all this to be detailed for the later stage.

2. Setting up a Communication/Collaboration Plan

Importance of Effective Communication is mentioned at the beginning while mentioned about SPOC tasks, but off course this is not enough for a successful remote SW development project as all team should be aligned and on the same page during project timeline.

It should be mutually-agreed on a solid Communication and Collaboration Plan that should covers all parties involved to that project for all levels.

This communication plan will require a varied approach that incorporates face-to-face meetings, print communications, and electronic communications addressing different needs. Objectives are building awareness, creating confidence and transparency, and maintaining the relations through the teams, and management on both sides.

Communication Plan includes the schedule weekly or bi-weekly and monthly with the team, as well as regular one-on-ones to avoid the communication and interpersonal gaps. These meetings are invaluable for thoughts and accomplishments sharing, getting to know about blockers and bottlenecks, and staying accountable and aligned with each other. It is important that minutes of these meetings is prepared and send them as a follow-up email to all participants. They will serve as to-do lists and ensure all the relevant details about personal responsibilities are well saved.

These meetings can be aligned with the SW delivery milestone for instance, as we are using Agile/Scrum methodology in our development with sprints about 2 weeks, we are currently adopting the all-hands meetings to be aligned to the sprints. So, according to our current communication plan, the whole team, including the Product Owner, SPOCs and whoever interested meet on the first day of the Sprint and conduct a Sprint Planning session as well as at Sprint review sessions.

Tools are essential for remote team collaborations as they help you structure your team's work. An effective remote team will have a set of tools: an email service, file sharing capabilities, an instant messaging platform, project management software, video conferencing, and anything else that's required. Many collaboration tools exist to support well-structured communication.

For all-in-one solutions that allow you to organize, prioritize, chat about work, send files, and manage your projects, we can use:

All-in-one solutions	Troop Messenger , BasicOps , Hibox , Paymo , Hive
Managing tasks	Avaza , Taskworld , TeamGantt , Fusioo , Trello , Jira , Twoodo , Wrike , Worksection , Finit , Eylea Board
Document collaboration tools	Google Drive , Bit.ai , TipHive
Team communication tools	Skype , Slack , SocialChorus , Zoom

VirtuDev is currently using Jira, Skype, Slack, Trello, Google Drive, Zoom for different Communication and Collaboration purposes in different projects. And open for new suggestions from PARTNER/CUSTOMER if they have any.

3. Requirement Analysis Phase

Requirements analysis in SW development project covers all related tasks that go into determining the needs or conditions to meet for a new (or altered) products or solutions. Requirements must be actionable, measurable, testable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design. Requirements can be functional and non-functional. All these requirements should be carefully analysed, discussed and properly documented to avoid possible future conflicts.

For the success of a project, it is utmost important to analyze the business requirements when they are gathered as well as throughout the lifecycle of the project. Requirements analysis helps to keep the requirements in line with the need of the business. A good requirements analysis process will render a software application that caters to the objectives of the business set forth.

In short, Requirements Analysis is critical task for not only these requirements will be the main inputs for the product/solution design and development but also inputs for

building the team responsible for the development of these requirements, which will be mentioned in the next section.

4. Onboarding Development Team

After mutual agreements on requirements of product/solution/service, another important task is to implement a TEAM to develop it. These team can be built up with existing team-members with new-comers depending on the project type and its *capability set* requirements.

VirtuDev has solid Processes and procedures to find and choose the best talents for the remote development Team. Beside having all required technical capabilities, the one who has following additional abilities will be selected for this work:

- Self-organized and dedicated enough to be suitable for a remote job
- Excellent level of self-motivation and be ready to work independently
- Great Communication skills, Positive Attitude
- Honest, Reliable, Result-Oriented.

As an Onboarding procedure, If PARTNER/CUSTOMER would like to involve to the talent selection process, VirtuDev will be happy to accept for their contributions in order to build the team up together.

