Sim4Projects™

A Project Management Simulation for Classroom Instruction

PLAYER QUICKSTART MANUAL

Version 2.8

Players' Manual for use with SIM4PROJECTS™
Jeffrey K. Pinto, Ph.D. and Diane H. Parente, Ph.D.

Published by SimProfessionals LLC. Copyright © 2009
Copyright McGraw Hill Irwin © 2000-2009. All rights reserved.
No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval
system, without the prior written consent of SimProfessionals, LLC, including, but not limited to, in any network or other
electronic storage or transmission, or broadcast for distance learning.

www.simprofessionals.com
www.Sim4Projectsonline.com
Preface

Sim4Projects™ is a web-based computer simulation that is intended to teach the principles of project management. It allows an instructor to set up a simulation, form teams of students (or allow them to play individually), and to illustrate and practice “project management.”

This manual is a primer for players to supplement the instructor’s lectures.

The authors especially recommend that Players include reading the Appendix in your review of the Player Quickstart.

Too many current project managers continue to learn their craft through baptisms by fire, with minimal advance preparation. This approach is expensive to their companies and discouraging to these individuals. In the past, this approach was necessary because formal project management training was often lacking and options such as project simulations nonexistent. Fortunately, this is no longer the reality. Sim4Projects™ is a valuable tool for training successful generations of future project managers. We genuinely hope that you find Sim4Projects™ a valuable, thought-provoking, and useful component for learning project management. We wish you the best of luck and success with all your projects!
Contents
Preface..................................................................................................................................................... i
Table of Figures ................................................................................................................................... iii
1 Quick Reference Guide................................................................................................................... 1
  1.1 Overview of Sim4Projects ...................................................................................................... 1
    1.1.1 What are the technical requirements of the simulation? .............................................. 1
    1.1.2 How is the simulation structured? ................................................................................. 2
  1.2 Players .................................................................................................................................... 3
    1.2.1 Registering as a Player .................................................................................................... 3
    1.2.2 Making Decisions ............................................................................................................ 6
    1.2.3 Interpreting the Results ................................................................................................ 17
  1.3 Summary ............................................................................................................................... 21
2 Appendix to Player Quickstart...................................................................................................... 22
  2.1 Appendix 1: Auto Assignment .............................................................................................. 22
  2.2 Appendix 2: No Auto Assignment......................................................................................... 29
## Table of Figures

Figure 1 Browser Procedure Instructions .................................................................................................................. 2  
Figure 2 New Player Registration ................................................................................................................................. 4  
Figure 3 Registration Code Screen ............................................................................................................................... 4  
Figure 4 Registration Code Screen ............................................................................................................................... 5  
Figure 5 Security/Profile Information ............................................................................................................................ 6  
Figure 6 Player Decision Screen ..................................................................................................................................... 7  
Figure 7 Period Decision-Making Screen ...................................................................................................................... 7  
Figure 8 Resource Page .................................................................................................................................................. 8  
Figure 9 Resource Selection ........................................................................................................................................... 8  
Figure 10 Adding a resource ......................................................................................................................................... 9  
Figure 11 Resource Bidding ......................................................................................................................................... 9  
Figure 12 Selecting a Resource to Remove ................................................................................................................ 10  
Figure 13 Removing a Resource ................................................................................................................................ 10  
Figure 14 Verify Resource Removal .......................................................................................................................... 11  
Figure 15 Training Catalog ......................................................................................................................................... 11  
Figure 16 Training Assignment Screen ....................................................................................................................... 12  
Figure 17 Managerial Actions Catalog ...................................................................................................................... 13  
Figure 18 Managerial Action Assignment .................................................................................................................. 13  
Figure 19 Period Tasks ................................................................................................................................................ 14  
Figure 20 Resource Assignment to Task ..................................................................................................................... 14  
Figure 21 Resource Assignment Percentage ............................................................................................................ 15  
Figure 22 Task Assignment Results ............................................................................................................................ 15  
Figure 23 Period Task Screen ..................................................................................................................................... 16  
Figure 24 Submit Decision Screen .................................................................................................................................. 16  
Figure 25 Team Results Interpretation ...................................................................................................................... 17  
Figure 26 View Period Results ................................................................................................................................... 19  
Figure 27 Period Results Interpretation .................................................................................................................... 19
1 Quick Reference Guide

1.1 Overview of Sim4Projects

Conceptually, players manage a project. The project Gantt chart is the foundation for a simulation. You may think of the project Gantt chart as residing within Sim4Projects. Players make decisions as to which resource to hire or fire, whether to train a resource to improve their individual attributes, when to invoke a variety of managerial actions for motivation (e.g. hold a pizza party), and which resource to assign to each of the tasks. During processing, Sim4Projects takes the decisions made and calculates the “actual” time and cost for each task based on the decisions. Sim4Projects then interacts with Microsoft Project™ to create the project file (.mpp file) including the actual results from each round as it is played.

One common problem with computer simulations is that students may obtain information from prior students that will allow current students to have a competitive edge. We call this “simulation carryover.” In order to minimize this phenomenon, Sim4Projects sets up simulations that are as different from each other as in standard practice. A new and different simulation is generated by Sim4Projects each time an instructor creates a simulation for a class. There are almost an infinite number of variations on the simulation’s basic templates.

1.1.1 What are the technical requirements of the simulation?

Sim4Projects is a web-based computer simulation used to enhance instruction of project management. Sim4Projects works with MS Project in a Windows environment. Please note that MS Project must be installed on the computer accessing Sim4Projects or be available on computer lab machines if students are using a lab environment. MS Project need not be open as Sim4Projects will call and open MS Project as it is needed. However, new security measures on Internet Explorer make it necessary to download the mpp file to a local drive and open using MS Project from the local drive. Using IE, you will be able to open the mpp file but you will not be able to use the total functionality of MS Project. If you use another browser, you will be able to interact with Sim4Projects and download the MS Project file in exactly the same way. A Windows platform is needed to use MS Project.

