

**CERTIFIED PUBLIC MANAGER PROGRAM  
FLORIDA CENTER FOR PUBLIC MANAGEMENT  
THE FLORIDA STATE UNIVERSITY**

**Level 3 Assignment**

**Guidelines**

**IS PRODUCTIVITY  
MORE THAN A SLOGAN IN YOUR  
ORGANIZATION?**

**November, 2013**

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# INTRODUCTION

## Background

All work systems whether they be individual, program, unit or total organization consume inputs to produce outputs. Outputs may be goods or services, but in either case they can be measured and related to inputs which are also measurable. Productivity is the relationship of inputs to outputs expressed as an index (PI) or ratio. Visually, this relationship is expressed as follows:

$$\text{Productivity (PI)} = \frac{\text{Output} \times \text{Quality}}{\text{Input}}$$

Highly productive work systems produce lots of output for little input while unproductive work systems consume lots of input to produce little output. Productivity improvement efforts are intended to produce the greatest amount of bang for the buck in a given work system while maintaining and improving quality.

Productivity improvement strategies often focus on technology, processes, and/or people, but in any case, the clear intent is to maximize results in relation to resources.

The Level 3 Assignment asks the public manager to select a specific work system or work process in the workplace, identify the system's outputs and inputs, compute a productivity index, and propose a productivity improvement strategy. The project draws specifically on Level 3, Module 1. As you work through the project, you will be learning to apply productivity concepts and strategies to a work system or work process of your choosing in the hope of improving the system's productivity. The capability to think about productivity and quality is extremely important for Florida's public managers.

# Procedures

1. Review “Definitions” and “The Framework”.
2. Select and analyze **one** work system or work process of this organization as a productivity process.
4. Define a productivity improvement objective for the selected work system or work process.
5. Describe the changes in input, proces, outputs, or quality in the changed work process.
6. **Upon completion, you should submit this assignment through our website:**

[https://www.fcpm.fsu.edu/students/fcpm\\_partlogin\\_000.cfm](https://www.fcpm.fsu.edu/students/fcpm_partlogin_000.cfm)

This will bring up a log-on screen. Enter your email address and password (the last four digits of your Social Security number), then click “Next Step.” This will take you to your Transcript. Click on “Submit Assignment” for the particular assignment or exam. If you are uploading a Group Assignment, enter the names and email addresses of group members in the drop down menu. Click “Browse” and locate the file on your hard drive (usually in “My Documents”), then click “Open.” Once the file is listed in the menu, click “Submit File.”

Your submission will be automatically entered into the database. It will show on your transcript as “Being Graded.” You will also receive an automated email notifying you that it has been added to your transcript.

Once your assignment is graded, and if it passed, you will receive an automated email saying that it has been “Completed.” If your submission does not pass, you will receive an email telling you to resubmit, and explaining what you need to do to pass. Your work will be graded within 60 days, although CPM instructors typically grade assignments sooner than that.

If you encounter problems submitting your homework, please contact Dan Vicker, the CPM Student Liaison, at [dvicker@admin.fsu.edu](mailto:dvicker@admin.fsu.edu) or the CPM office at [CPM@admin.fsu.edu](mailto:CPM@admin.fsu.edu) . You can phone our main number at 850-644-6460 or 850-644-0161.

Submissions will not be returned, so you should keep a copy for future reference. Your work is considered confidential and the CPM Program will not share or discuss it with anyone, other than you.

# Definitions

The following are definitions of key terms as they are used in these guidelines. Relationships among many of these terms are illustrated in Figure 1 and in the *Report Questions*.

