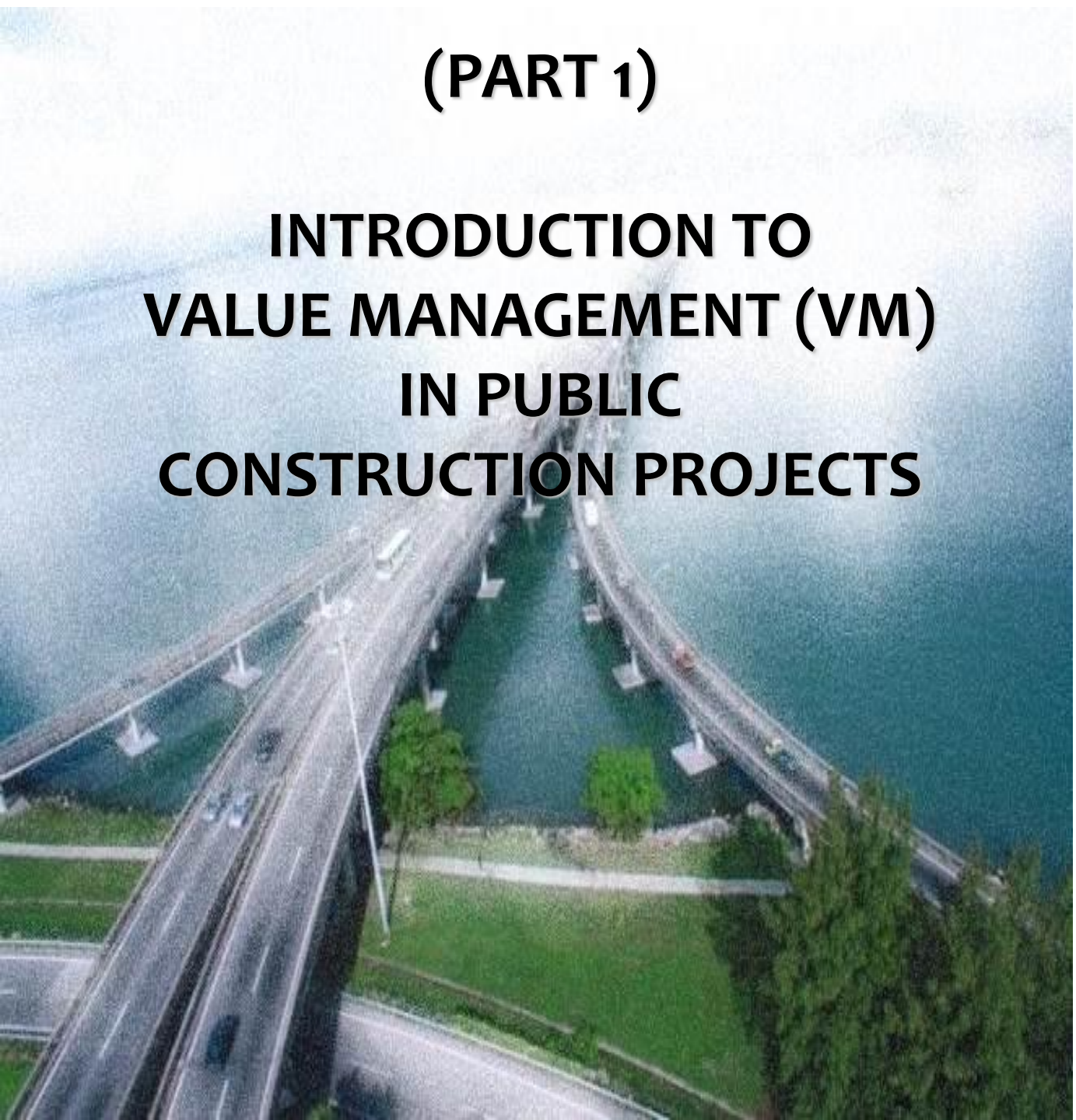


(PART 1)

INTRODUCTION TO VALUE MANAGEMENT (VM) IN PUBLIC CONSTRUCTION PROJECTS

KURSUS
PENGENALAN DAN
PENYELIAAN
PEMBINAAN
PROJEK JALAN

25 – 27 JANUARI 2021
CREaTE
JKR MALAYSIA

Sr ROHANIS AB GHANI
JUBP (SME VM)
UPN, CPAB
JKR MALAYSIA

Lecture Objectives (Part 1 & 2)

Understanding of:

- Management of VALUE in Construction Projects
  - Part 1: Introduction to VM;
- Value Opportunity in Construction Project Life Cycle
  - Part 2: VM Study Interventions

Value Management (VM) Definitions

VM is defined as a management methodology or management tool, which:

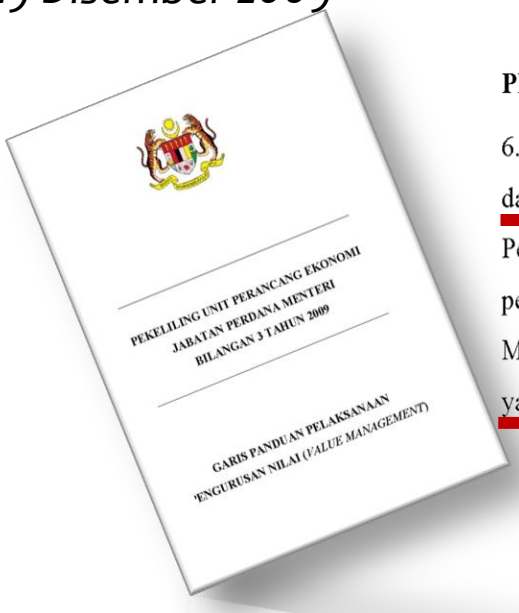
- Applies structured process;
- Emphasize on functions analysis;
- Involves multi-disciplinary team working;
- Applies creative and innovative thinking;
- Provides proactive service
- Effective as a decision making tool; and
- A problem solving methodology….

Value Management Initiative by Government

1A EPU Circular No.3/2009(*Pekeliling UPE Bil.3/2009*)

Garis Panduan Pelaksanaan Pengurusan Nilai,
29 Disember 2009

Managing cost complexity > MYR50 m worth projects



PEMAKAIAN

6. Pengurusan Nilai perlu dilaksanakan bagi program dan projek yang bernilai RM50 juta dan ke atas. Walau bagaimanapun, kementerian dan agensi digalak menggunakan pendekatan Pengurusan Nilai bagi projek yang kurang dari RM50 juta dengan syarat ia tidak menjejaskan pelaksanaan projek berkenaan. Di samping itu, Unit Perancang Ekonomi, Jabatan Perdana Menteri boleh menetapkan penggunaan pendekatan ini bagi mana-mana program dan projek yang difikirkan perlu.

