[SOME GROUP] Development Team

## New Developer Introduction

# Goal

To be the foremost creators of software on the .NET platform within [COMPANY]. We aim to be the definitive knowledge experts on the .NET platform, best practices, service orientation, and software architecture. We strive to create high quality solutions with minimal cost to help our business customers improve the way they work.

# Guiding Principals

* Develop and deliver projects within time and budget constraints, while providing the highest possible level of technical quality.
* Continue to define and pursue strategic goals, in addition to project fulfillment.
* Create reusable components, services, frameworks, guides, and examples that can be used within the [COMPANY] development community to improve the quality of our software and reduce development time.
* Apply a consistent set of standards and best practices to produce high quality software.
* Design for software security, stability, and performance, utilizing periodic code reviews to help achieve these goals.
* Strictly employ static code analysis, automated unit tests, and automated build processes.
* Participate in [COMPANY] developer community working groups as contributors and presenters.
* Adhere to all [COMPANY] core behaviors, practices, standards, and legal requirements.

# Technical Environment

Our focus is utilizing Microsoft .NET technologies and their supporting tools to meet business and technological needs. Applications are produced for the ASP.NET MVC, Windows Desktop/Tablet, and Windows Phone platforms.

All new development projects leverage the latest versions of C#, the .NET Framework, and Visual Studio. Support for existing applications written for older versions of the .NET framework will be supported and maintained in their current environment. If large-scale enhancements are scheduled for a legacy system currently targeting older platforms, the solution will be converted to the latest framework version, and the new development will be done using our current stack.

Oracle and SQL Server are the prevalent databases within the environment, employed and recommended equally. Oracle instances from 8i to 11g are used within the enterprise, with the majority being 10g, at this time. SQL Server versions 2008 and 2012 are in use, with most new development being done against 2012. All components of SQL Server are potentially leveraged for new project work including integration services, reporting services, and analysis services.

All projects, including proof-of-concept and technology demonstrations, are kept in source control. Currently, git is the standard repository within [SOME GROUP], though several different repositories may be found within the company. Currently, there is an initiative to standardize on one enterprise-strength repository for all development groups within the company. Among those in consideration are git, Microsoft’s Team Foundation Server, Mercurial, and Source Gear’s Veracity.

In order to keep code quality and development standards high, all projects utilize pull requests as the mechanism for integrating developer changes into the main repository. These pull requests are subject to code review by the project architect and lead, as well as other team members. Projects also leverage static code analysis tools. For current Visual Studio projects, the built-in static analysis tool is used, while FXCop provides the functionality for legacy projects in versions of Visual Studio that did not include bundled static analysis. Our current goal is to achieve 70% - 80% compliance with the default analysis recommendations. We are working to customize the ruleset to better align with our standards for greater relevance. Once complete, our goal will be 100% compliance.

Also in the interest of code quality and stability, all code is expected to be accompanied by a suite of automated unit tests. The tests are considered to be a living entity, and are being augmented continually such that they cover all defects that appear during the project’s lifespan. The core objective is to ensure that once a defect is uncovered and fixed that it can never appear again, as an automated test will expose it. This offers the benefit of regression test confidence, allowing more aggressive refactoring and enhancements to the code base with less effort spent in regression testing. To support our unit testing efforts, we are making use of the NUnit library using Moq for mocking, and FluentAssertions to enhance readability.

For building and deployment, a continuous integration system is used. The system is implemented using CruiseControl.NET as the web portal, and utilizing MSBuild as its build scripting tool. All changes checked into source control will trigger an automatic build to the development environment, with the repository being scanned every 5 minutes. Builds to test and production are built on-demand and stored in a staging area, where it is held until a promotion ticket is opened. Once the ticket is received, a member of the server support staff will coordinate the promotion schedule with the lead developer. At no time will any member of the development staff have access for a direct promotion into a test or production environment.

# Development Methodology

Global Shared Services, to which [SOME GROUP] belongs, can best be described as running like a non-profit internal consulting agency within [COMPANY]. Any business unit may solicit projects. The solicitation begins by the business unit providing a rough approximation of the project requirements that are used to estimate against. Estimates are produced by determining the expected number of person-days that a project will take to complete and applying a fixed daily rate against it. The business unit will consider the estimate and determine whether or not to pursue the project. Though it is not a frequent event, the business unit is free to entertain estimates from outside vendors in addition to those that we provide. If the business chooses to act on the estimate that we provided, then [SOME GROUP] will charge them the amount of estimate, in order to cover resource and infrastructure costs for development. As a non-profit department, our goal is to achieve a zero balance at the end of the year.