After hiring the best talents, Onboarding/Orientation process continues with following actions:

- **Orientation Program**

New employee orientation is the process you use for welcoming a new employee into your organization, integrated into the organization, and performing the new job successfully as quickly as possible. New employee orientation, generally contains information in areas such as:

- the work environment/Structure
- the new job description
- company culture
- the organization

In VirtuDev, general Orientation takes a few days not more than a week including a buddy assignment, considering this is an ongoing process that continues during project timeline.

- **Provide Internal Training, Knowledge Sharing and OJT**

This can be seen as part of internal knowledge sharing activities or technical part of Orientation. With these sessions, new resources can take general information about our SW development environment, SW Languages, Technologies, SW Tools/Processes which is commonly used in our company and possibly be used in the coming project with new *PARTNER/CUSTOMER*.

All these sessions are carefully planned by responsible Technical Manager and are given by the SME of each topics. After this session, it is expected that new resource is ready to start to the project immediately without facing big obstacles.

- **Setting up a development environment**

Another important task for any newcomer is getting the application up and running on their own computers. The process for doing so varies between technologies. In general, it requires tasks such as getting the source code, setting up the database, installing dependencies, configuring the environment with API keys and credentials, importing sample data, and so on. Developers have a good idea of everything involved in this process within their respective fields and should be able to adjust the details accordingly.

- **Gather product related documentation (especially applicable for transition Option-2)**

Remote developers are often asked to jump into an existing codebase that they've never seen before. This is especially true regarding software engineers. Our goal is always to get up to speed as quickly as possible so we can start having a positive impact for our clients. Having access to clear, thorough documentation about the project can dramatically accelerate the onboarding process, and help developers avoid pitfalls that can impede forward progress.

Good documentation is the cornerstone of any successful transition. Make sure your new team has everything they need to start.

5. Preparing Solution and Architectural Design

Preparation a Solution and Architectural Design is one of the main activities for Virtudev's Senior Solutions and SW Architects. They have designed Solution and its Architecture based on Customer's Business and Software Requirements and their solid experiences.

During the design phase it is also possible to get in touch with the Customer's technical Architects to get their ideas, debate and evaluate to build overall Solution and Architecture as a common view.

Overall Design documents are prepared by VirtuDev and present to the PARTNER/CUSTOMER's technical experts to get their approval officially. It is important because there will be no major changes expected after agreement on design documents, as developments will be done based on what is decided in design phase. However, some minor updates can be discussed and evaluated by the technical teams.

Then, following main questions should be clarified to build overall Solution and Architecture:

- **What technology stack to be used?**

There are many common application frameworks available for the back-end and front-end developments, our technical & development team are familiar to select best option out of all available ones for the requested solution. Selections of framework and Technologies will be done considering Business/Software requirements received from PARTNER/CUSTOMER and existing capabilities of our team.

As an example, we are mainly using Microsoft [.NET frameworks](#) for back-end technologies. Most of front-end web technologies are standard CSS, HTML5, JavaScripts and [Angular](#).

For mobile application development, in addition to native Android and IOS development, we are using [Xamarin](#) and [Ionic](#) frameworks as a cross-platform mobile applications tool which enable us to directly create an Android, iOS and Windows apps. Google supported [kotlin](#) Language is also used for android application development.

Anyway, these are some examples of what mostly we are using today but we are always open to discuss and for any other technologies to use.

- **Where is the Application to be hosted?**

Different web hosts have different deployment processes, which require varying levels of experience. In recent years, cloud technologies have created a number of new hosting options, and our Architecture Design team need to evaluate and decide which particular one will be used for the project. We currently hosting our applications as a container package in different data centers.

We are using [Docker](#) for Containerization which is a lightweight tool to package up an application with all the requirements and dependencies before shipping the complete container as one package. Additionally, we are currently examining to get benefits of using [Kubernetes](#) allow us to automate container provisioning, networking, load-balancing, security and scaling across all these nodes from a single command line or dashboard.