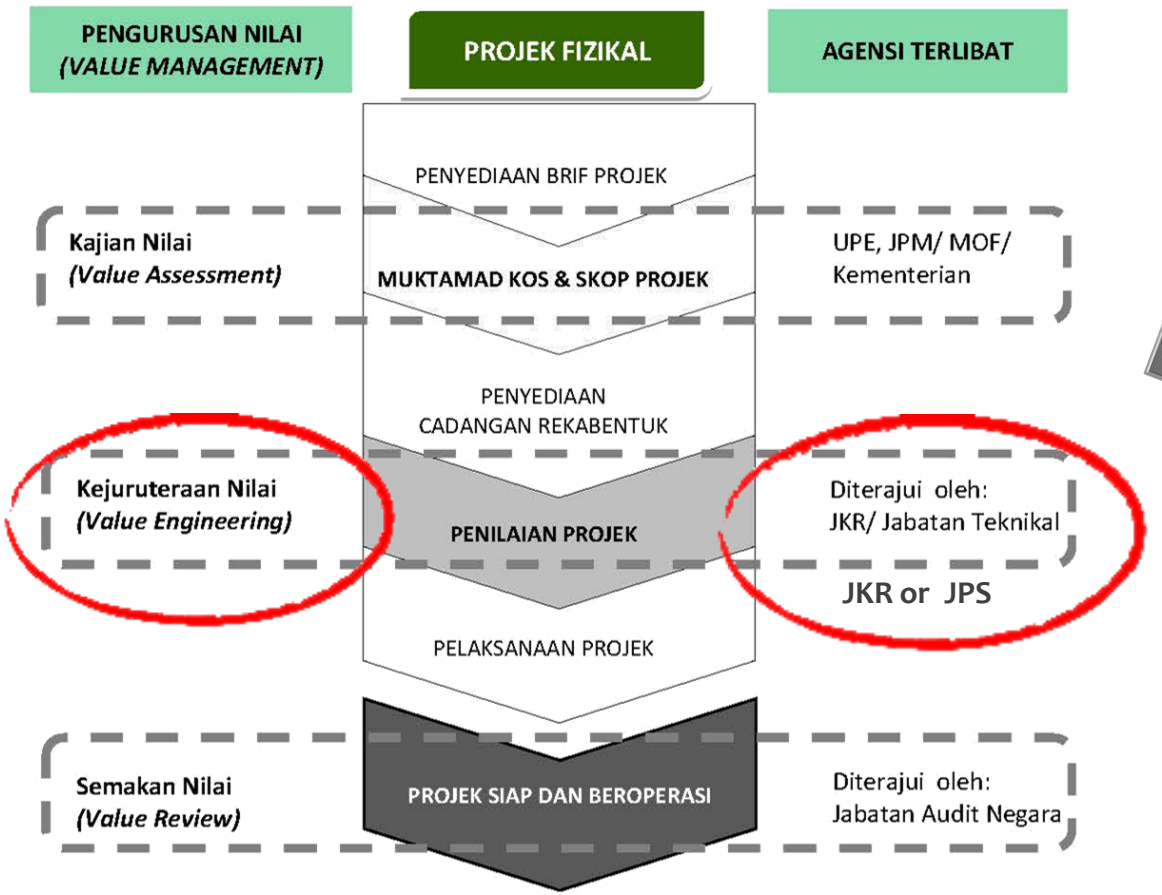
1B EPU Circular No.1/2015 (*Pekeliling EPU Bil.1/2015*)

Penambahbaikan Perlaksanaan Pengurusan Nilai dan Garispanduan dan Peraturan bagi Perancangan Bangunan dalalm Program/Projek Kerajaan Persekutuan, 30 November 2015.

Government's Implementation Guide on VM

2

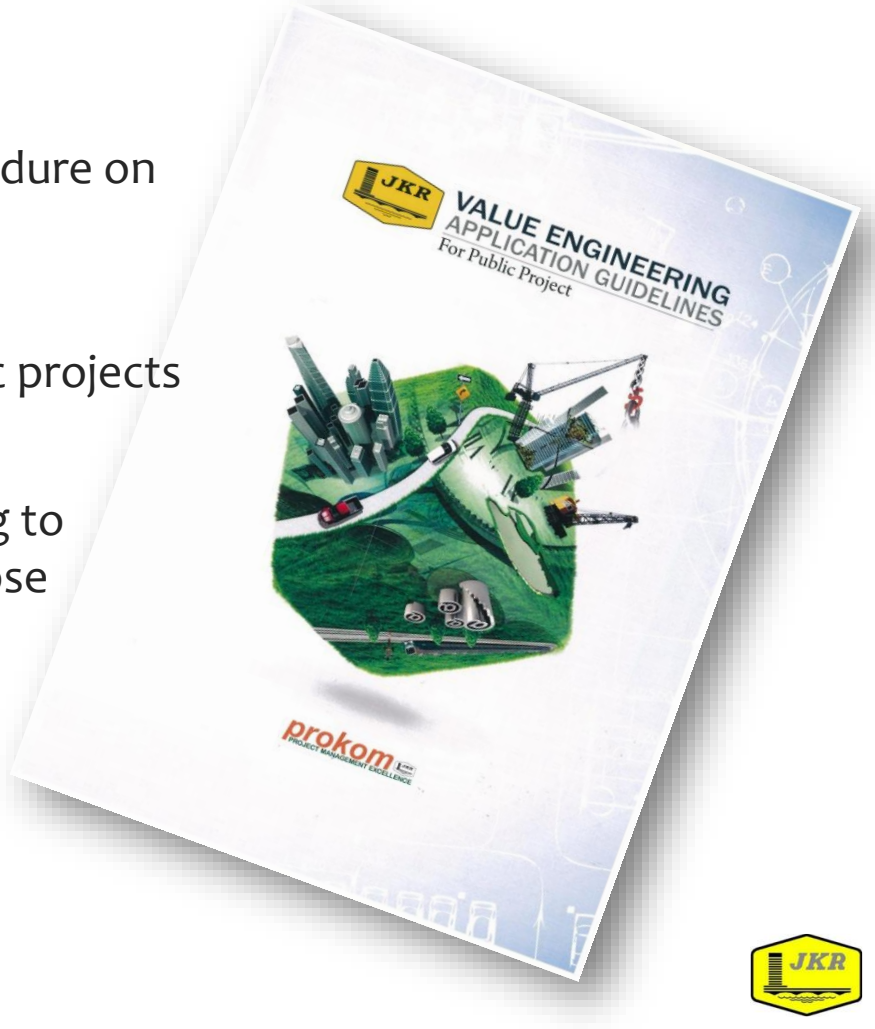
VM Guide in Government Programme / Project
Panduan Pelaksanaan Pengurusan Nilai dalam Program / Projek Kerajaan , *24 Mei 2011*



VE Application Guidelines (JKR, 2013)

VE APPLICATION GUIDELINES FOR PUBLIC PROJECTS (2013)

- Outlines the policy, process and procedure on VE implementation in public projects
- Sets standards of VE practice in public projects
- Practical reference for those intending to implement VE and for academic purpose



National VM Guide (IVMM, 2018)

NEW IVMM NATIONAL VM GUIDE (2018)

- Outlines the **National VM Framework** for applications in programmes, projects, facilities, systems, products and services etc.;
- Highlights opportunities of VM interventions implementable throughout the life cycle and integrations with other initiatives;
- Benchmark best practices of VM process, tools and techniques and key VM glossaries.

