**Project Background**

Throughout this course, you will be working on several aspects of software development process improvement that will result in a complete Software Development Process Improvement Plan for a hypothetical organization of your choosing. You will not be developing any software, but you will work extensively with the concepts of good software development processes.

**Part 1**

**Project Selection**

The first step will be to select a hypothetical organization and software category for your Software Development Process Improvement Plan. Examples would be a company that develops its own software for internal use, a company that develops software for external sale, or a company that provides contractual software development. This organization will be used as the basis for each of the assignments throughout the course and should conform to the following guidelines:

* **Nontrivial:** The selected organization should be large enough to allow reasonable exercise of the software development processes you will identify.
* **Domain knowledge:**You should be familiar with the organization or software category to allow focus on the software development processes without significant time required for domain education.
* **Accessibility:** You should have good access to the people and other information related to the organization or software category because this will be an important part of the process improvement.

Select an organization and software category that fits these requirements, and then submit your proposal to your instructor before proceeding further with the assignments in the course. Approval should be sought within the first several days of the course. Your instructor will tell you how to submit this proposal and what notification will be given for project approval.

The proposal should be a document of approximately half a page, with enough detail to explain the hypothetical organization and software category that you have chosen.

**Assignment Description**  
For the assignments in this course, you will not be implementing the actual project, but rather, you will be developing a comprehensiveSoftware Development Process Improvement Plan document. Your first task in this process will be to select a company and software category to use as the basis of your design. You will also create the shell document for the final project deliverable that you will be working on during each unit. As you proceed through each project phase, you will add content to each section of the final document to gradually complete the final project delivery.

The project deliverables for Week 1 are as follows:

* Proposal for company and software category to instructor for approval (1/2 page)
* Software Development Process Improvement Plan shell (document detailed below)
  + **Title page:** Should include course name and number, project name, student name, and date
  + **Table of contents:** Auto-generated, in a separate page and should be updated in each phase
  + **Section headings** (create each heading on a new page with TBD as content except for sections listed under "New content" below)
    - Project Outline (Week 1)
    - Process Improvement Background (Week 1)
    - Best Software Practices for Process Improvement (Week 2)
    - Metrics and Measurement Process Improvements (Week 3)
    - Software Quality Assurance Process Improvements (Week 4)
    - Risk Management Process Improvements (Week 5)
* **New content** (needs to be filled in for phase 1)
  + Project outline (1 page)
    - Identify the company and category of software developed.
    - List process improvement goals.
    - Material can be taken from the approved proposal submitted to instructor.
    - Be sure this project is approved by the instructor.
  + Process improvement background (2–4 pages)
    - Research current industry-accepted software development process improvement methods.
    - Choose the methods that you will use to guide your process improvement plan and justify your selection
    - Describe background material from your choice of industry-accepted software development process improvement methods.

**Part 2**

One of the major applications of process improvement is in the overall software development process. This section of the process improvement plan will focus on the areas that need improvements within the process, and the best practices that can be used to improve those areas. Starting with the goals established for the process improvement plan, examine your hypothetical company’s current development processes, identify its areas of improvement, and identify the best practices that can be applied as part of the improvement plan.

During this phase, you need to do the following:

* New Content:
  + Work within the subsection titled *Best Software Practices for Process Improvement.*
    - Identify the problem.
      * Identify the areas that need improvements within the organization, the process, or the team.
    - Identify the solution.
      * Identify at least 3 best software practices that fit the organization that you selected to improve.
      * Provide brief descriptions of each of those practices.
    - Justify the solution.
      * Make sure that you justify your selection for each practice and how it will improve the process.
    - Implement and communicate the solution.
      * Provide a plan to implement and communicate those improvements, and analyze the potential benefits that these improvements will have on the organization and its processes.

**Part 3**

The measurement of key indicators is vital to the success of a project. Many times, process improvements are introduced, but there is little attention given to the measurement of the project in ways that will indicate success or failure. The next step in your Software Development Process Improvement Plan is to examine the metrics and measurement processes to determine if improvements were achieved as planned.

During this phase, you need to do the following:

* New Content:
  + Work within the subsection titled *Metrics and Measurement Process Improvements*.
    - Identify at least 3 metrics to measure the improvements that you have been working on with the organization.
    - Provide sufficient detail on each metric, including its definition, how to collect it and who does the collecting, and how to analyze it and evaluate it.
    - List any difficulties that might inhibit the collection and evaluation of these metrics within your selected organization, as well as how to overcome those obstacles.

**Part 4**

**Key Assignment Draft**

The next step in developing the Software Development Process Improvement Plan document is to look for opportunities for process improvement in the software quality-assurance area of your software development group. This is an area that is often overlooked in process improvement, but it can provide good benefits.

During this phase, you need to do the following:

* New Content:
  + Work within the subsection titled *Software Quality Assurance Process Improvements*.
    - Describe at least 3 areas in which process improvement would be appropriate in the software quality assurance processes for software development within your selected organization.
    - Identify the specific process improvements that will be made to address the process deficiencies.
    - Provide sufficient detail on how you are planning to implement and communicate each improvement.
    - Justify your selections with an analysis of the potential benefits of the improvements.

**Part 5**

**Key Assignment**

The next step is to turn your attention to the area of risk management processes. Risk management can help reduce the effects of problems as they occur. This is often the key aspect of a successful project. Attention to the processes involved in good risk management is an important part of the process improvement.

Finally, you will further refine the Software Process Improvement Plan to produce the Final Key Assignment. Updates may be based on peer and instructor feedback.

The project deliverables are as follows:

* New Content:
  + Work within subsection titled *Risk Management Process Improvements*.
    - Discuss the importance of risk management, and identify the key factors in a good risk assessment process.
    - Describe at least 3 areas in which process improvement would be appropriate in the risk management processes for software development within your selected organization.
    - Identify the specific process improvements that will be made to address the process deficiencies.
    - Provide sufficient detail on how you are planning to implement and communicate each improvement.
    - Justify your selections with an analysis of the potential benefits of the improvements.
* Software Process Improvement plan
  + Review the entire document for any changes and improvements that you would like to make.
  + Ensure that this final version of the document is sufficiently detailed to allow the organization to implement the proposed process improvement plan.
  + Any previous instructor feedback should be addressed with appropriate changes.
  + Ensure that your final document contains each of the following sections:
    - Process Improvement Background
    - Best Software Practices for Process Improvement
    - Metrics and Measurement Process Improvements
    - Software Quality Assurance Process Improvements
    - Risk Management Process Improvements