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# ESE

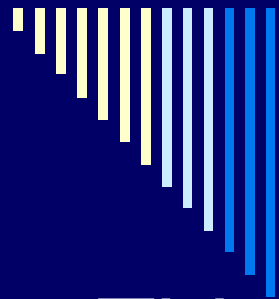
# Experiment Definition

## *Credits*

### Experimentation in Software Engineering: An Introduction

by Claes Wohlin, Per Runeson, Martin Host, Magnus C. Ohlsson, Bjorn Regnell, and Anders Wesslén

*Springer-Verlag, 2005 (Formerly printed by Kluwer Academic Press, 2000).*



# Introduction

This phase leads to determine the foundation of the experiment that is done by:

- ❑ Defining the **goal** of the experiment
- ❑ Informally defining and explaining the **experiment's hypotheses**
- ❑ Possibly sketching on the related **variables** and **measurements**.



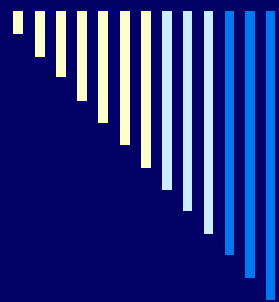
# Goal Definition

- The GQM Template for goal definition
  - Analyze <Object(s) of study>
  - For the purpose of <Purpose>
  - With respect to <Quality focus>
  - From the point of view of the <Perspective>
  - In the context of <Context>



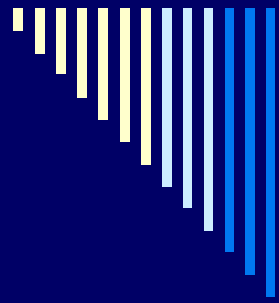
# GQM Template

<b>Object of study</b>	<b>Purpose</b>	<b>Perspective</b>	<b>Quality focus</b>	<b>Context</b>
<b>Product</b>	<b>Characterize</b>	<b>Developer</b>	<b>Effectiveness</b>	<b>Subjects + Objects + Organization + etc.</b>
<b>Process</b>	<b>Monitor</b>	<b>Modifier</b>	<b>Efficiency</b>	
<b>Model</b>	<b>Evaluate</b>	<b>Maintainer</b>	<b>Cost</b>	
<b>Theory</b>	<b>Predict</b>	<b>Project Manager</b>	<b>Reliability</b>	
<b>Technology</b>	<b>Control</b>	<b>Corporate manager</b>	<b>Maintainability</b>	
	<b>Change</b>	<b>Customer</b>	<b>Portability</b>	
		<b>User</b>		
		<b>Researcher</b>		



# Experiment Context Characterization: Subject vs. Objects

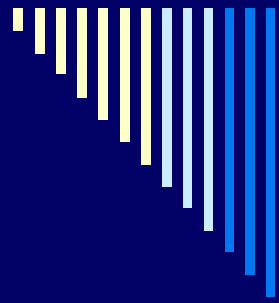
		# Objects	
		One	More than one
# Subjects per Object	One	Single object study	Multi-object variation study
	More than one	Multi-test within object study	Blocked subject-object study



# The Experiment (Informal) Hypothesis

## Example #1

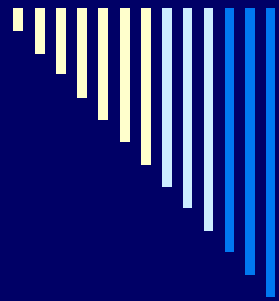
In the reference software organization, the testing technique currently utilized, CTT, performs not worse than the new technique NTT for any type of defects for graphic-bound software, whatever the experience level of the involved test people might be.



# The Experiment (Informal) Hypothesis

## Example #2

In the reference software organization O, the new design method NDM performs significantly better than the design method currently utilized, CDM, for data mgt. software with the O's designers.



# Variables & Measurements

Based on the given informal hypotheses try to define the variables involved, and the related measurements.