VM Standards

Malaysia

National VM Guide &
VM Competency Standards (IVMM)

USA

Value Standard & Body of Knowledge
(SAVE International)

UK/Europe

British / European Standards
BS EN 12973:2000

Australia/New Zealand

AS/NZ Value Management Standards &
TAM 2000 (NSW)

Why Need to Manage Construction Project Value?

- **CAPITAL** is not a free commodity
- **SCARCITY** of funding
- **POOR VALUE** occurs
- **UNNECESSARY COSTS** exists
- **DISSATISFACTION** of clients and users
- In response to **COMPETITIVE ENVIRONMENT** of the construction industry

WE HAVE SO MANY WAYS
TO WASTE MONEY, TIME AND EFFORTS

Source: Al-Yousefi (2008)

Causes of Unnecessary Costs in Projects?

Lack of measurement in value

Lack of information

Lack of time to review

Look for a quick fix solution

False assumption

"wasteful practices in delivering a service or a failure to match the performance or service to customer needs"

"costs which do not meaningfully contribute to the function or purpose of the product or service"

Honest but wrong belief

Habits and attitudes

Reluctance to seek advice

Unrealistic judgement

Human factor

Causes of Poor Value in Construction

- Inadequate available time for reviews
- Conservative, tradition / habitual thinking
- Influences of stakeholders
- Honest misconceptions
- Poor communication
- Lack of co-ordination
- Lack of consideration of buildability in design
- Lack of needed experts
- Lack of needed information

Source: N J Smith (Engineering Project Management, 3rd Edition, 2008)

Common Value Issues in Construction

Project Definition & Inception Phase:

- Lack of clarity of the client, user and stakeholder's needs, objectives and requirements.
- Certain aspects of site, environment and statutory requirements are overlooked.
- Lack of overall project communication procedures.
- Inappropriate process in procurement and appointment of consultants and design team.

Source: MCM Value (VM Professional Course), 2011

Common Value Issues in Construction

Design Phase:

- Inappropriate option analysis of design studies and preliminary cost estimates.
- Some important aspects of operation and maintenance requirements are overlooked.
- Some aspects of conditions of contract, specifications and other contractual requirements overlooked.

Source: MCM Value (VM Professional Course), 2011

Common Value Issues in Construction

Tender Phase:

- Uncertainties and ambiguities of documents and drawings.
- Insufficient tender analysis.

Source: MCM Value (VM Professional Course), 2011

Common Value Issues in Construction

Construction Phase:

- Inadequate establishment of site organization.
- Lack of specific procedures with regards to Drawing Management, establishment and reviewing of Work Programme, Reporting etc.

Source: MCM Value (VM Professional Course), 2011

Common Value Issues in Construction

Handing Over, Operation & Maintenance Phase:

- Some important requirements of operational and maintenance are overlooked.
- Handing over procedures are not properly developed or practiced.

Source: MCM Value (VM Professional Course), 2011

DEFINING VALUE

Defining **VALUE** is **difficult** as it is….

- Too loose or broad usage in various contexts (economics, commerce, mathematics, sociology, customs, ethics, arts etc.)
- Subjective to the owner of the perspective (similar to understanding "beauty" from the perspective of "in the eyes of the beholder")
- Complex interpretations that need to consider various perspectives or orientations (e.g. economic values; aesthetic values; use values; social values etc.)
- Consists of "hard" (e.g. quality, cost) and "soft" (e.g. benefits, satisfaction) components (tangible and non-tangible measurement)

VALUE CONCEPT (i)

SAVE International (USA):

$$\text{Value} = \frac{\text{Function}}{\text{Resources}}$$

Where;
Function = Customer's performance requirements;
Resources = Labour, Cost, Time etc.

Or; as a fair return or equivalent in goods or services or money for something exchanged

VALUE CONCEPT (ii)

BS EN 12973:2000 (UK/Europe):

What is necessary for a desired user

$$\text{Value} = \frac{\text{Satisfaction of Needs}}{\text{Use of Resources}}$$

Everything that is required to satisfy needs

VALUE CONCEPT (iii)