However, you may also use a MAC platform. The browser will work in exactly the same way and you may save the mpp file to a local drive. Since MS Project is not available for a non-Windows platform, you should be prepared to use different project management
software capable of reading the mpp file. OpenProj is an open source project management software that is capable of reading the mpp file.

Although Sim4Projects will work with many browsers as noted above, it was designed to work with Internet Explorer versions prior to IE 8.0. Since IE 8.0 has implemented enhanced security features and may block some websites, the simple process listed below will handle these security issues. This process is also given at http://www.Sim4Projectsonline.com/cookies.aspx.

In order to utilize the Sim4Projects application, you must have cookies enabled and register us as a trusted site. If you are using Internet Explorer, please follow the instructions below:

1. Click on Tools → Privacy Tab → Sites
2. Add www.simprofessionals.com and www.sim4projectsonline.com to the box labeled “Address of Website” and click Allow for each.
3. Then go to the Security Tab and make sure Trusted sites is selected, then click on the Sites button.
4. Enter www.simprofessionals.com in the box here and click Add (Make sure the require server verification box is unchecked.)
5. Click close and then OK to apply the new settings.

Once you have added us to your trusted sites, do the following to clear any cached pages:

1. Click on Tools → Internet Options → General Tab
2. Click the delete button under the browsing history section.
3. Make sure the “Temporary Internet Files” is checked and hit OK
4. Click the settings button under the browsing history section.
5. Make sure that “Every time I visit the web page” is selected and hit OK.

Make sure you close and restart your browser so the new settings will take effect.

Figure 1 Browser Procedure Instructions

1.1.2 How is the simulation structured?

Sim4Projects™ is organized in two parts. The first part is called Pre-Play in which resource bidding takes place. The second is Period Play or Round Play. This is the formal part of the project from the Start node to the Finish node. Pre-Play is the portion of the simulation prior to the beginning of play that allows players to staff their virtual project team. If the instructor chooses this mode of no auto-assignment, players will have one or more rounds in which they bid on resources to staff their projects.

On the other hand, auto-assignment is the mode in which players are given a set of resources. They start period 1 of the project immediately with a fully staffed, randomly appointed set of virtual team members.
The portion of the simulation that occurs before the “Start node on the Gantt chart” is called Pre-Play. The only decisions that can be made in Pre Play are the selection of resources. Players may bid for virtual resources during the pre-play periods. Your instructor may run as many pre-play rounds as he/she chooses prior to beginning play. (Note that instructors may also choose to begin the simulation with Play and not participate in resource bidding and selection rounds. The simulation will automatically populate each team with resources if that option is chosen.)

The virtual project begins during “Play” or at the Start node on the Gantt chart. The underlying Gantt chart of the project is divided into 12 periods. Once the simulation play begins, the teams compete against each other, period by period.

The length of a period in the simulation is not measured in traditional units such as weeks or months. All teams must complete all of the tasks for each period. They must reach the next milestone. In the simulation, the amount of time it takes for each team to accomplish this is a period. The length of time for a period is the amount of time between milestones on the Gantt chart. All teams start each period at the same point on the Gantt chart. It will simply take the teams differing amounts of time to complete the period tasks and that is the length of a period for that team.

1.2 Players
An overview for players is presented in the pages that follow.

1.2.1 Registering as a Player
1. On the website at www.Sim4Projectsonline.com in the area for New User, players click on “register now” as shown in Figure 2.
Figure 2 New Player Registration

2. A registration (or access) code is a unique 9-digit code that each player is required to have to participate in the sim. Generally, schools will arrange for their bookstores to carry the codes. The codes may also be available from various online sites. However, be sure that the code acquired (from whatever source) is ISBN 978-1-4675-9205-5. See NEWS Section of website for status of previously issued ISBN numbers. (Note that codes are one-time use only!) The 9-digit code should be entered into the boxes marked by the red arrow in Figure 3.

Figure 3 Registration Code Screen
3. The instructor will provide the entire class with the Simulation Code that was generated for your specific class. Players enter the 7-digit Simulation Code into the boxes marked by the green arrow in Figure 4.
4. Players then click on New User as indicated by the blue dashed arrow in Figure 4.

![Figure 4 Registration Code Screen](image)

5. You will then be presented with the Security/Profile Information in Figure 5. Once you complete all information requested, you will create a User ID and password to enter Sim4Projects. You will not need the Registration Code or the Simulation Code again. Just in case you cannot remember your information, the instructor can access it for you. However, you should write it down so that you have immediate access to what you created.
Once players register, your instructor will assign you to teams. You must be assigned to a team before you are able to see the simulation. Once you are assigned to a team and your instructor has initiated Play or Pre-Play, you can use your User Name and password to enter the class simulation and make decisions.

1.2.2 Making Decisions

Players may make four types of decisions:

- **Resource decisions** – add or remove resources from the project
- **Training decisions** – send resources to training classes
- **Managerial actions** – take management actions to influence resources
- **Period tasks** – assign one or more resources to each task for the period

When players select the simulation, they are presented with the Project Information as shown in Figure 6. They can click on Make Period Decisions as shown by the red arrow.
After selecting Make Period Decisions, players are presented with the Period Decision-Making Screen in Figure 7. In the next sections, we will walk through the selections for Resource Decisions, Training Decisions, Managerial Actions, and Period Tasks. Project Tasks are the last selection and present the players with the opportunity to view all project tasks and to sort by task group, period, hours, and also to view the MS Project plan for the entire project.