- **What is CI/CD & Dev Ops Tools?**

In addition to GitLab we are using various Continuous integration and Delivery (CI/CD) tools which bring us a lot of benefits to our daily software development process, mainly reducing risks for each build and clearing the way to get your valuable features out to customers faster. Some of CI/CD tools that we are using as follows:

[TeamCity](#) for Continuous Integration tool that we are currently using in our projects, but we have also experience on [Jenkins](#) which is another famous CI tool.

[Selenium](#) is used for Test Automation, Selenium a portable, open-source software testing framework which provides you with an easy interface for developing automated tests

[SonarCube](#) is going to be used for static Code review in our Software Development process. We are in the implementation phase currently and strongly believe that this tool help and empowers developers to write cleaner and safer code.

- **What third-party API to be used?**

Today's applications are built on many third-party services such a [PayPal](#), [AmazonWS](#), [Google APIs](#) i.e. that we are also using in some projects. Reliance on third-party services is gradually increasing and our technical team continuously searching on most suitable third-Party tool or services to use on our developments

and we believe that this option will definitely reducing development time and bringing a lot flexibility if it is the right ones.

During the Design period responsible Architects will also decide on which third-party service or application will be used in our project. VirtuDev's SW Architects and PARTNER/CUSTOMER's Technical Experts can work together to identify which ones are applicable for the project.

6.SW Development Process

As a starting point, in VirtuDev, we are using S.O.L.I.D developments principles in object-oriented software development. SOLID is one of the most popular sets of design principles in object-oriented software development. It's a mnemonic acronym for the five design principles. The intention of these principles is to make software designs more understandable, easier to maintain and easier to extend.

Our development team is using a particular source control management tool called [GitLab](#) which is a single application for the entire software development lifecycle from project planning and source code management to CI/CD, monitoring, and even security.

This makes all development process standardized, properly documented, and easy to replicate by newcomers. Managing software development activities needs to employ the right tools especially for the remote cases. A number of software solutions are available with features that can help both sides to reach this purpose.

Here is a list of the main tools that are currently used by VirtuDev.

- **Jira**
[Jira](#), by Atlassian, offers features to help you build collaboration and communication within your team and between your team and other stakeholders. The platform integrates with Agile scrum boards, Git, Confluence, and other packages so you can manage your team better with whatever tools you have.
- **Confluence**
[Confluence](#), also by Atlassian, is enjoying increasing popularity with team-managers. The platform offers tools for project planning, keeping meeting notes, managing project requirements, marketing plans, and blog posts.

- **GitLab**

[GitLab](#) is a wildly popular open-source SW development platform. As one of the largest code host platforms in the world, it is ideal for helping your team share code with you, or let your remote and local teams collaborate on projects.

- **Slack**

[Slack](#) is a teamwork collaboration hub that makes communicating with remote groups easy. The platform facilitates conversations, exchanging documents, announcements, and integrates with other popular software like GitLab.

But if PARTNER/CUSTOMER have specific recommendations or needs about using another tools for specific reason, then, it is discussed and evaluated by both side's experts to find best way to go.

During SW development process PARTNER/CUSTOMER can be a part of development proces as transparency principle, for instance, after every scrum sprints, during code merging, technical experts form PARTNER/CUSTOMER can make "code walk" activities with a lead SW developer from Virtudev to review the code that will be merged.

7. Operational Process

Operational process will be started after deployment of required product, Solution or Services to the end Customer properly.

Operational Services can be varied and identified by the customer request, basically it may include:

- Support and Maintenance Process
- Managed Service Process
- Product/Solution LifeCycle Management (Release Mangement)

VirtuDev as a Supplier will plan, manage and deliver the Operational Services of the delivered System to the End Customer based on mutually agreed SLA's.

This includes to Manage the incidents from an end-to-end perspective, coordinate activities that may require intervention for different team, following up that each team performs their activities within the SLAs.

The VirtuDev Operational Management approach would enable executive and operational stakeholders at PARTNER/CUSTOMER to define, track, and manage KPIs by providing greater visibility and insight into the services including real-time, automated views of service-level performance, trend analysis and reporting on delivery from multiple viewpoints—users, managers and executives—in order to verify that the operations function smoothly.