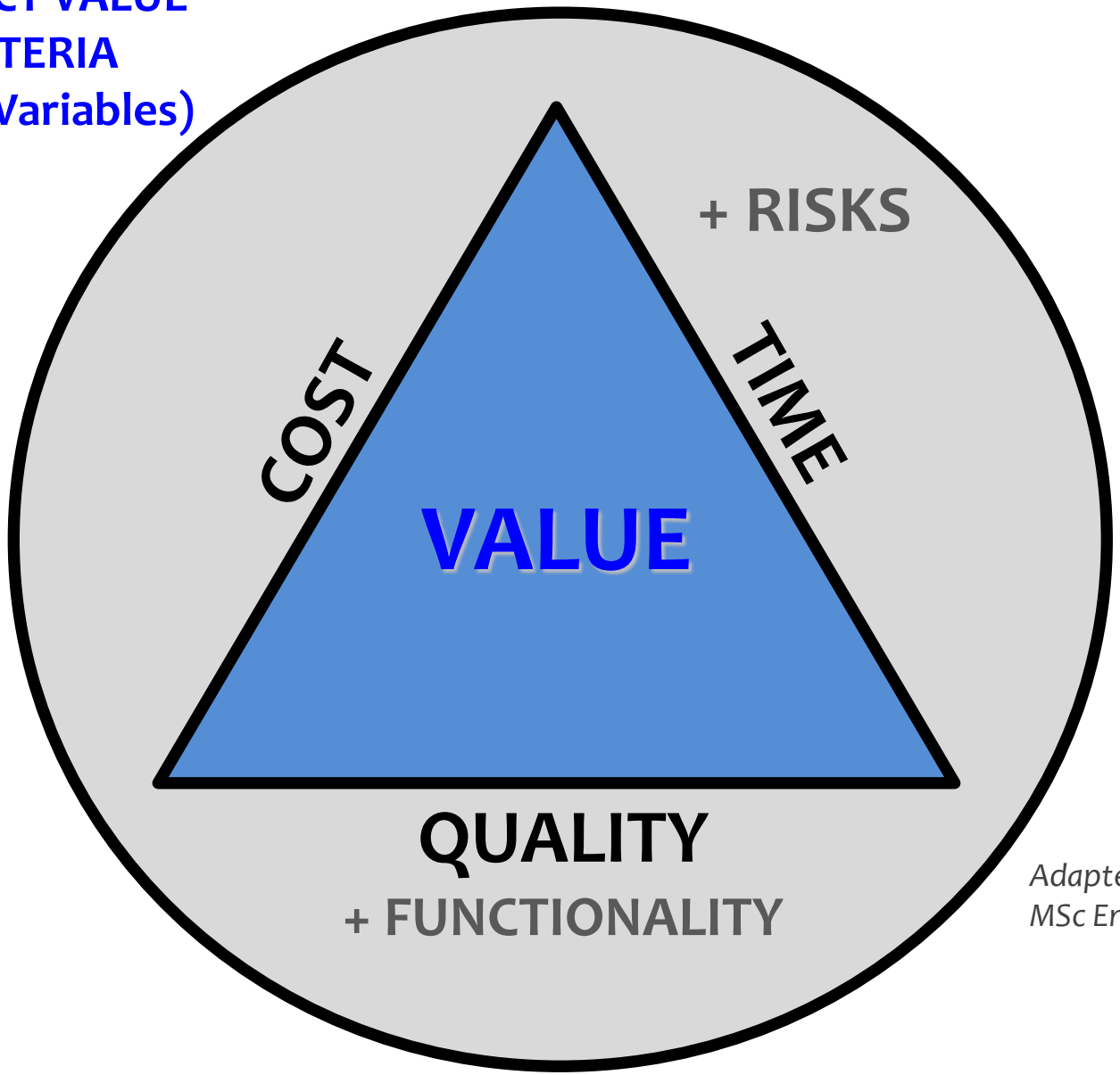
$$\text{VALUE} = \frac{\text{Function (F)} + \text{Quality (Q)}}{\text{Cost (C)}}$$

Function = The specific work that a design or item must perform
Quality = The owner's or user's needs, desires and expectations
Cost = The life cycle cost of the product or project

Value Concept by Dell 'Isola (1982)

VALUE CONCEPT (iv)

PROJECT VALUE CRITERIA (Value Variables)



Adapted from: Prof. S. Male, MSc Eng ICME Lecture (2009)

Value, Cost and Worth

Value is a measure expressed in currency, effort, exchange or on a comparative scale, which reflects the desire to obtain or retain an item or service:

- Use value (measures function of the item)
- Exchange value (amount an item may be sold)
- Esteem value (amount to pay for prestige)

- Cost is the price paid or to be paid
  (note: one man's price is another man's cost)
- Worth is defined as the least cost to perform the required function

Source : Kelly and Male (2003)

Function

Function is a characteristic activity or action for which a thing is specifically fitted, used or for which something exists.

Source : Kelly and Male (1993)

Types of Function;

BASIC FUNCTION:
The primary purpose or most important action performed by a product or service. The *basic function must always exist,* although *methods* or *designs to achieve it may vary*.

SECONDARY FUNCTION:
A function that *supports* the basic function and results from the specific design approach to achieve the basic function. As methods or design approaches to achieve the basic function are changed, secondary functions may also change.
Source: SAVE VM Standard

REQUIRED SECONDARY FUNCTION:
A function that must be achieved to *meet codes, standards or mandatory other requirement.*

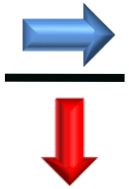
Source: Dell 'isola

Optimizing Value Variables

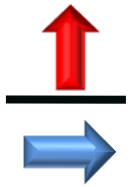
Value Concept by Dell 'Isola (1982)

$$\text{VALUE} = \frac{\text{Function (F)} + \text{Quality (Q)}}{\text{Cost (C)}}$$

Function = The specific work that a design or item must perform
Quality = The owner's or user's needs, desires and expectations
Cost = The life cycle cost of the product or project

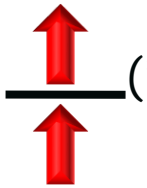


i) Reducing **cost** but maintaining the **function and quality**



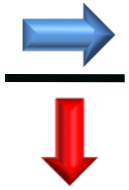
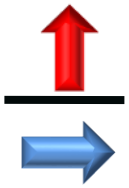
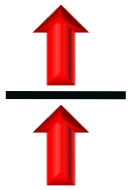
ii) Increasing either the **function or quality or both** but maintaining the **cost**

(iii) Reducing the **cost** and at the same time increasing the **function and quality**



(iv) Increasing the **cost** but at the same time improving **function and quality** at a higher proportion