1.2.2.1 Making Resource Decisions

Resource decisions are made by clicking on the Resource Decisions in Figure 7. You will then be taken to the Team Resources page as shown in Figure 8. This page shows the resources currently on your team. At this point, you may either add resources to your team or remove resources from your team. First, we will discuss adding a resource.

1.2.2.1.1 Adding a Resource

The first step in adding a resource is to see who is in the pool by clicking on View Resource Pool as shown by the red arrow in Figure 8.
The Resource Pool will be presented to the player as shown in Figure 9. You may see additional attributes of a particular resource by clicking on one of the names in the Resource Pool, say for example selecting the resource shown by the red arrow in Figure 9.

More specific information on that resource will appear as noted in Figure 10. If the player decides to bid on that resource, they click on Add Resource as shown by the red arrow.
Then the player will see the screen in Figure 11. The player will then type in the hourly rate offer in the box shown by the red arrow and submit the offer by clicking the button near the green arrow.

The offers will be noted on the players’ screens as “offered” but will not be placed on a particular team until the instructor processes the bids in either Pre-Play or Play. It is during the processing that the resolution of which team wins the bid for a specific virtual player is determined. Players are advised in the View Period Results section as to whether they obtained the resources in the competitive bidding and, if not, why not.

There is a table in the software that defines the optimal number of each resource category to complete the project. That number, by definition, is always either one (1) or two (2) depending upon the resource category. You are allowed to try to hire up to two (2)
times this optimal number for your virtual team. The software will restrict you from bidding for more than you are allowed to carry on your team.

1.2.2.1.2 Removing a Resource

If you would like to Remove a Resource, begin at the Resource Page in Figure 12 below (This is the same screen as shown in Figure 8 on page 8.) by clicking either the name of the resource or view as shown by the red arrows.

Figure 12 Selecting a Resource to Remove

Figure 13 Removing a Resource
When you select the resource to be removed, the screen in Figure 13 appears. Click on the Remove Resource button. The screen in Figure 14 appears. Note that the player is asked to confirm that they really want the resource removed from the virtual team. The resource will be removed instantly even before the instructor processes the round. The specific resource will not accept any offers from your team for two periods. Additionally, they are available immediately for other teams to bid on.

![Figure 14 Verify Resource Removal](image)

Concluding the section on Resource decisions, players may make Resource decisions in either Pre Play or Play. However, in Pre Play they can only make Resource decisions.

### 1.2.2.2 Making Training Decisions

**Training Decisions** may be made in Play rounds. Players may view the Training catalog as shown in Figure 15. In this graphic, they can see the duration and cost of the specific training event in addition to the total number of slots available and the number remaining. Finally, the graphic will show how many persons on their team are assigned to the training event.

![Figure 15 Training Catalog](image)

When the player clicks on the class as shown by the red arrow in Figure 15, more information appears in addition to the assignment screen shown in Figure 16.
A player may assign a virtual resource to training by highlighting the name in the right, as shown by red arrow #1 in Figure 16, then clicking on the Add button as shown by red arrow #2, and moving the name to the left-most box as shown by red arrow #3. When players assign resources to training, they must plan for the time and cost of the training. They also must remember that training occurs first in a period. Therefore, assigning any resource to training and to the first activity in a period will, by definition, delay the completion of the period.

1.2.2.3 Making Managerial Action Decisions

Managerial Action decisions may be made in Play rounds. Players may view the Managerial Actions available as shown in Figure 17. In this graphic, they can see the name of the managerial action and the cost per resource. They can also see how many resources have been assigned to each Managerial Action.
Players may select a Managerial Action by clicking on the name of the action as shown by the red arrow in Figure 18. Players can view additional information about the Managerial Action. A virtual resource may be assigned to the Managerial Action by highlighting the name in the right-hand box shown by red arrow #1, clicking the Add button shown by red arrow #2, and the name will then appear in the right-most box shown by red arrow #3.

1.2.2.4 Making Period Task Decisions

The last of the four possible decisions that may be made by players is the Period Task Decision or the assignment of virtual resources to tasks for the period. When clicking on Period Task in Figure 7, the screen in Figure 19 is displayed. In order to assign resources to a task, players must first select the task. In the example shown in Figure 19, the player
clicks on Identify Vendors (as shown by the red arrow) to assign a resource to the task for this period.

**Figure 19 Period Tasks**

When the player clicks on a task, such as Identify Vendors, the Resource Assignment screen appears as shown in Figure 20. Additional information on the task is shown under Task Information. Players can see the estimated or budgeted hours and cost, task description, and task dependencies at the point when they are assigning resources.

**Figure 20 Resource Assignment to Task**
Resources may be assigned to tasks by clicking on the resource name as shown next to red arrow #1 in Figure 20, clicking Add as shown next to red arrow #2, and then the resource moves to the left-most box as shown near red arrow #3.

Figure 21 Resource Assignment Percentage

When the Resource Allocation screen (Figure 21) appears, players will allocate the percentage of time the virtual resource will work on that task. A percent allocation of 100% means that a resource will work 8 hours per day on that task until the task is done. If they assign less than 100% and there is no concurrent task, the resource may be wasting the balance of their time without progressing on tasks.

One common mistake of students in the resource allocation process is that they fail to treat this activity as a real project and pay no attention to the Gantt chart for the project. They totally disregard concurrent tasks.