The project-based structure provides the benefit of allowing us to function as an autonomous development unit within the enterprise, not having strict business unit alignment. As a result, it becomes easier to define processes that offer some protection from problems such as unstable requirements and scope creep that plague many other environments.

In order to provide our clients the best service and value, we employ an agile development methodology. Our methodology does not strictly adhere to any of the formal agile methodologies, but most closely resembles extreme programming (XP). When an estimate is solicited, the rough project requirements are broken into features, each of which have an associated development cost. When considering the estimate the client has visibility into the identified features and their cost and may make adjustments accordingly.

Once the estimate is accepted and the project formalized, the features of the project are prioritized, scheduled, and broken into set iterations. One or more iterations are then packaged into a release of the application, allowing the client to derive benefit as early in the process as possible. The client may choose to allow an incremental release for end user consumption, begin user acceptance testing, or simply use it as a talking point for feedback.

Of the core values of agile development that we adhere to, the ability to embrace change is among the most important. The client is given a virtual credit of a set number of person-days, which may be spent as they wish. Clients are free to add, remove, or modify features and their priority, so long as those features are not scheduled in the current iteration. Each addition and change will have a cost estimated against it, which will be deducted from the remaining credit. Once the number of person-days that a client has funded reaches zero, no additional work can be performed, regardless of the current state of the project. Continued interaction and honest communication between the project manager and client help combat this situation, with the underlying goal of assisting the client to make informed decisions with awareness of the resulting tradeoffs. Clients may choose to initiate a change request and purchase more person-days to continue development if their needs have changed in such a way that development needs to continue beyond the initial person-days credit.

[COMPANY], as an enterprise, defines a formal System Development Lifecycle (SDLC) that is intended to be development methodology agnostic, but does draw heavily from the traditional waterfall methodology that the majority of the enterprise continues to use. As a result, most of the discussions surrounding development are peppered with waterfall-inspired terminology, especially when other [COMPANY] groups are involved.

The primary purpose of the [COMPANY] SDLC is to define what the required deliverables for a project are, focusing heavily on documents. All development within the organization is required to adhere to the [COMPANY] SDLC. As a result, deliverables and methodologies are defined very loosely, attempting to communicate the concept of a deliverable rather than its implementation. The underlying intent is to leave most content and format decisions to the individual development groups, while standardizing the type of information needed. Whether defined by the formal SDLC or our team, templates are available for most deliverables.

# Strategic Initiatives vs. Project Work

While the project-based structure provides the benefit of being an autonomous development unit within the enterprise, it also creates a project-driven environment where funding is concerned. Although we view people as valuable teammates, in the interest of maintaining financial integrity, we must also balance their resource cost against the project work to be completed. We must have enough project funding to cover the cost of all resources on the team, and all resources are allocated for project-based work.

The project-based nature of our funding makes it a challenge to balance the requisite project work against our strategic initiative of designing for reuse. Though the number of cases is growing, it is still rare that funding will be provided specifically for a strategic initiative. As a result, most of our reusable components, services, and frameworks begin life as a project-specific solution. As a project is implemented, all developers are asked to keep track of any implementation that may make a good reuse candidate and bring it to the project architect’s attention. The project architect will present the idea at the weekly architect’s stand-up meeting, leading it to be tracked on a list of strategic projects. When non-project time can be allocated from the budget, the component will be assigned to a developer, with architect support, so that it may be implemented. If at all possible, the developer who first identified, the reusable code is re-architected to a generic state from its project roots, polished, and released in its final form.

Due to the financial implications, project-based work will most often take precedence over any non-funded strategic initiatives. The impact of this is felt during the implementation of strategic components, as the development may be interrupted and/or not concurrent. Continued pursuit and achievement of our strategic objectives are important to both the [SOME GROUP] and Global Shared Services management teams. All reasonable efforts are made to provide as much strategic development time as possible, however, fulfillment of project obligations continue to be the primary driver in the environment. As a whole, [COMPANY] has begun to grow in a service-oriented direction, resulting in greater value being placed on strategic development. One of the key issues being addressed by the [COMPANY] executive community is the need for strategic development and how it should be funded. Their goal is to create a funding model that would allow strategic initiatives to be developed on equal footing with other projects.