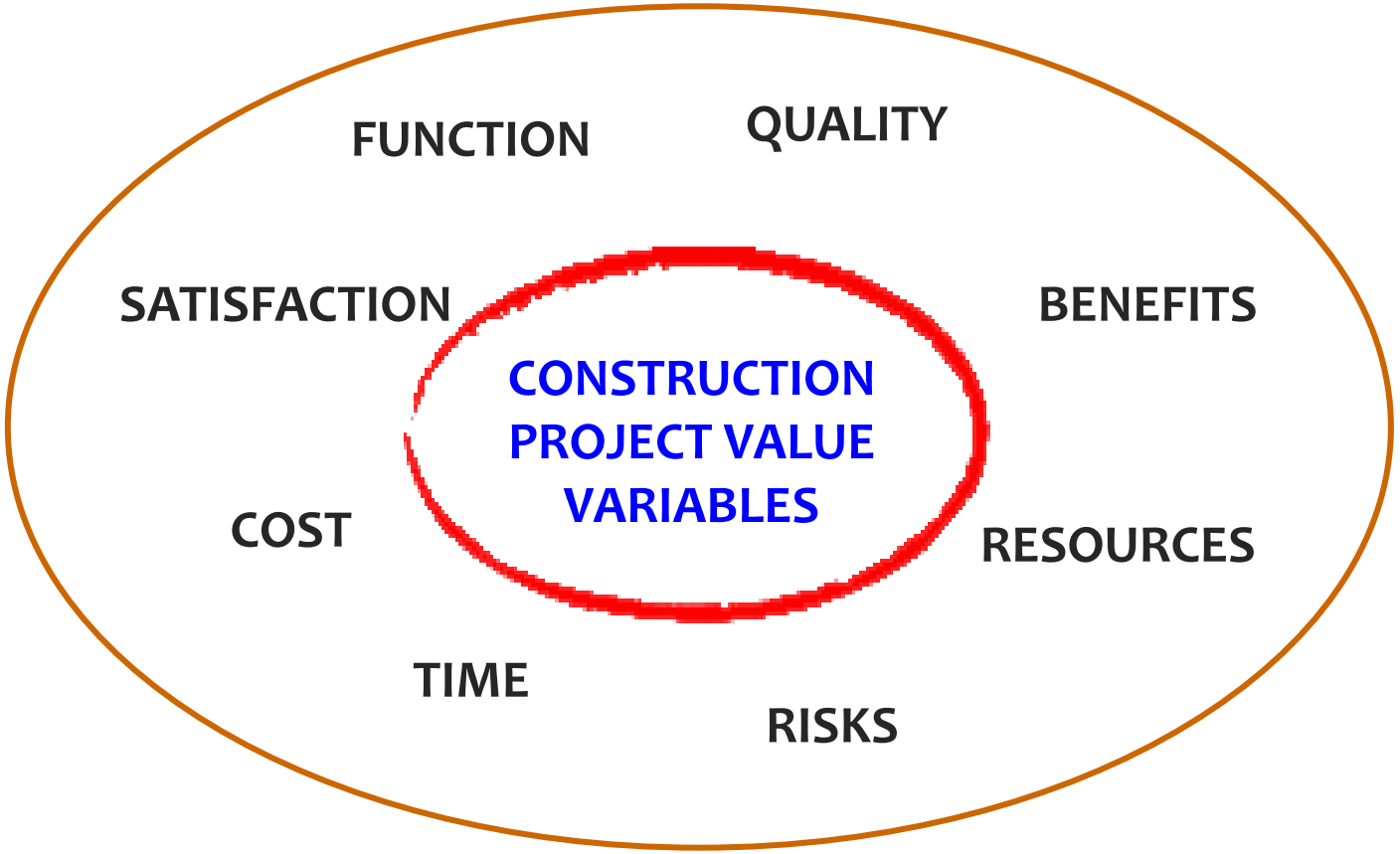
Optimizing Value Variables

VALUE ENHANCEMENT APPROACHES:	POTENTIAL IMPROVEMENTS	POTENTIAL OUTCOMES
1. Cost Reduction Approach  Reducing cost but maintaining the function and quality	• Sharing spaces / facilities • Centarlised functions • Opt for cheaper solutions with same function and quality	• Optimized solution / design • Elimination of redundancies • Unnecessary cost avoidance • Cost optimization
2. Function Increase Approach  Increasing either the function or quality or both but maintaining the cost	• Add or improve functionality and/or quality within cost • Opt for better characteristic or technology, yet within cost	• Improved functionality • Improved quality / characteristic / technology • No cost implication
3. Compound Approach  Reducing the cost and at the same time increasing the function and quality	• Eliminate unnecessary functions / facilities • Eliminate unnecessary quality criteria or technology • Refine functional and/or quality solutions at lower cost	• Unnecessary cost avoidance • Project cost optimization • Improved functionality • Improved quality / characteristic / technology • Cost optimization
4. Expand Growth Approach  Increasing the cost but at the same time improving function and quality at a higher proportion	• Increase sustainable solutions in design • Increase operations ability • Improve maintenance ability • Improve constructability • Opt for better technology	• Improved sustainability • Improved operations / maintainability • Improved constructability / technology • Cost optimization

Optimizing (Trading-Offs) Value Variables

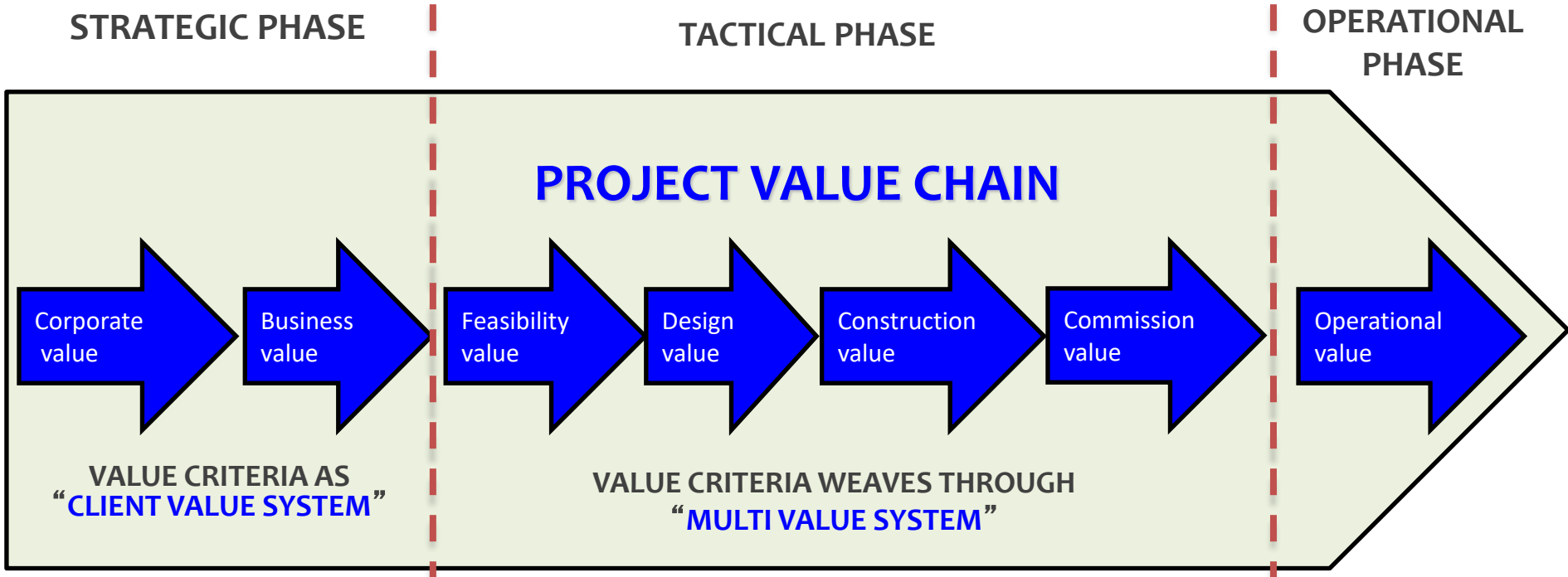
"Juggling among value variables"

Optimizing Construction Project Value Variables



Sr Rohanis Ab Ghani;
Unpublished Research Findings, (UM) 2019

Construction Value Chain Management (VCM)