Once the task assignment is made, players click the Assign button as shown in Figure 21 and the screen shown in Figure 22 appears. After checking the assignment for the task, players click OK at the bottom of the screen as shown by the red arrow in Figure 22. Please note that you may only assign two resources to each task.
The system returns players to the Period Task screen as shown in Figure 23 where players can proceed to assign resources to each task. When all tasks have been assigned resources, the player clicks Done at the bottom of the screen as shown in Figure 23.

**Figure 23 Period Task Screen**

When the player clicks “Done” in Figure 23, the Submit Decision Screen in Figure 24 appears. Then the players then click on the Submit Decisions button as shown by the red arrow in Figure 24 to complete the process and record the time and date that decisions were submitted. Thus, your instructor is sure that you have met the submission deadline.

**Figure 24 Submit Decision Screen**

All four of the decisions types may be made in Play rounds, although the only required decision type is Period Tasks or assigning resources to tasks. If resources are not
assigned by the team, the simulation will assign resources to tasks in a random manner which usually results in a lower score.

1.2.3 Interpreting the Results

1. The TEAM STANDINGS CHART is shown near the top of the View Period Results page (see Figure 25). The results are displayed for each of the four key factors: Cost, Time, Functionality, and Stakeholder Satisfaction. In addition, the Overall score is provided (see the red arrow in Figure 25). The overall rank is the calculated percentile for the teams with 100 as the best and 0 as the worst of the set. By clicking on the Team Name, you can see your individual results.

Teams

![Teams Chart](image)

**Figure 25 Team Results Interpretation**

Remember that the scores are displayed on a PERCENTILE basis. One advantage of using percentile scoring is that it provides teams with a relative score compared to the other teams. The team with the best metric will be shown with a score of 100%, while the team with the worst metric will be shown with a score of 0%. (It does not mean that the team has a "score" of 0%.)

The authors suggest that you look at the four factors (Cost, Time, Functionality, and Stakeholder Satisfaction) separately.

Cost

The cost metric is measured by a deviation from budget that rewards a team that is closest to the budget.

The Period Results page provides the budget status, as well as the detail behind the budget charges for the period. You can also go back to any previous period by clicking on
the "Period Ranks" section. Additionally, MS Project provides many reports that can be used to analyze the team's Cost performance.

Time

The simulation calculates the actual time for each task based upon the decisions made and then sends the data to MS Project. MS Project performs the load-leveling task and returns the elapsed time for the period to Sim4Projects. The Finish Date is then displayed in the Period Milestone section of the page. MS Project has many reports that can be used to analyze the Time performance of the team.

Functionality

In the real world, the measure of Functionality is whether the project achieves what it was intended to do. Since this is a subjective factor, the simulation uses a proxy for scoring purposes.

Functionality is the measure of the average % completed for every task up to the current period. The percent task completed is determined by how much of the task the resource completed during the estimated time. For example, if a task is estimated at 40 hours and the team finishes it in 50 hours, the percent complete would be:

$$\frac{\text{estimated time}}{\text{actual time}} \times 100 = \frac{40}{50} \times 100 = 80\%.$$  

The most important factors in achieving a good functionality score are whether you are assigning the right category of resource and if those resources are completing the tasks on budget.

Stakeholder Satisfaction

Like Functionality, Stakeholder Satisfaction is also a rather subjective factor. Satisfying stakeholders on a real project is a function of whether the stakeholders are pleased. Both external and internal stakeholders are considered. The external stakeholder score is impacted by time, cost, and functionality scores (or how consistently the tasks are completed during the estimated time). The internal stakeholder score is impacted by how often the team met milestones, the interpersonal skills of the virtual team and the management style of the virtual team. Therefore, this is a result of whether the project is coming in on time and if the interactions with the project team are positive.

2.) MS Project files for the period are accessed by clicking on View MS Project Plan (as shown by the red arrow in Figure 26). MS Project provides a wide variety of reports including a budget variance on a task by task basis. All of the reports that are provided by
MS Project provide the team's virtual project data. The reports will provide information to diagnose project performance.

**Teams**

<table>
<thead>
<tr>
<th>Team Name</th>
<th>Time</th>
<th>Cost</th>
<th>Functionality</th>
<th>Stakeholder</th>
<th>Overall</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team 3</td>
<td>100%</td>
<td>0%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Team 2</td>
<td>37%</td>
<td>100%</td>
<td>0%</td>
<td>2%</td>
<td>49%</td>
<td>2</td>
</tr>
<tr>
<td>Team 1</td>
<td>0%</td>
<td>88%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Note: Overall score is weighted: Time (35%), Cost (35%), Functionality (15%), Stakeholder (15%)*

![Image](image.png)

**Figure 26 View Period Results**

3.) In the following section, we discuss additional information/reporting areas on View Period Results Page which is illustrated in Figure 27.

**Financials & Statistics**

<table>
<thead>
<tr>
<th>Beginning Budget</th>
<th>$215,775</th>
<th>Team Efficiency</th>
<th>76%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period Costs</td>
<td>$24,365</td>
<td>Team Cohesion</td>
<td>69%</td>
</tr>
<tr>
<td>Adjustments</td>
<td>$0</td>
<td>Team Composition</td>
<td>86%</td>
</tr>
<tr>
<td>Remaining Budget</td>
<td>$191,410</td>
<td>Team Longevity</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Adjustments are due to financial impact of events*

**Task Actuals**

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Category</th>
<th>Effective</th>
<th>Allocated</th>
<th>Efficiency</th>
<th>Hours</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kurt Hardcastle</td>
<td>Junior Marketing</td>
<td>75%</td>
<td>80%</td>
<td>53%</td>
<td>175</td>
<td>$11.375</td>
</tr>
<tr>
<td>Design verification activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verification design review</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 27 Period Results Interpretation**
Team Factors (a)

In a real world scenario, Team Efficiency would be a measure of a number of factors. This is how well the team is performing in terms of meeting the milestones, as well as how well they are managing the process. These factors include such things as how well the team gets along (cohesion), the team composition (e.g., diversity of skills, age, experience, gender, and ethnicity), the movement of personnel on and off the team (team longevity), and how well the team implements rewards and discipline (managerial actions). The score for Team Efficiency is given as a percentage and displayed on the Period Results page in the Financials and Statistics portion of the page (see Figure 27).

