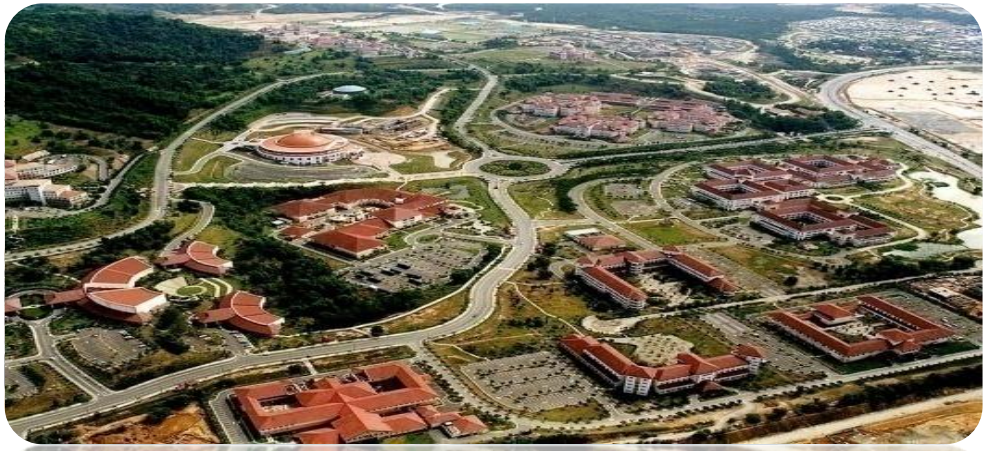
VM

IN CONSTRUCTION



Contents

- **VM IMPLEMENTATION IN CONSTRUCTION INDUSTRY**
- **VM IN MALAYSIAN PUBLIC PROJECTS**

Lecture Objectives

- **AWARENESS OF VM APPLICATION IN CONSTRUCTION PROJECTS**

Common Issues in Construction (i)

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 overlooked.
- Lack of overall project communication procedures.
- Inappropriate process in procurement and appointment of consultants and design team.

Source: MCM (2011)

Common Issues in Construction (ii)

Design Phase:

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

Source: MCM (2011)

Common Issues in Construction (iii)

Tender Phase:

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

Source: MCM (2011)

Common Issues in Construction (iv)

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 (2011)

Common Issues in Construction (v)

Handing Over, Operation & Maintenance Phase:

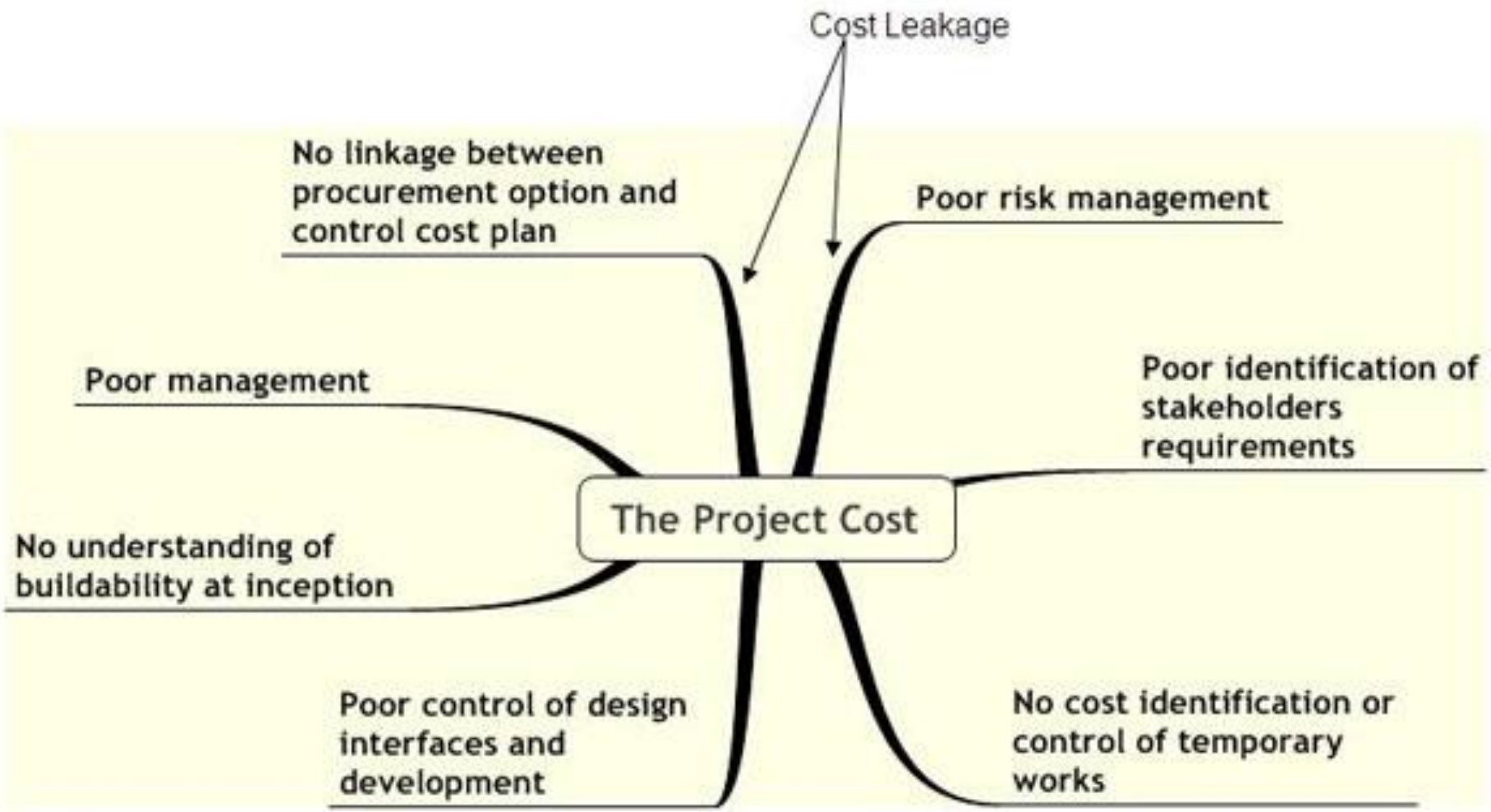
- Some important requirements of operational & maintenance overlooked.
- Handing over procedures not properly developed or practiced.

Source: MCM (2011)

Issues Contributing To Poor Values

- 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)


Cost Leakage
No linkage between procurement option and control cost plan
Poor risk management
Poor management
Poor identification of stakeholders requirements
The Project Cost
No understanding of buildability at inception
Poor control of design interfaces and development
No cost identification or control of temporary works

Philosophy of VM

- **MAXIMIZING PROJECT VALUE**
  - VM maximizes project value aligned to the strategic objectives determined by client; throughout its life cycle to achieve best value for money.

- **NOT COST CUTTING**
  - Cost cutting is a straight omission or adjustment (to scope, specification etc.) to meet any predetermined cost target.

VM Contribution to Project Management

TYPICAL PROJECT STAGES

Inception	Concept	Feasibility	Implementation

VM INTERACTIONS WITH PROJECT MANAGEMENT (PM) →

IMPROVED PROJECT OUTCOME

Establish Needs & Outcomes	Improve Strategy	Enhance Viability	Maximize Cost Effectiveness

THE CONTRIBUTION OF VM

Source: Male S. (2011)

VM advantages in construction industry

- An understanding of the essential business needs and success criteria of clients, users, stakeholders
- A clear performance concise in terms of value objectives
  - The skills, expertise and knowledge needed.
- No areas of ambiguity (with respect to policy issues and expected outcomes)
- An effective team with good communications
- Determination to eliminate unnecessary costs
- Seek creative and innovative solutions.
- Promote system thinking

Unnecessary Costs

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 delivered service to customer needs"