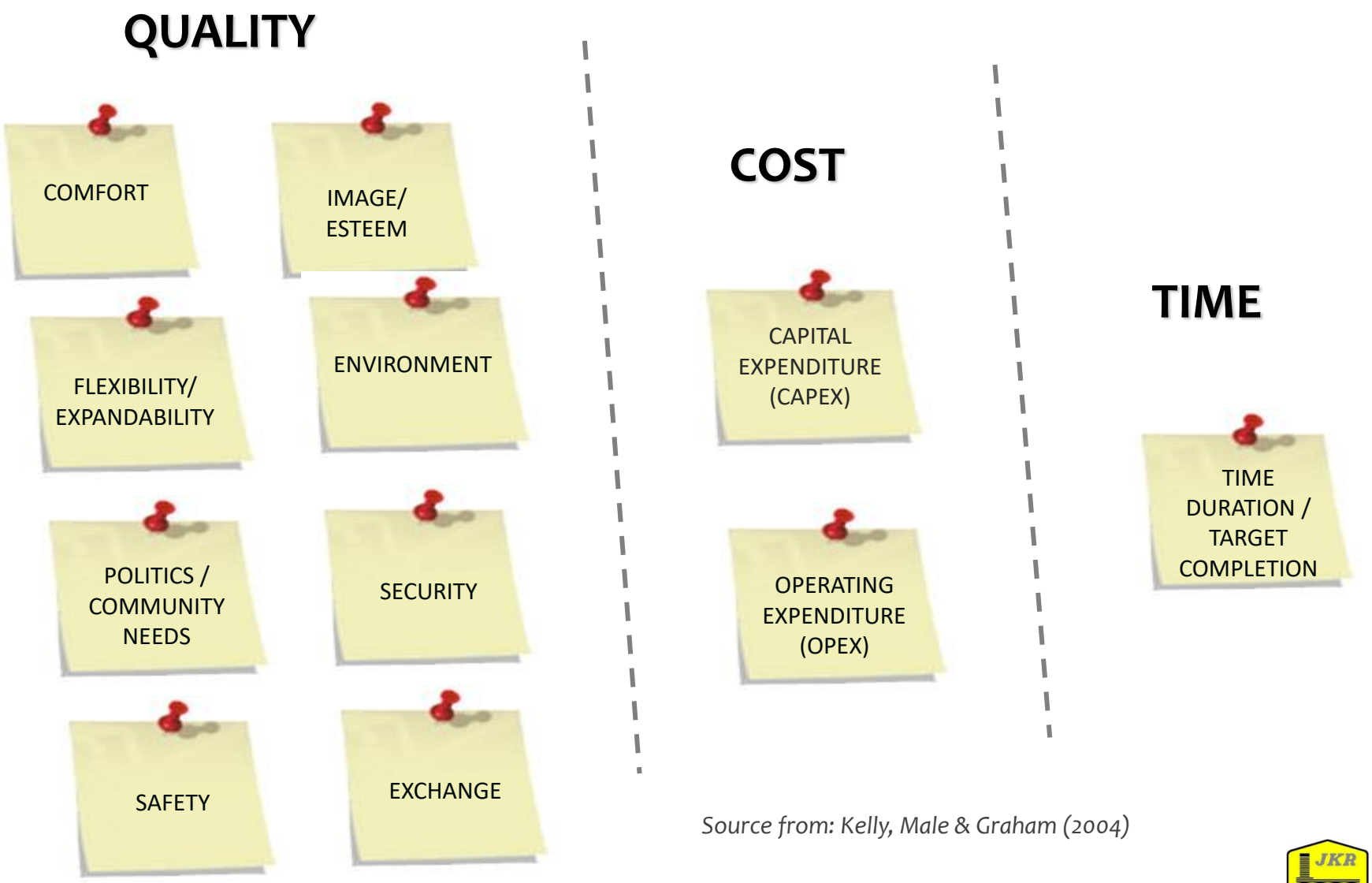
- Client's value
- Users' value
- Customers' value
- Stakeholders' value (Internal & External)
- Authorities' value
- Financier's value

- Client's value
- Designers' value
- Authorities' value
- Project Manager's value
- Contractor's value
- Specialists' value
- Suppliers' value

- Client's value
- Users' value
- Customers' value
- Concessionaire's value
- Authorities' value
- Financier's value

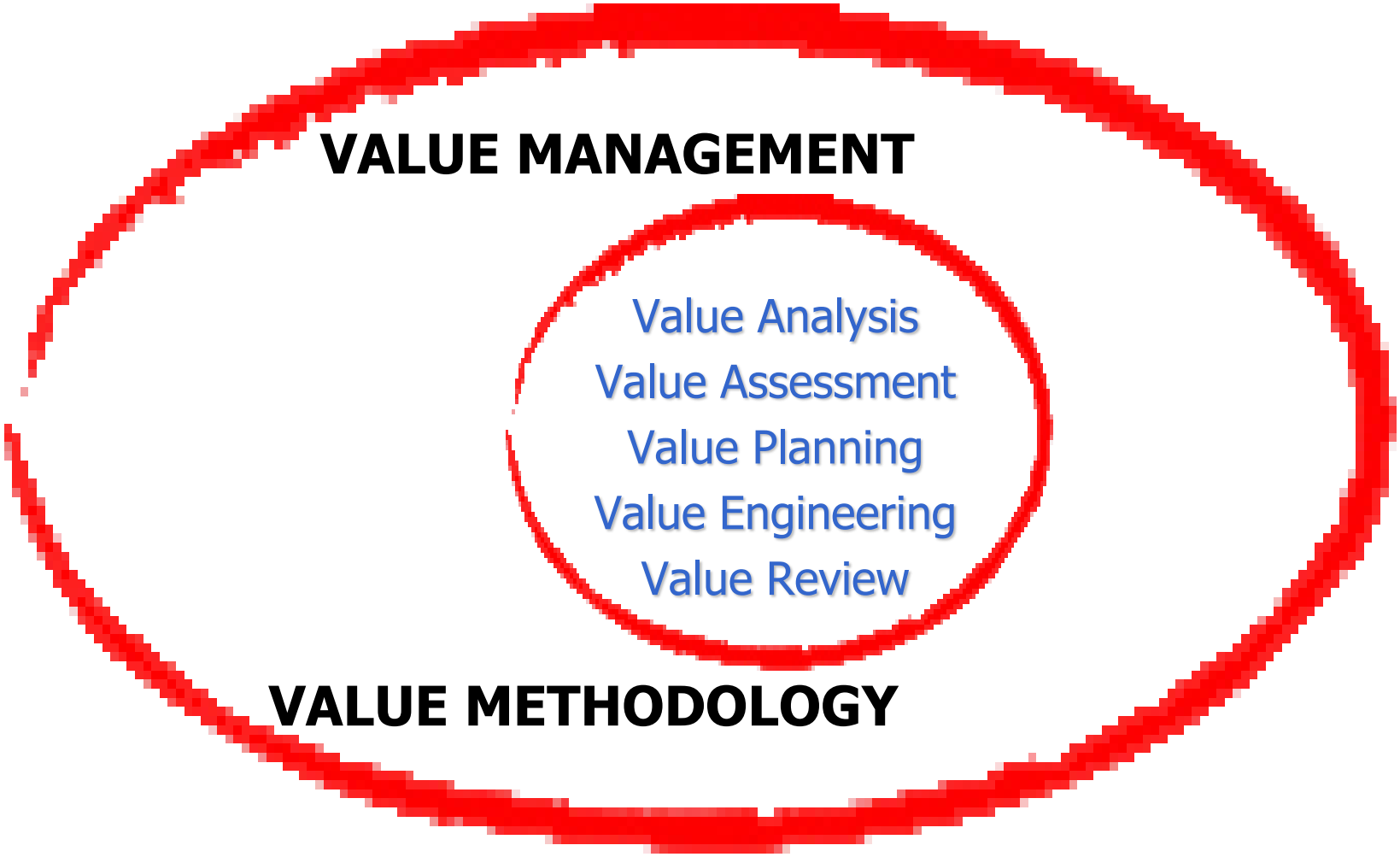
Adapted from: Kelly, Male & Graham (2004)