Team cohesion is how well the team gets along, as determined by the various individual attributes. The higher the score, the better.

Team composition has to do with diversity: diversity of gender, diversity of skill levels, and diversity of ethnicity. Too much diversity is not good, nor is too little.

Team longevity is a measure of how much the team is “churning” resources. A low percent score indicates significant turnover of the virtual team or the core of the team has not been together for as much of the project as a higher score. Research shows us that teams with a low longevity score are less efficient since they are constantly forced to bring new people up to speed. Likewise, a longevity score that is too high indicates that the team has brought on people and just kept them. As such, those resources cannot always be effectively assigned, resulting in a lower Team Efficiency score.

Period Milestone achieved (b)

In the real world a team would either achieve or not achieve a milestone. The simulation gives credit in the scoring to a team for coming close to their milestone. The cutoff for credit is set by the Instructor when they create the class simulation. That cutoff percentage may be seen on the Period Results page under period Milestone.

Unallocated Resources (c)

If you hire a resource in the real world, your budget is charged for their rate whether you assign them to a task or not. The simulation reflects this "bench penalty" with an Unallocated Resources charge. If you do not assign a resource to a task or training for at least 25% of the elapsed time for the period, the team will be charged the difference between the actual assignment time and 25% of the elapsed time for the period. This charge will appear in the Period Cost section of the Period Results page.

Effectiveness rating (d)
Effectiveness refers to the assignment of the best category of resource to a task (e.g. Did you assign a plumber to perform plumbing work?). While all virtual resources can perform all tasks, there is a single best category for each task. The higher the Effectiveness is for a task, the closer you were to assigning the right category for the task and the better your overall score.

**Efficiency rating** (e)

While it is important to assign the correct category of resource, all resources in the same category are not equal. In other words, all engineers are not created equally in the sim or the real world. The virtual resources all have different individual attribute scores. Not all (say) engineers work the same. Some are more efficient than others. To increase the score in this area, consider Training or Managerial Actions that may increase efficiency.

**Allocated Hours** (f)

When a resource is assigned to a task, the sim asks what percent of the time of that resource is to be allocated. If the team assigns the resource for 100%, that means the resource will work on the task for eight (8) hours a day until the task is complete.

This reveals the concept of work or man hours and elapsed hours or duration. The sim calculates the work hours needed for a task and the elapsed hours it will take the actual person assigned to come up with the elapsed hours or duration. Then, the elapsed time it will take to finish the job will be based on the number of hours per day that will be put on the task.

If the team is not doing well in the TIME metric, it may be that they are allocating resources on a lower percentage. As such, it will take longer to complete the task.

**Actual Hours** (g)

To determine the charge for Resources Costs in the COST section, the simulation first calculates the ACTUAL HOURS used for each task. The simulation uses a weighted formula based upon EFFECTIVENESS + EFFICIENCY + TEAM EFFICIENCY. The actual hours are then multiplied by the rate paid to the resource(s) used to complete the task.

1.3 **Summary**

The Quickstart Manual will help you to navigate the basic decisions of the simulation. The simulation is extremely realistic. As such, if in doubt about a decision, treat the simulation as a real life project.

**Good luck with your play!**
2 Appendix to Player Quickstart

The purpose of this section of the Quickstart is to help Players transition from Registration for the simulation to the first decision-making period.

Background

Your instructor selects the parameters that define your class virtual project. There is a wide range of options that allow the Instructor to match the simulation to your class makeup.

The first decision your Instructor makes is whether to Auto Assign the virtual resources to your virtual project or to allow the Players to hire their virtual team.

The startup to the simulation is slightly different depending upon which option your instructor selected.

If your Instructor selected “Auto Assignment,” please go to 2.1 Appendix 1: Auto Assignment on page 23 of this document. If your instructor selected “No Auto Assignment” please go to 2.2 Appendix 2: No Auto Assignment on page 29 of this document.
2.1 Appendix 1: Auto Assignment

Simulation Overview

The simulation is a flexible, parameter driven, team based exercise facilitated by your instructor. Once you have registered, your instructor will assign you to a team. You cannot access any of the simulation functionality until your instructor assigns you to a team and starts Play.

Simulation Concept

Student teams compete against each other to obtain virtual resources. Your mission is to obtain and manage those resources, including assigning the resources to complete the virtual tasks of the project in an optimal manner.

Your decisions are evaluated by the simulation in four (4) areas: time, cost, functionality, and stakeholder satisfaction. The team with the best score in each area is given a ranking of 100% and the team with the worst score is given a ranking of 0%. Other teams are pro-rated. This percentile scoring provides you with the exact positioning of your team on a relative basis rather than just the "place" of your team.

Please note that the four scoring areas are "weighted" in their importance in scoring the completed project. The simulation allows you to take the concepts taught by your instructor and obtain "hands on" experience completing a challenging and realistic virtual project.

Period Play

There are a maximum of 12 decision making rounds (periods) in the simulation. You may play less than 12 rounds due to the length of your semester. Your instructor will provide a schedule, including the deadline times for submitting your team decisions each period. Each of the periods is played discretely, but the sum of all the decisions will comprise the completed project.