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

Honest but wrong belief

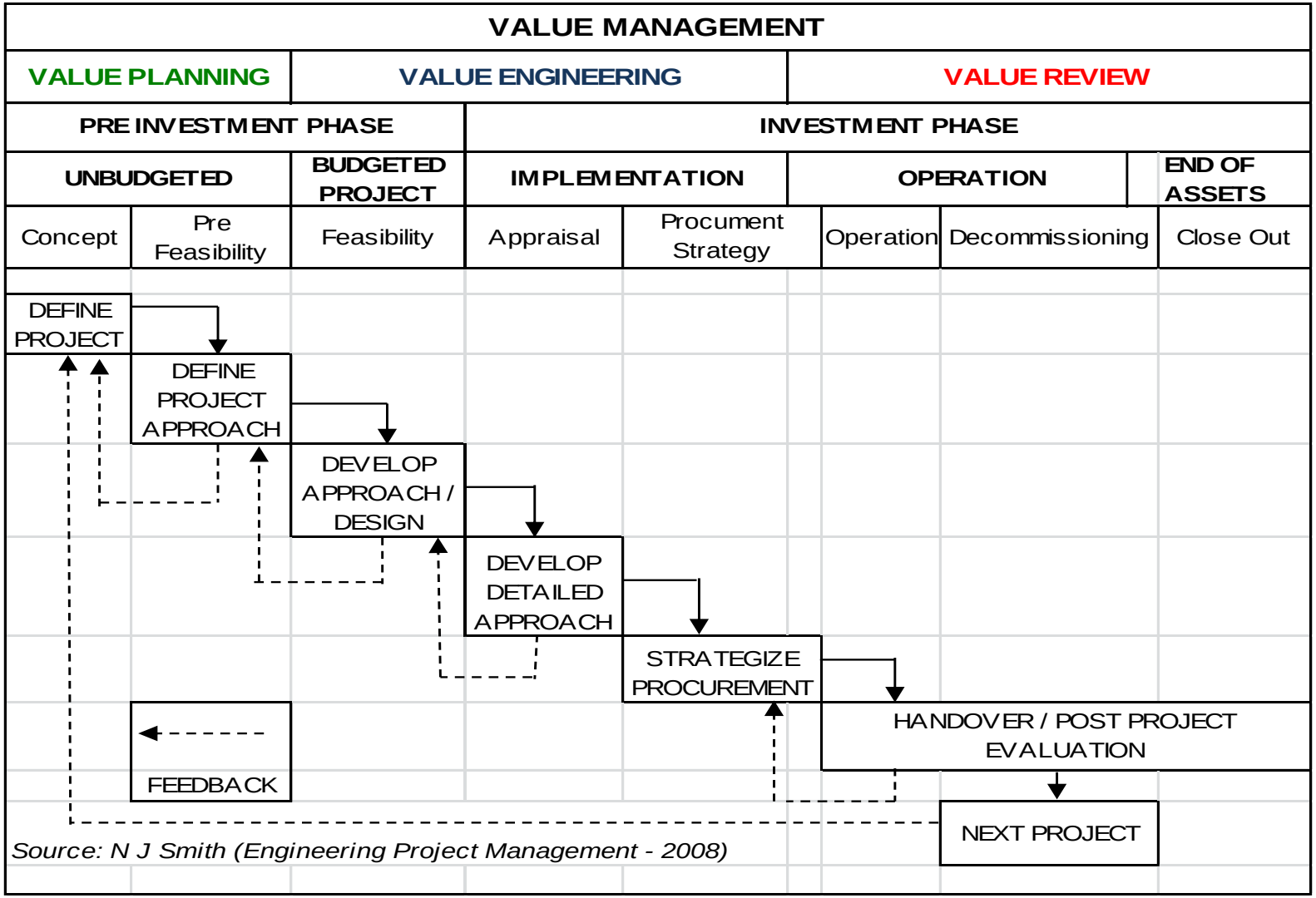
Habits and attitudes

Reluctance to seek advice

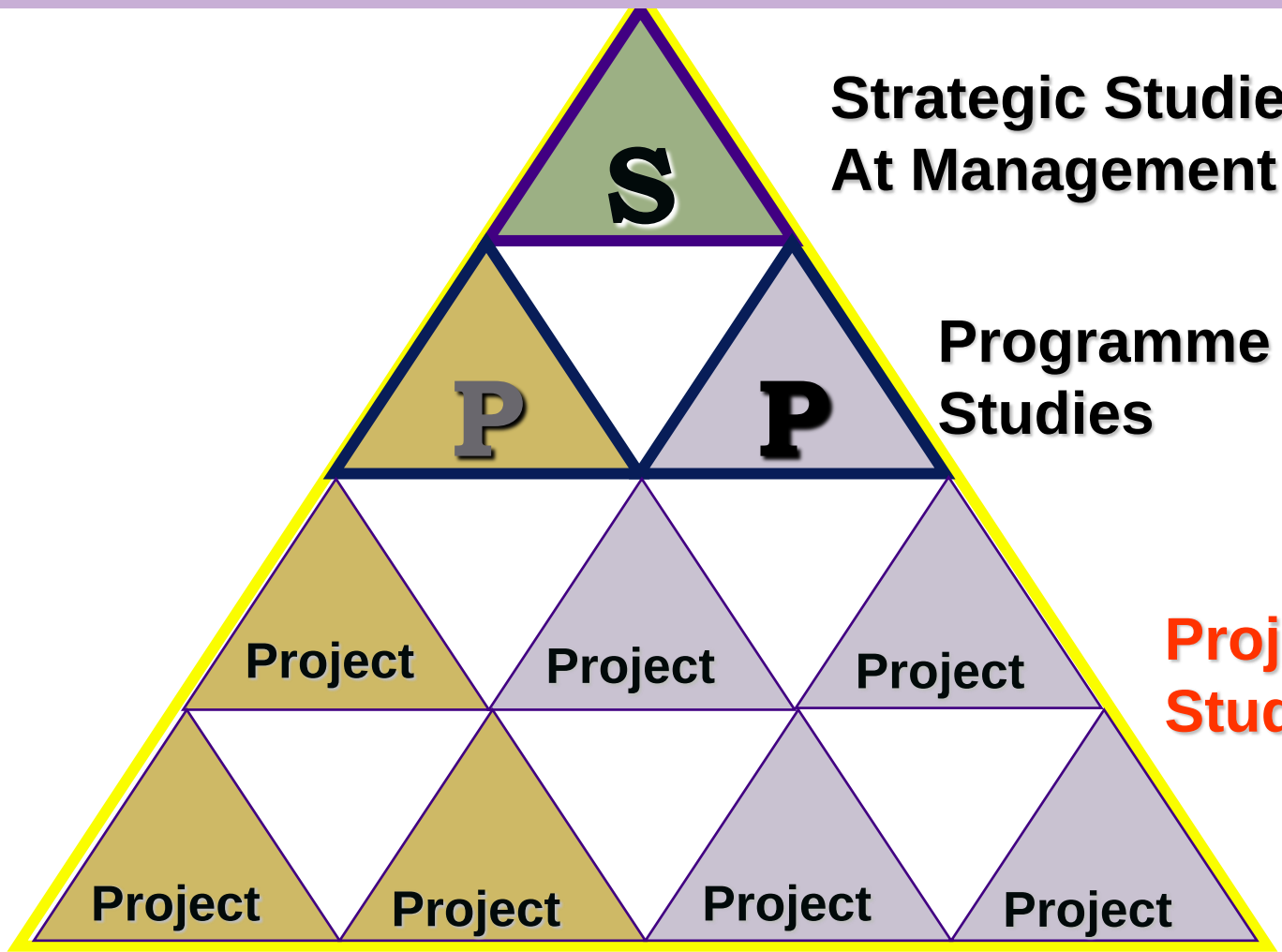
Unrealistic judgement

Human factor

VM in Project Life Cycle



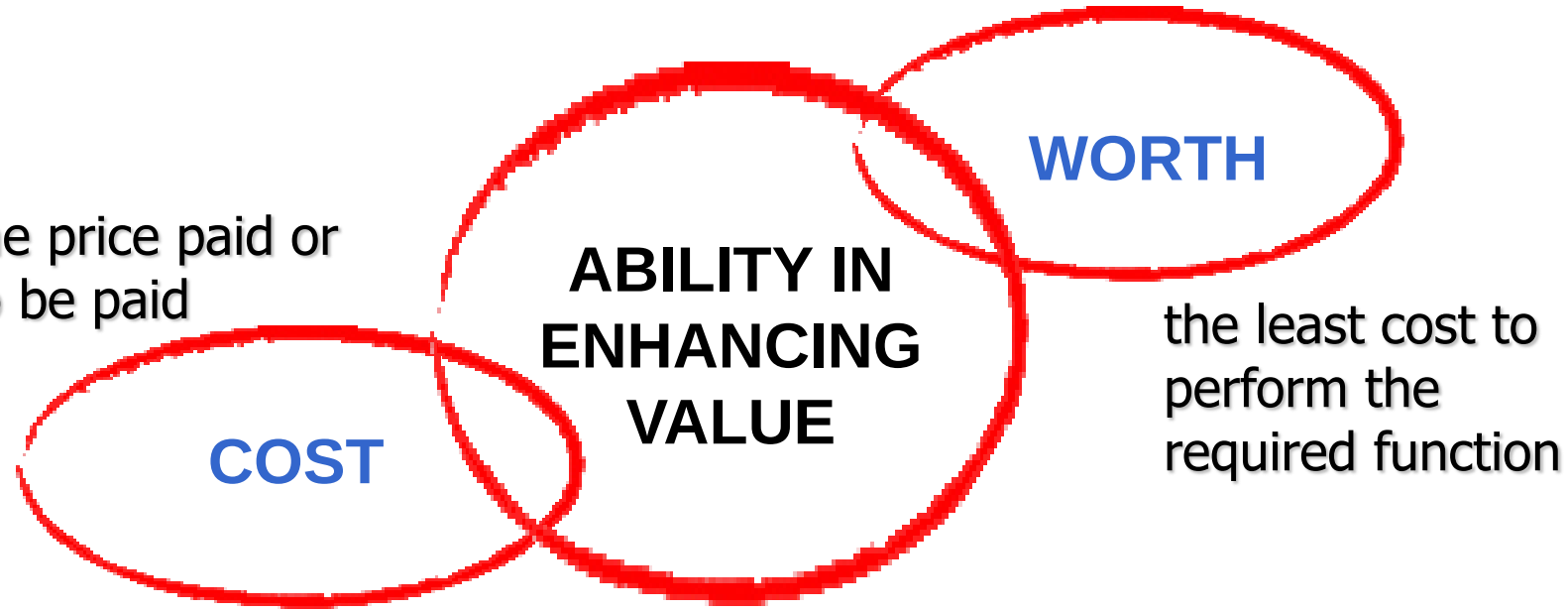
VM Study Cascade



VM Impact

- 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 & Project Economics



MANAGE COST	PROJECT ECONOMICS INTEGRATION	MANAGE VALUE

Value Optimization

- Clear business objectives, needs and value systems or value criteria
- Project deliverables aligned with functions
- Balance among cost, function, quality, risk

- Elimination of unnecessary costs
- Creative & innovative solutions sought

VM IN PUBLIC PROJECTS

Government Concerns

- **CAPITAL** is not a free commodity
- **SCARCITY** of fund
- **POOR VALUE** occurs
- **UNNECESSARY COST** exists
- **NON SATISFACTION** happens
- AT PRESENT **COMPETITIVE ENVIRONMENT**

Our VM Standard

PANDUAN PELAKSANAAN PENGURUSAN NILAI DALAM PROGRAM/PROJEK KERAJAAN

UNIT PERANCANG EKONOMI (UPE), JABATAN PERDANA MENTERI, VERSI 1 TAHUN 2011

(24 MEI 2011)

EPU VM Circulars

- **PEKELILING**

  GARIS PANDUAN PELAKSANAAN PENGURUSAN NILAI

  UNIT PERANCANG EKONOMI, JABATAN PERDANA MENTERI

  BILANGAN 3 TAHUN 2009 (29 DISEMBER 2009)

