

# **I. Value of Testing Up-Front**


*You can't make a silk purse  
from a sow's ear.*

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## *What's Left When All the Defects Are Removed?*

Time?  
Money?  
Credibility?

The System We Would Have Built  
If We'd Done It Right From the Start?

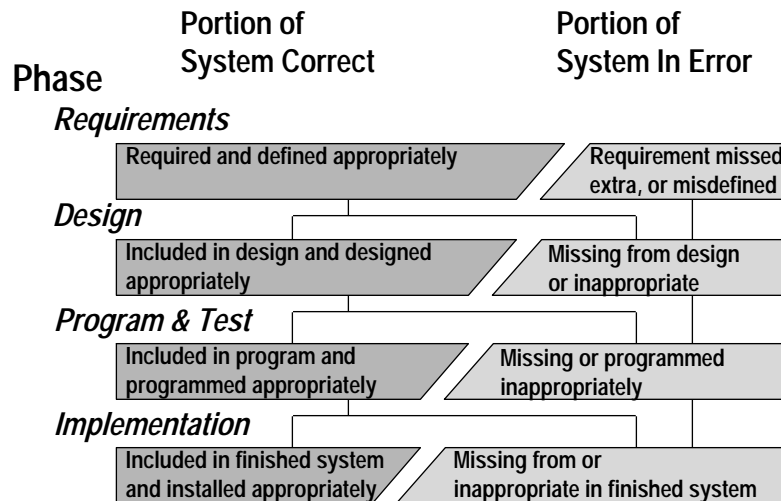
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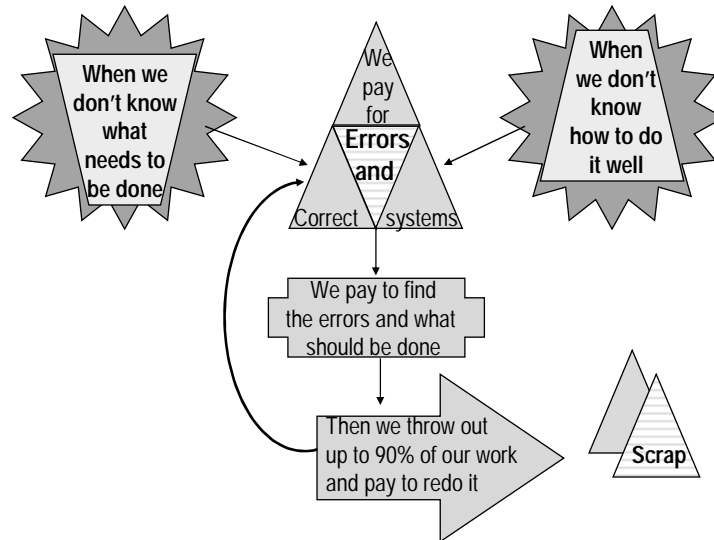
## **Error Sources by Phase**



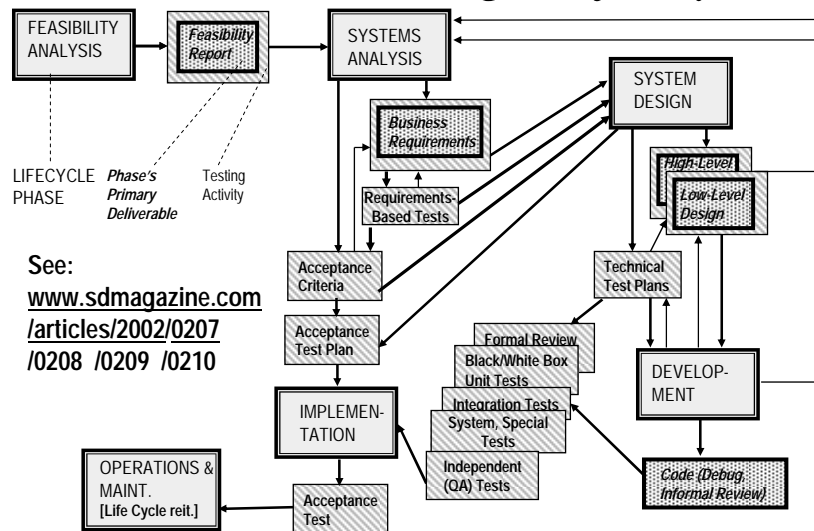
## **Quality Assurance Economics**

- Maintenance is 66-90% of system cost
- Maintenance is mainly completion/correction of development
- 2/3 of finished system errors are requirements and design errors
- Fixing a requirements error will cost
  - 10X+ during programming
  - 75-1000X+ after installation (maintenance)

## What Development Dollars Buy



## Proactive Testing™ Life Cycle



See:  
[www.sdmagazine.com/articles/2002/0207/0208/0209/0210](http://www.sdmagazine.com/articles/2002/0207/0208/0209/0210)



## *Quality Assurance Institute 1989 Survey on Improving Requirements Quality*

- IS professionals lack skills/tools to properly identify, analyze, document requirements
- IS functions lack procedures to ensure
  - requirements reflect business needs
  - software meets the requirements
- IS gets less than 50% of requirements right the first time
- Customers' top factor for judging IS quality is proper requirements implementation



## *QAI Survey: Requirements Are*

- In existence prior to IS involvement
- Attributes or functions needed to solve a business problem or achieve an objective
- Standards for the attribute/function
- Measurement processes used to verify the standard is met

## *QAI Survey: Comments*

“Often...changes...caused by missing or poorly defined requirements are classified as ‘enhancements.’”

“The prototype should be used as input to the requirements document [not replace it].”

“A process or methodology is no substitute for skilled people, but rather, a guide to assist skilled people.”

## *Keys to Effective Testing*

- Define correctness independently of actual results
- You must know what the “right answer” is
- Follow independent guidelines to be more thorough
- Systematically compare actual to expected results

<u>Test Input</u>	<u>Actual Results</u>	<u>Expected Results</u>
Cust. #123	John P. Jones	Jones, John P.
New Cust's name,address	Redisplays screen with fields cleared	“Added”
10 Widgets	\$14.99	\$14.99 \$ .75 tax

## Why Up-Front Testing Usually Is So Weak

- Unaware it can be done or how to do it
- No definition of “right answer”
- Person who defined it “tests” it
- Use limited or weak review methods
- Confuse design with requirements
- Don’t manage overall software process
  - cost/consequences not measured/matched
  - activity and deadline driven

## CAT-Scan Approach<sup>TM</sup> vs. Traditional Management Method