Value Criteria (Client Value System)



Source from: Kelly, Male & Graham (2004)

VM Terminologies



VM Study vs. VE Study

Why invest?
(*Getting the right project*)

Invest in the right technical solution
(Getting the project right)

Value Management Philosophy

MAXIMIZING PROJECT VALUE

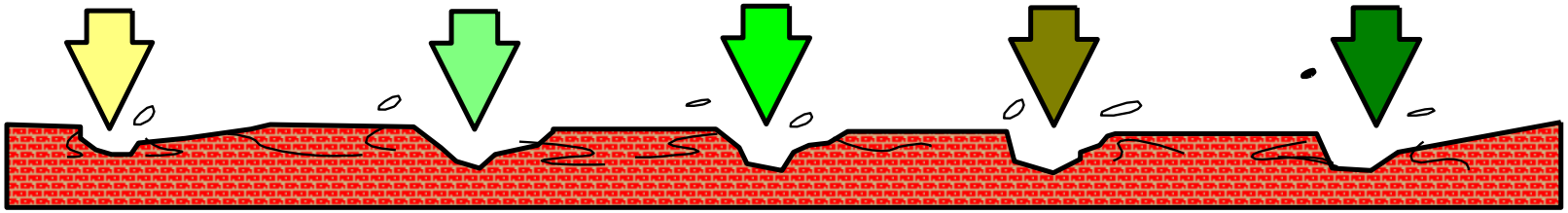
Optimize value variables (time, cost, quality, function, risk), and align with strategic objectives through out the project life cycle in achieving best Value For Money.

NOT COST CUTTING

Cost cutting is making adjustments to scope, quantities, specifications etc., in order to bring a project or element within a predetermined cost limit.

