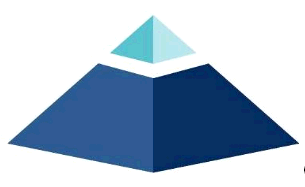
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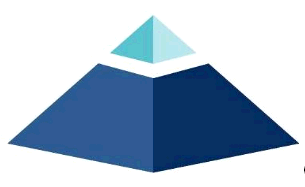
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Capstone Exercise

Leading a Development Team  
Software Engineering Institute

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Capstone Exercise

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| **Overview** | This exercise is like an eight-act play that follows a TSP team leader through situations with the NOVA development team. The *play* begins with the team leader being offered the team lead position and finishes with the NOVA team completing the project. Each situation presents several challenges for the team leader to address.  Each situation is discussed in your group where you reach conclusions together. Then, we will then convene to discuss each group’s is followed by a class discussion before moving on to the next scenario in the eight-part series. |

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| **Instructions** | 1. Form into groups as directed by the instructor. 2. Read the first situation description. 3. Discuss the situation within your group and resolve together how to respond to the questions associated with the situation. 4. Be prepared to share your conclusions during the post-situation class discussion. 5. The instructor will facilitate a discussion of the situation. 6. Repeat steps 2-5 for each of the remaining seven situation descriptions. |

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| **The situations** | The following situations are presented in this document. |

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|  | **Situation** | **See page** |
| 1 | The “hard luck” NOVA team and your new assignment | 3 |
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The “Hard Luck” Nova Team and Your New Assignment

Part One

Your company has successfully introduced TSP into the Home Products division with much success. The executives are very pleased. Teams in that division are finishing with +/- 5% of their committed dates. The quality of the products delivered is consistently high.

The other division of the company, the Educational Product Division, has started one TSP pilot. They have selected a second pilot, the Nova team. This team has consistently been unable to met the schedules they have been given. The team is 3 months into development of a critical product. They are complete with requirements, and have not yet finished a high level design. They have not met any of the schedule milestones for this product.

The team considers itself a “hard luck” team. They feel the schedules they have are not realistic. They feel the quality problems they have had are basically “bad luck”. The Nova Team has many seasoned developers and they think the TSP would hurt their creativity.

The leader of this team has just left the company. You have just completed the “Leading TSP Teams” course. The executives of company ask you to be the team leader for the Nova team and to make it a TSP team.

Questions:

1. How do people feel when they are constantly under pressure and delivering below expectations? What do you expect the morale level of this team is?
2. What is your reaction to the request?
3. What would you ask management to do to help ensure your success?
4. What steps are you planning to take to motivate and energize this group?

Resistance to Training

Part Two

The TSP coach that is working with you is teaching the Personal Software Process (PSP) for Engineers course to the Nova team. Most of the developers are working on the third program. Throughout the week each of the developers comes into your office and complains about the course. They believe they should just get back to work. They each have their own unique complaints, but the common points of the complaints are

* The problems the team had were not their fault. The fault was with management for giving them a bad schedule.
* The course is hard and not relevant to their situation.
* Being in this training is just getting them farther behind.

Questions:

1. How would you handle the conversation with the developers?
2. What steps would you take to help the developers be successful in completing the course?
3. How can the TSP coach help?

The TSP Launch of the Nova Team

Part Three

The initial meeting of the TSP Launch went very well. The senior management and marketing representatives stated very clearly why this project is very important to the Educational Products division and the corporation. Management requested the product be delivered to customers in nine months and that it be the highest quality product that the division has ever seen.

In the “Roles and Goals” meeting, the team established a quality goal of <1 defect / KLOC in system test. Each team member volunteered for TSP role manager responsibilities.

* Mary - customer interface and test manager
* Sanjay - design manager
* Antonio - process & quality manager
* Kurt - planning manager
* Padma - support manager and implementation manager

The process discussion in the third meeting had one difficult part where Mary as the test manager was arguing that detailed designs were not necessary. Sanjay the design manager insisted that they were. By the end of the discussion the team agreed to writing full detailed designs.

In the fourth meeting, the development of the overall plan, the team has met an impasse. The overall plan shows that in implementing their full process, the team cannot deliver to system test in less than six months. This will miss management’s expectations for delivery to the customer because the test organizations insists on their typical test schedules. The system test organization has said they will not accept any test cycle less than four months. Customer acceptance testing will not accept any schedule less than two months. These are the shortest time that testing has taken for any significant sized product in this organization.

With this schedule the team will deliver three months later than management’s expectations.

Mary is advocating that the team drop inspections since they have not done them in the past. If they drop inspections, they will deliver to test a month earlier. Kurt agrees and says “It is better to provide a plan that shows the best delivery date for the work we can control.”