In order to insure uniformity in the tasks completed, the tasks for each period are defined by the simulation. The tasks are the same for each team, and each team MUST complete the tasks for each period.

The point at which the tasks for a period have all been completed is known as a milestone. A period for the simulation is the amount of time it takes a team to complete the tasks for that period. In other words, it is the amount of time it takes to reach the next milestone.
Staffing of resources

When your instructor creates the teams, the simulation creates a pool of virtual resources. You will use this pool to bid on resources you wish to hire. The resources you hire can be assigned to the tasks that must be completed.

The simulation will create enough of each category (type) of resource to insure all teams the potential of hiring the resources they want.

However, to get you started prior to period 1, the simulation assigns one of each category of resource, at random, to each team. When your instructor starts Period Play, you will be in Period 1.

Period Decisions

There are four (4) types of decisions that you MAY make each period.

1. Hire/release resources
2. Assign resources to tasks and control the (%) allocation of their efforts
3. Send resources to training to increase their skills
4. Take various managerial actions that affect your virtual team

The only mandatory decision is assigning resources to the period tasks. You may be satisfied with your virtual team and you do not have to hire or release anyone. Likewise, you do not have to take managerial actions...nor send anyone to training.

Resource Management

How do you know what type of resource to hire...and which specific resource to hire?

The simulation provides information that you must use in order to address that question. There are no pre-determined answers to the question. There is no “perfect” solution. There is simply your development of a resource management strategy and the implementation of that strategy.

However, there are steps you can take to optimize your play of the simulation:

1. Click on the Simulation Information button and familiarize yourself with the information provided about your specific virtual project.

2. Click on the View Resource Categories button to obtain a description of the work that each type of resource category performs. Use this information to try to match the best “type” of resource to each period task.

3. Click on the View Projects Tasks button to see all the tasks that you must complete. Click on the name of any task and you will be provided with specific background information about that task. This includes the task description, task group and estimated hours required to complete the task.
4 Click on the **Resource Pool** and use all of the information available to try to match resources to the tasks to be completed.

5 On a real project, one would not wait until the start of a period to try to hire the necessary resources for that period. Likewise, a simulation rule is that you cannot hire AND assign a resource to a task in the same period. Therefore, plan ahead and see what tasks have to be completed to try to obtain the resources you will need. You must bid for resources **no later** than the period before you wish to assign them to a task.

6 The simulation cannot predict your resource strategy and therefore staffs your initial team with one resource from each category. If you do not need or want any of the resources assigned to you, you may remove them from your team as soon as your instructor starts Play. Likewise, if you want to bid on different resources, you may do that during the decision making process for any period. If you have the winning bid, those resources will be awarded for the start of the next period. However, remember that you must assign resources to tasks in Period 1, so do not remove all of the resources you were assigned.

7 There is no right or wrong answer as to which resource to try to hire and how much to bid. This process is a function of your resource management strategy. Be flexible. As you observe your bidding results you may need to adjust your strategy.

**Consider:**

A. The resource bidding is competitive with the other player teams. If you try to hire the best resource in a category, other teams may also be bidding for that resource. You may not be successful in trying to obtain that resource....or, you may have to bid above the standard rate in order to win the bid.

B. The information for each virtual resource includes a "standard rate". That rate is only a guideline to help you bid. You may bid less, but you run the risk of being outbid, or not meeting the minimum bid. You may bid more than the standard rate if you are concerned about being outbid. Remember that all resources are not equal in ability. Generally, the lower the standard rate, the less efficient the resource will perform.

C. A required task might have a high number of estimated hours. If so, your strategy must reflect whether you assign one resource to that task or whether you hire and assign multiple resources to that task in order to complete it more quickly. Another option is simply to allocate the resources assigned at a higher percentage.

D. In the real world, if you hire a resource and do not assign them to a task, you must still pay that resource. The simulation reinforces that concept with a "bench
penalty” called the **Unallocated Resources** charge. You must assign all resources to tasks or send them to training for at least 25% of the elapsed time of the period. Otherwise, your budget will be charged up to 25% of their salary. This charge may influence the timing of a hiring decision. If you hire a resource too far in advance and do not use them, your budget will be charged with an Unallocated Resource charge. At the same time, you may be willing to absorb this charge by hiring in advance of need and being assured of obtaining the resource.

E. When you assign a resource to a task, the simulation will ask you to allocate the percent of time the resource works on that task. A 100% allocation means the resource will work 8 hours per day until that task is completed. A 50% allocation means that the resource will work 4 hours per day until the task is completed. The lower the allocation, the more days it will take to complete the task.

F. You may elect to Remove a resource if you no longer want them on your virtual team. When you Remove a resource, they are deleted from your team immediately. That is, it will happen before your instructor “processes” for the current period. If you Remove a resource, you may not hire back that same resource for two periods. However, if you Remove a resource, that resource is placed back into the Resource Pool and may be bid on immediately by another team.

In addition to Resource Management decisions, you may also make Training decisions and take Managerial Actions in any "play" round.

**Training Decisions**

All virtual resources in the simulation have 9 attributes such as training, experience and work ethic. Just like the real world, not all resources in a category have equal ability.

The simulation scoring metric uses these attributes to determine how efficiently a resource works on a task when you make your resource assignments.

The simulation provides a Training section with different Training courses that are available. You may send a virtual resource to training in order to impact their abilities and therefore influence your score.

**Training Decision Considerations**

You are provided certain fundamental information about each course and you should also be aware of the following:
1. Training takes place FIRST in a period. If you send a resource to training AND assign them to a task that period, they cannot work on the task until they complete the training course.