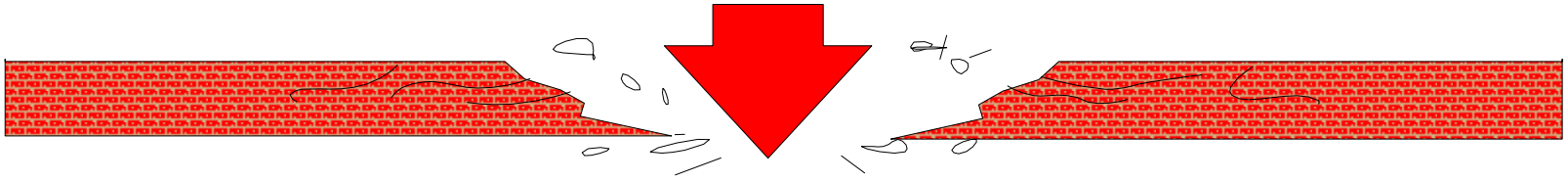
VM Team Approach

INDIVIDUAL EFFORTS



VM APPROACH

VM TEAM EFFORT



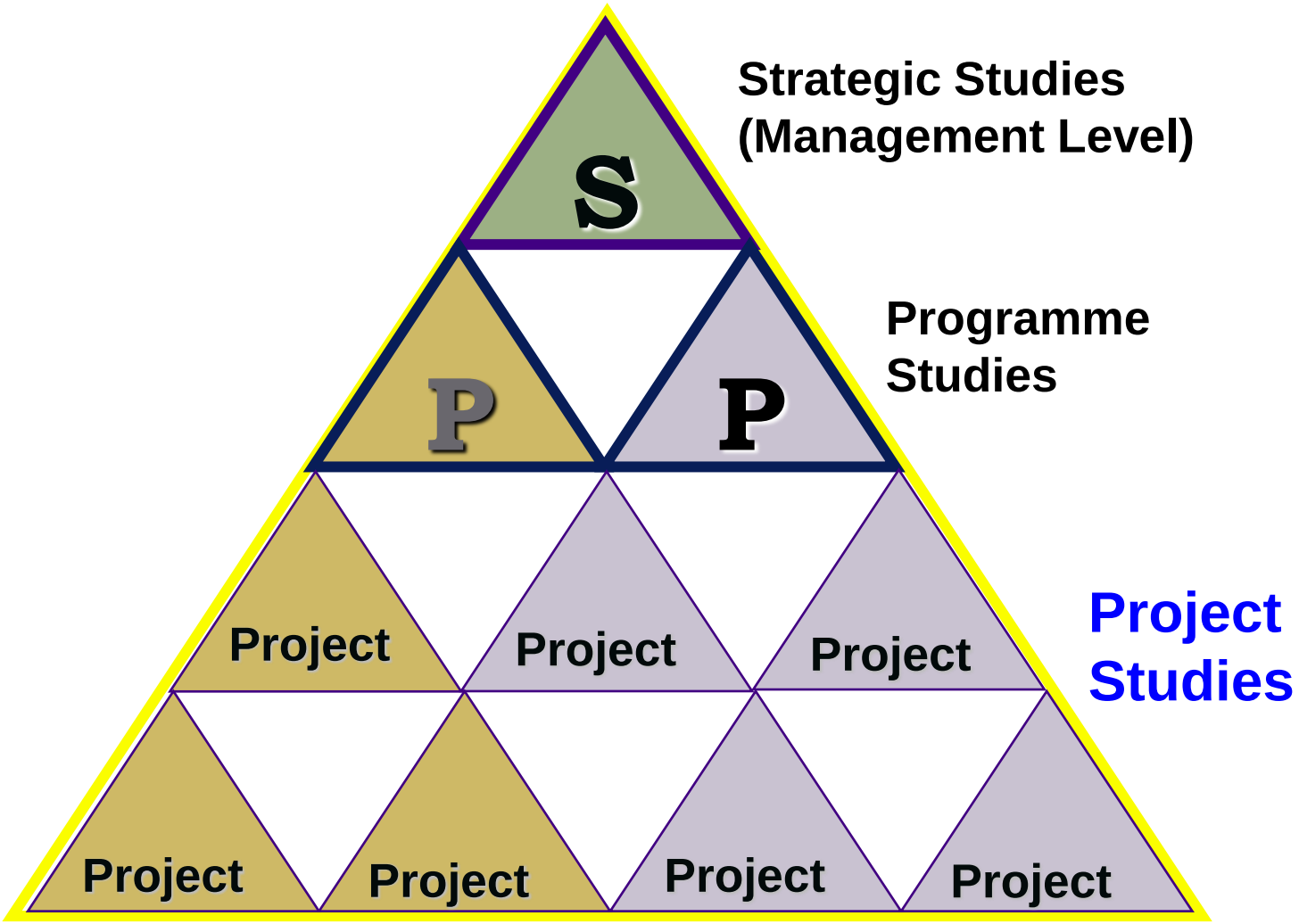
SOLUTION

Source: Abdulaziz S. Al-Yousefi (2008)

VM Impacts to Construction Projects

- Costly projects – 5% or higher cost savings from estimated cost
- Complex projects – a platform to get expert second opinions
- Repetitive costs – very cost effective in reducing cost in other similar projects
- Restricted budgets – to optimize cost for maximizing value

VM Implementation Levels



VM Benefits

- Better investment decision
- Improved products or services
- Robust management style
- Vehicle for innovation & change
- Effective methods and tools
- Enhanced competitiveness
- Improved communication
- Positive human dynamics

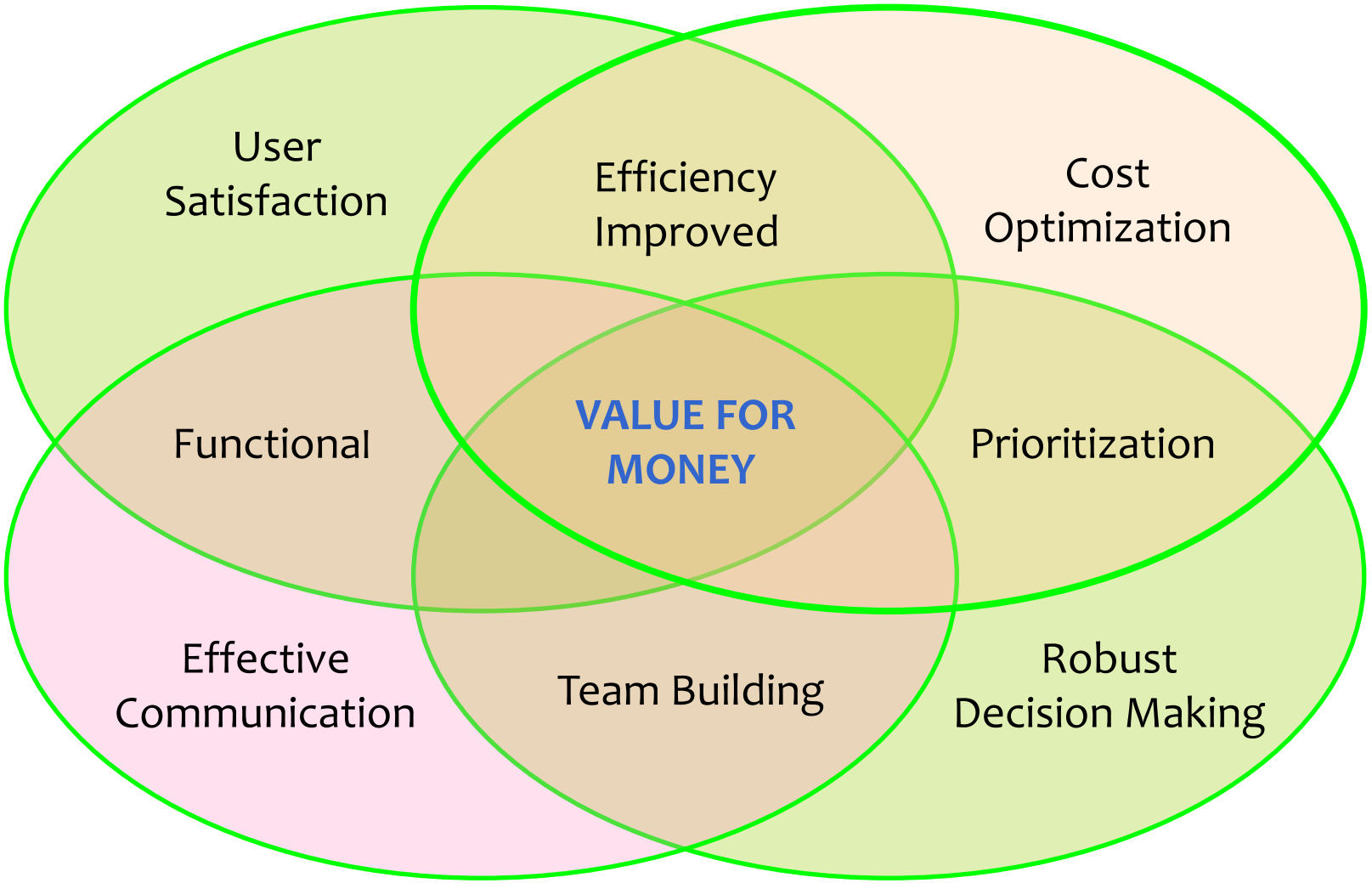
Challenges in VM

- Misconceptions about VM
- Misconduct of VM practices
- Confusion in VM terminology and process
- Lack of commitment and support
- Negative attitudes and rejections
- Unreliable information and data been provided
- Time schedule & cost expenses for VM workshop

Misconceptions about VM

✗ **Just another cost cutting tool**	▶	Eliminates unnecessary cost whilst retains or enhance quality or performance ✓
✗ **Equals to "Design Reviews" or "Cost Planning"**	▶	More systematic, disciplined and far reaching, function orientated, structured decision making tool, emphasizes on audits and a range of alternatives ✓
✗ **Additional "Road Block" & time consuming**	▶	Set strategic interventions along the project life cycle to improve delivery efficiency and whole development time ✓

Outcomes of VM



VM - JKR STRATEGIC FRAMEWORK

THEME 1	THEME 2	THEME 3	THEME 4	THEME 5
				
Outstanding Project Delivery	Co-creative Customer Experience	Centre of Technical Excellence	Leading Sustainability	Innovative Organization

STRATEGIC RESULTS

Excellent Project Execution	Delighted Customer	JKR as a Technical Reference Centre	Sustainable Infra-structure	Innovative Solutions