Sanjay, Padma, and Antonio are adamant that inspections are required to meet the quality goal. They insist that the Nova team can deliver a high quality product and system testing and customer acceptance testing will be both complete in about two months. They believe they should present that plan to management.

Questions*:*

1. What do you do?
2. How can the TSP coach help?

Behind!

Part Four

At the Nova team launch, management agreed to a schedule that would release to the customer 1 year after the launch. The Nova team is committed to delivering to system test 6 months after the launch.

You are sitting in the weekly Nova team meeting, 4 weeks after the team launch. There are 22 weeks remaining before the start of system test. In your management report to the team you tell the members that management has requested a new feature. Management wants to know if the team can deliver it in this release without impacting the schedule. You tell the team that you will want to discuss that at the end of the meeting as a special topic.

Kurt, the planning manager, shows the weekly data. The data shows that the team is 10% behind in earned value and the predicted date shows the team will finish 4 weeks later than their commitment.

You ask Kurt for recommendations.

Kurt responds “We will make it up.”

You ask “How?”

Kurt responds “I think this is just a blip. Stuff like this happens. We will be fine.”

Questions:

1. What do you do?
2. How can the TSP coach help?
3. What do you tell management about their request?

The Skipped Detail-Level Design

Part Five

In the TSP Launch, the Nova team agreed to do detailed level designs as a mandatory part of their process.

It is 6 weeks after the launch and Mary walks into her first detailed level design inspection briefing meeting with completed code for inspection. When asked about the design, Mary tells Sanjay (design manager) and Antonio (quality manager), “It was really pretty simple. I didn’t see a need for a detailed design. I have already started unit test and it looks real good.”

Antonio and Sanjay are confused and not sure what to do. They complete the inspection briefing. Immediately afterwards they come to you for guidance.

Questions:

1. What do you do?
2. How can the TSP coach help?

Checkpoint Results

Part Six

At 10 weeks after the Nova team launch, the TSP coach conducts a TSP Checkpoint with the team. A TSP Checkpoint is where the TSP coach reviews all data in detail. Also the TSP coach interviews each team member. The interview focuses on what is working well and where there are problems.

The two primary points of concern from the checkpoint for you and the TSP coach are

1. The initial detailed designs are not going well. You find that a number of detailed design tasks were under-estimated, and many of those tasks are not properly completed.

* The designs are inconsistent and the levels of detail vary.
* The TSP coach reports that no design standard has been established.
* The initial two inspections found only superficial problems and took very little time.
* The TSP coach says that the design manager is capable of writing good designs, but is not comfortable in the role of mentoring his team mates.

1. The time data is being recorded very accurately. However, it appears defects are not being recorded consistently and completely.

* Personal reviews for detailed level designs and the initial three personal code reviews have been completed but the TSP Data showed that no defects were found.
* The inspection reports show more defects than are being reported in the TSP tool.

Questions:

1. What do you do?
2. How can the TSP coach help?

Low Yields in Personal Reviews

Part Seven

It is 18 weeks after the Nova team TSP launch with 6 weeks to go until delivery to system test. The team has recovered the schedule and if all goes well will deliver to system test on time.

About 10 components have finished unit test. The data show that the team has about 70% yields from inspections. However, the data is showing low yields (<20%) in personal reviews.

Before a team inspection, where at least two other people inspect the document in detail, the author performs a personal review of their work product using a checklist to guide them in finding the defects they typically inject. A yield of 20% means that if 10 defects were in the product at review entry, 2 defects were found and 8 defects escaped. A higher yield in personal reviews implies fewer defects in the downstream process, a shorter and higher quality system test, and a higher quality delivered product.

There are still 20 more components that have not finished personal reviews.

Questions:

1. What should the team do?
2. How do you and the TSP coach get them to do the right thing?

System Test is Going Great!

Part Eight

It is 28 weeks after the Nova team launch. The Nova team delivered on time to system test and the software has been in test for four weeks. The team's work has paid off and all test suites have been completed. The team will exit system test two months ahead of schedule. The software will exit system test with less than 1 defect / KLOC. This is 8 times better than this organization's previously measured best quality. When you walk around the team is excited. They are openly grateful about your leadership and even more proud of what they have achieved.

However, you are concerned. One of the senior managers told you in passing “your project must have been pretty easy to do that well in system test.” Also you have been invited to a recognition party. Another development team in the Educational Products Division has been working overtime in system test for 6 months and will be exiting test in two weeks. That team is to be recognized with a party, cake and senior management. There is nothing planned for your Nova team.

Questions:

1. What is your response to being 2 months ahead of schedule?
2. What is your response to the lack of recognition for success?