- (1) **Mission:** A statement describing the purpose, role, and scope of the work to be performed by an organization. In effect, the mission statement sets forth the reason for the organization's existence.
- (2) **Goals:** Broad directional statements of intent about organizational accomplishments in the future.
- (3) **Objectives:** Written statements of projected specific results (outputs) of a work system which are measurable, or identifiable. Objectives include a timetable and a person responsible for their accomplishment.
- (4) **Activities:** The essential tasks used to transform resources into results.
- (5) **Productivity:** A concept that relates results achieved (outputs) with resources (inputs) that produce those results. Productivity is a specific relationship between results achieved and resources consumed: it is the measure of how well scarce resources are brought together and utilized to accomplish a set of desired results that should be produced.
- (6) **Productivity framework:** The configuration of key components of organizational productivity. The framework can be applied to a system, subsystem, work system or work process. The productivity framework shows how to view organization productivity as well as how to plan actions for productivity improvement.
- (7) **Productivity improvement:** Deliberately planned actions designed to improve productivity. The effect of these actions on productivity is measured using comparisons with the baseline productivity index (PI). Improvement is assumed when there is an increase in the baseline index.
- (8) **Productivity index (PI):** The ratio used to calculate productivity levels at specified times:

$$PI = \frac{\text{Outputs Achieved} \times \text{Quality}}{\text{Inputs}}$$

$$PI = \frac{\text{Output Obtained} \times \text{Quality}}{\text{Input Expended}} = \frac{\text{Results Achieved} \times \text{Quality}}{\text{Resources Consumed}} = \frac{\text{Volume} \times \text{Quality}}{\text{Costs}}$$

(9) **Productivity measurement:** The process of quantifying levels of resource utilization and results achieved at specified times. Measurement begins with a baseline (or first) reading which is then used as the point of comparison to determine whether there have been increases in productivity.

As a baseline example, assume that \$500,000 worth of training programs were generated at a cost of \$300,000 in inputs (salaries, equipments, materials, etc.) with a 90% quality measure.

$$\text{PI} = \frac{\text{Outputs} \times \text{Quality}}{\text{Inputs}} = \frac{\$500,000 \times 90\%}{\$300,000} = 1.5$$

There are five ways to improve productivity with quality held constant.

**\*Case 1:** Hold outputs constant, decrease inputs (cost control, no impact on services).

$$\text{PI} = \frac{\$500,000 \times 90\%}{\$250,000} = 1.8$$

**\*Case 2:** Decrease inputs and outputs proportionately (cost control with slight impact on services).

$$\text{PI} = \frac{\$450,000 \times 90\%}{\$250,000} = 1.62$$

**\*Case 3:** Increase outputs, hold inputs constant (efficiency).

$$\text{PI} = \frac{\$550,000 \times 90\%}{\$300,000} = 1.65$$

**\*Case 4:** Increase both inputs and outputs, but disproportionately (investment in change).

$$\text{PI} = \frac{\$600,000 \times 90\%}{\$350,000} = 1.54$$

**\*Case 5:** Increase results, decrease resources (heroic efforts).

$$\text{PI} = \frac{\$550,000 \times 90\%}{\$250,000} = 1.98$$

A sixth way assumes only quality is increased:

**\*Case 6:** Inputs and outputs remain the same as in the baseline example but quality increases.

$$\text{PI} = \frac{\$500,000 \times 95\%}{\$300,000} = 1.58$$

- (10) **Productivity improvement objective:** An objective explicitly concerned with improving the productivity of an organization or its work systems.
- (11) **Inputs:** Labor (people), dollars, materials, space, or time (number of hours worked or paid) allocated to an organization or any of its work systems so that the mission is carried out. Resources are always scarce and are allocated to achieve results.
- (12) **Outputs:** The initial result of an organization's work system or work process: work done, products distributed, services rendered. Achieving results requires resources and processes (work systems) for transforming these resources into results.
- (13) **System:** A collection of components which interact to achieve an overall mission.
- (14) **Subsystem:** Components of a system which produce customer outcomes instrumental to an overall mission.
- (15) **Work System:** Planned processes which specify objectives, results, resources, and the ways in which the resources are (or will be) transformed into results. The purpose of a work system is to effectively integrate the resources used in those processes in order to achieve results and fulfill a responsibility.
- (16) **Work process:** A coordinated set of activities which meets a customer requirement.

\* If methods 1-5 also include quality increases from the baseline, productivity is further increased.