2. The simulation treats training like the real world. However, you are not given the values for impacts of your training decisions. Additionally, be aware of the following training concepts:

   - **Period Lag**
     A resource does not necessarily have improved abilities immediately after finishing a course. The impact may lag for one or more periods.

   - **Lasting Effect**
     Simply sending a resource to training does not guarantee the new skill set will last forever.

   - **Diminished Returns**
     Sending a resource to the same training twice does not necessarily make them “twice as good”.

**How does one know the impact of training?**

You are not provided the impact values of a training decision in advance. Your challenge is to look at the course description and the attributes of the resource you want to train. Ask yourself if you would send the resource to training in the real world. Remember, not all 9 attributes are necessarily impacted by any training course.

**Managerial Actions**

The simulation provides the ability for your team to take certain Managerial Actions. Unlike training decisions which only impact the virtual resources, managerial actions impact both the individuals and the virtual team.

In the real world, managers are not necessarily certain what impact managerial actions will have on their project. Likewise, in the simulation, you are not given the values of the impacts of your managerial actions. In fact, it is possible that certain actions might partially impact a project negatively.

Additionally, you should be aware of the following concepts:

   - **Period Lag**
     An action may not have an immediate impact.
• Lasting Effect
  Different actions will have differing lasting effects on your project.

• Diminishing Returns
  Implementing an action a multiple times may result in diminished impact of the action.

How does one know the impact of a managerial action?

You are not provided the impact values of the managerial actions in advance. This follows the real world where a manager often cannot be certain of the impact their action may have on the project.

Ask yourself if you would take the action in the real world. Remember, no one action will impact all of the resource attributes or all team measurements.

If you would normally expect an action to have a certain impact in the real world, it is likely to have that impact on the simulation.

**Make Period Decisions**

In order to initiate decisions, click on the Make Period Decisions button. The Player Quickstart Manual provides a step by step description of how to make your decisions. After you make your decisions, you must click on the Submit Period Decisions button in order to complete the decision making process.

**Simulation Goals**

The simulation is meant to add context to the Instructor's classroom content by providing a "hands on" application of the concepts taught, stressing planning and budgeting. Plan ahead and try to match your decisions to the budgets provided.

Enjoy the simulation!!
2.2 Appendix 2: No Auto Assignment

Simulation Overview

The simulation is a flexible, parameter driven, team based exercise facilitated by your instructor. Once you have registered, your instructor will assign you to a team. You cannot access any of the simulation functionality until your instructor assigns you to a team and starts Pre-Play.

Simulation Concept

Student teams compete against each other to obtain virtual resources. Your mission is to obtain and manage those resources, including assigning the resources to complete the virtual tasks of the project in an optimal manner.

Your decisions are evaluated by the simulation in four (4) areas: time, cost, functionality, and stakeholder satisfaction. The team with the best score in each area is given a ranking of 100% and the team with the worst score is given a ranking of 0%. Other teams are pro-rated. This percentile scoring provides you with the exact positioning of your team on a relative basis rather than just the "place" of your team.

Please note that the four scoring areas are "weighted" in their importance in scoring the completed project. The simulation allows you to take the concepts taught by your instructor and obtain "hands on" experience completing a challenging and realistic virtual project.

Period Play

There are a maximum of 12 decision making rounds (periods) in the simulation. You may play less than 12 rounds due to the length of your semester. Your instructor will provide a schedule, including the deadline times for submitting your team decisions each period. Each of the periods is played discretely, but the sum of all the decisions will comprise the completed project.

In order to insure uniformity in the tasks completed, the tasks for each period are defined by the simulation. The tasks are the same for each team, and each team MUST complete the tasks for each period.

The point at which the tasks for a period have all been completed is known as a milestone. A period for the simulation is the amount of time it takes a team to complete the tasks for that period. In other words, it is the amount of time it takes to reach the next milestone.
**Staffing of resources**

When your instructor creates your virtual project, the simulation generates a pool of virtual resources. You will use this pool to bid on resources you wish to hire. The resources you hire can be assigned to the tasks that must be completed.

The simulation will create enough of each category (type) of resource to insure all teams the potential of hiring the resources they want.

You will start your simulation in Pre-Play or Period 0. The entire purpose of Pre-Play is to allow you to bid for your initial set of virtual resources. Pre-Play may last several rounds at your instructor’s discretion. Your instructor will advance the simulation from Pre-Play to Play once teams have had an opportunity to obtain their resources. Bidding for resources is competitive, even during Pre-Play. The only type of decision you may make in Pre-Play is to hire or remove resources.

**Period Decisions**

There are four (4) types of decisions that you MAY make each period.

1. Hire/release resources
2. Assign resources to tasks and control the percent (%) allocation of their efforts
3. Send resources to training to increase their skills
4. Take various managerial actions that affect your virtual team

The only mandatory decision is assigning resources to the period tasks. You may be satisfied with your virtual team and you do not have to hire or release anyone. Likewise, you do not have to take managerial actions...nor send anyone to training.

**Resource Management**

How do you know what type of resource to hire...and which specific resource to hire?

The simulation provides information that you must use in order to address that question. There are no pre-determined answers to the question. There is no “perfect” solution. There is simply your development of a resource management strategy and the implementation of that strategy.

However, there are steps you can take to optimize your play of the simulation:

1. Click on the Simulation Information button and familiarize yourself with the information provided about your specific virtual project.

2. Click on the View Resource Categories button to obtain a description of the work that each type of resource category performs. Use this information to try to match the best “type” of resource to each period task.
3 Click on the **View Projects Tasks** button to see all the tasks that you must complete. Click on the name of any task and you will be provided with specific background information about that task. This includes the task description, task group and estimated hours required to complete the task.

4 Click on the **Resource Pool** and use all of the information available to try to match resources to the tasks to be completed.

5 On a real project, one would not wait until the start of a period to try to hire the necessary resources for that period. Likewise, a simulation rule is that you cannot hire AND assign a resource to a task in the same period. Therefore, plan ahead and see what tasks have to be completed to try to obtain the resources you will need. You must bid for resources **no later** than the period before you wish to assign them to a task.

6 You may bid on resources during any decision making process for any period. If you have the winning bid, those resources will be awarded for the start of the next period.

7 There is no right or wrong answer as to which resource to try to hire and how much to bid. This process is a function of your resource management strategy. Be flexible. As you observe your bidding results you may need to adjust your strategy.

**Consider:**

A. The resource bidding is competitive with the other player teams. If you try to hire the best resource in a category, other teams may also be bidding for that resource. You may not be successful in trying to obtain that resource....or, you may have to bid above the standard rate in order to win the bid.

B. The information for each virtual resource includes a "standard rate". That rate is only a guideline to help you bid. You may bid less, but you run the risk of being outbid, or not meeting the minimum bid. You may bid more than the standard rate if you are concerned about being outbid. Remember that all resources are not equal in ability. Generally, the lower the standard rate, the less efficient the resource will perform.

C. A required task might have a high number of estimated hours. If so, your strategy must reflect whether you assign one resource to that task or whether you hire and assign multiple resources to that task in order to complete it more quickly. Another option is simply to allocate the resources assigned at a higher percentage.
D. In the real world, if you hire a resource and do not assign them to a task, you must still pay that resource. The simulation reinforces that concept with a "bench penalty" called the **Unallocated Resources** charge. You must assign all resources to tasks or send them to training for at least 25% of the elapsed time of the period. Otherwise, your budget will be charged up to 25% of their salary. This charge may influence the timing of a hiring decision. If you hire a resource too far in advance and do not use them, your budget will be charged with an Unallocated Resource charge. At the same time, you may be willing to absorb this charge by hiring in advance of need and being assured of obtaining the resource.

E. When you assign a resource to a task, the simulation will ask you to allocate the percent of time the resource works on that task. A 100% allocation means the resource will work 8 hours per day until that task is completed. A 50% allocation means that the resource will work 4 hours per day until the task is completed. The lower the allocation, the more days it will take to complete the task.

F. You may elect to Remove a resource if you no longer want them on your virtual team. When you Remove a resource, they are deleted from your team immediately. That is, it will happen before your instructor “processes” for the current period. If you Remove a resource, you may not hire back that same resource for two periods. However, if you Remove a resource, that resource is placed back into the Resource Pool and may be bid on immediately by another team.

In addition to Resource Management decisions, you may also make Training decisions and take Managerial Actions in any "play" round.

**Training Decisions**

All virtual resources in the simulation have 9 attributes such as training, experience and work ethic. Just like the real world, not all resources in a category have equal ability.

The simulation scoring metric uses these attributes to determine how efficiently a resource works on a task when you make your resource assignments.

The simulation provides a Training section with different Training courses that are available. You may send a virtual resource to training in order to impact their abilities and therefore influence your score.

**Training Decision Considerations**

You are provided certain fundamental information about each course and you should also be aware of the following:
1. Training takes place FIRST in a period. If you send a resource to training AND assign them to a task that period, they cannot work on the task until they complete the training course.

2. The simulation treats training like the real world. However, you are not given the values for impacts of your training decisions. Additionally, be aware of the following training concepts:

   - **Period Lag**
     A resource does not necessarily have improved abilities immediately after finishing a course. The impact may lag for one or more periods.

   - **Lasting Effect**
     Simply sending a resource to training does not guarantee the new skill set will last forever.

   - **Diminished Returns**
     Sending a resource to the same training twice does not necessarily make them “twice as good”.

How does one know the impact of training?

You are not provided the impact values of a training decision in advance. Your challenge is to look at the course description and the attributes of the resource you want to train. Ask yourself if you would send the resource to training in the real world. Remember, not all 9 attributes are necessarily impacted by any training course.

**Managerial Actions**

The simulation provides the ability for your team to take certain Managerial Actions. Unlike training decisions which only impact the virtual resources, managerial actions impact both the individuals and the virtual team.

In the real world, managers are not necessarily certain what impact managerial actions will have on their project. Likewise, in the simulation, you are not given the values of the impacts of your managerial actions. In fact, it is possible that certain actions might partially impact a project negatively.

Additionally, you should be aware of the following concepts:

   - **Period Lag**
     An action may not have an immediate impact.
• Lasting Effect
  Different actions will have differing lasting effects on your project.

• Diminishing Returns
  Implementing an action a multiple times may result in diminished impact of the action.

How does one know the impact of a managerial action?

You are not provided the impact values of the managerial actions in advance. This follows the real world where a manager often cannot be certain of the impact their action may have on the project.

Ask yourself if you would take the action in the real world. Remember, no one action will impact all of the resource attributes or all team measurements.

If you would normally expect an action to have a certain impact in the real world, it is likely to have that impact on the simulation.

Make Period Decisions

In order to initiate decisions, click on the Make Period Decisions button. The Player Quickstart Manual provides a step by step description of how to make your decisions....and the system will prompt you as you make your decisions. After you make your decisions, you must click on the Submit Period Decisions button in order to complete the decision making process.

Simulation Goals

The simulation is meant to add context to the Instructor's classroom content by providing a "hands on" application of the concepts taught, stressing planning and budgeting. Plan ahead and try to match your decisions to the budgets provided.

Enjoy the simulation!!