\* If methods 1-5 also include quality decreases from the baseline, productivity will be proportionately decreased.

# REPORT QUESTIONS

## Part 1: The Productivity Framework

WHAT IS THE WORK PROCESS YOU ARE SELECTING FOR ANALYSIS?  
(STEP 1) (See Key Definition #16)

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STATE THE GOALS (STEP 2) OF THIS WORK PROCESS:  
(See Key Definition #2)

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# Work System As Is

(all inputs, outputs and quality measures must be expressed as numbers)

WHAT INPUTS (STEP 3.3) ARE AVAILABLE TO ACHIEVE THE OUTPUTS OF THIS PROCESS? (See Key Definition #11)

Cost of the people (salary per time period) = \_\_\_\_\_

Cost of material = \_\_\_\_\_

Cost of equipment = \_\_\_\_\_

Cost of travel (if applicable) \_\_\_\_\_

Overhead (estimate) \_\_\_\_\_

Other \_\_\_\_\_

WHAT ARE THE KEY ACTIVITIES OF THIS WORK PROCESS (STEP 3.2) (See Key Definition #4)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

WHAT ARE THE OUTPUTS OF THIS WORK PROCESS (STEP 3.1) (See Key Definition #12)

1. \_\_\_\_\_  
(Quantity of outputs per time period)

\_\_\_\_\_

2. \_\_\_\_\_  
(Quality measure per time period)

\_\_\_\_\_

\_\_\_\_\_

CALCULATE PRODUCTIVITY INDEX FOR THE PRESENT WORK PROCESS (STEP 3.4) (See Key Definition #8)

$$PI = \frac{OUTPUTS \times QUALITY}{INPUTS} = \frac{VOLUME \times QUALITY}{COST}$$

The initial productivity ratio for the work system is:

$$PI_1 = \frac{\quad}{\quad} =$$

# Work System To Be

(all inputs, outputs and quality measures must be expressed as numbers)

WRITE ONE PRODUCTIVITY IMPROVEMENT OBJECTIVE FOR THIS WORK SYSTEM? (STEP 4) (See Key Definition #10)

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Based on this improvement objective, list changes in inputs, activities, outputs, or quality in the work process below.

WHAT INPUTS (STEP 3.3) ARE AVAILABLE TO ACHIEVE THE OUTPUTS OF THIS PROCESS? (See Key Definition #11)

Cost of the people (salary per time period) = \_\_\_\_\_

Cost of material = \_\_\_\_\_

Cost of equipment = \_\_\_\_\_

Cost of travel (if applicable) \_\_\_\_\_

Overhead (estimate) \_\_\_\_\_

Other \_\_\_\_\_

WHAT ARE THE CHANGES, IF ANY, IN THIS WORK PROCESS (STEP 3.2) (See Key Definition #4)

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WHAT ARE THE OUTPUTS OF THIS WORK PROCESS (STEP 3.1) (See Key Definition #12)

1. \_\_\_\_\_  
(Quantity of outputs per time period)

\_\_\_\_\_

2. \_\_\_\_\_  
(Quality measure per time period)

\_\_\_\_\_

\_\_\_\_\_

CALCULATE PRODUCTIVITY LEVELS FOR THE REVISED WORK SYSTEM (STEP 5.4).

$$PI = \frac{\text{OUTPUTS} \times \text{QUALITY}}{\text{INPUTS}} = \frac{\text{VOLUME} \times \text{QUALITY}}{\text{COST}}$$

This new productivity ratio for the revised work system is:

$$PI_2 = \underline{\hspace{10em}} =$$

WHAT IS THE GAIN IN PRODUCTIVITY? EXPRESS IN NUMERICAL VALUE INCREASE OR PERCENTAGE INCREASE (STEP 6):

$$PI_2 - PI_1 = \text{NUMERICAL INCREASE} \underline{\hspace{10em}}$$

$$\frac{\text{NUMERICAL INCREASE}}{PI_1} = \text{PERCENT INCREASE} \underline{\hspace{10em}}$$