- **PANDUAN PELAKSANAAN**

  PENGURUSAN NILAI DALAM PROGRAM/PROJEK KERAJAAN

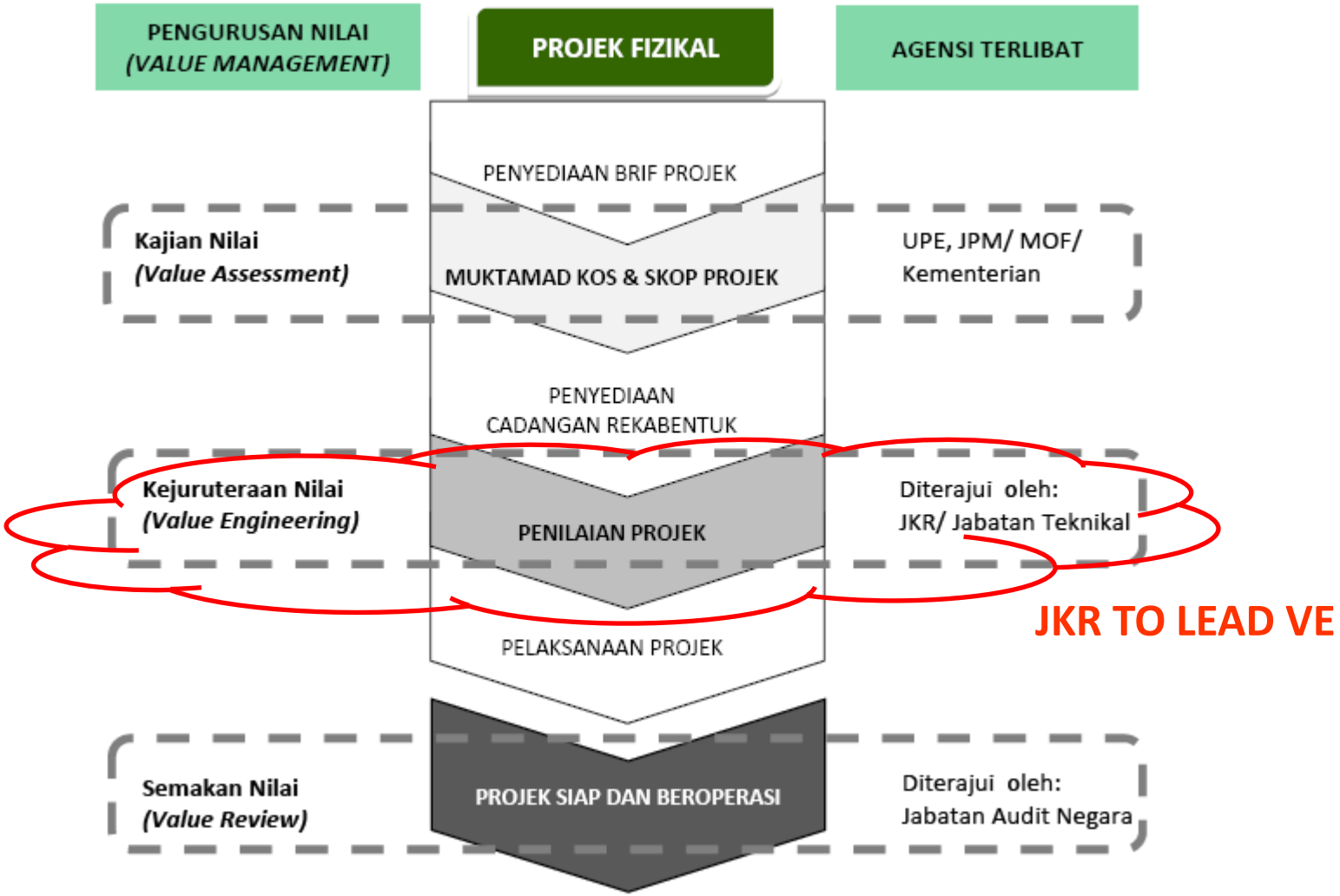
  UNIT PERANCANG EKONOMI, JABATAN PERDANA MENTERI

  VERSI 1 TAHUN 2011 (24 MEI 2011)

MANDATORY FOR

PROJECTS > RM 50 m

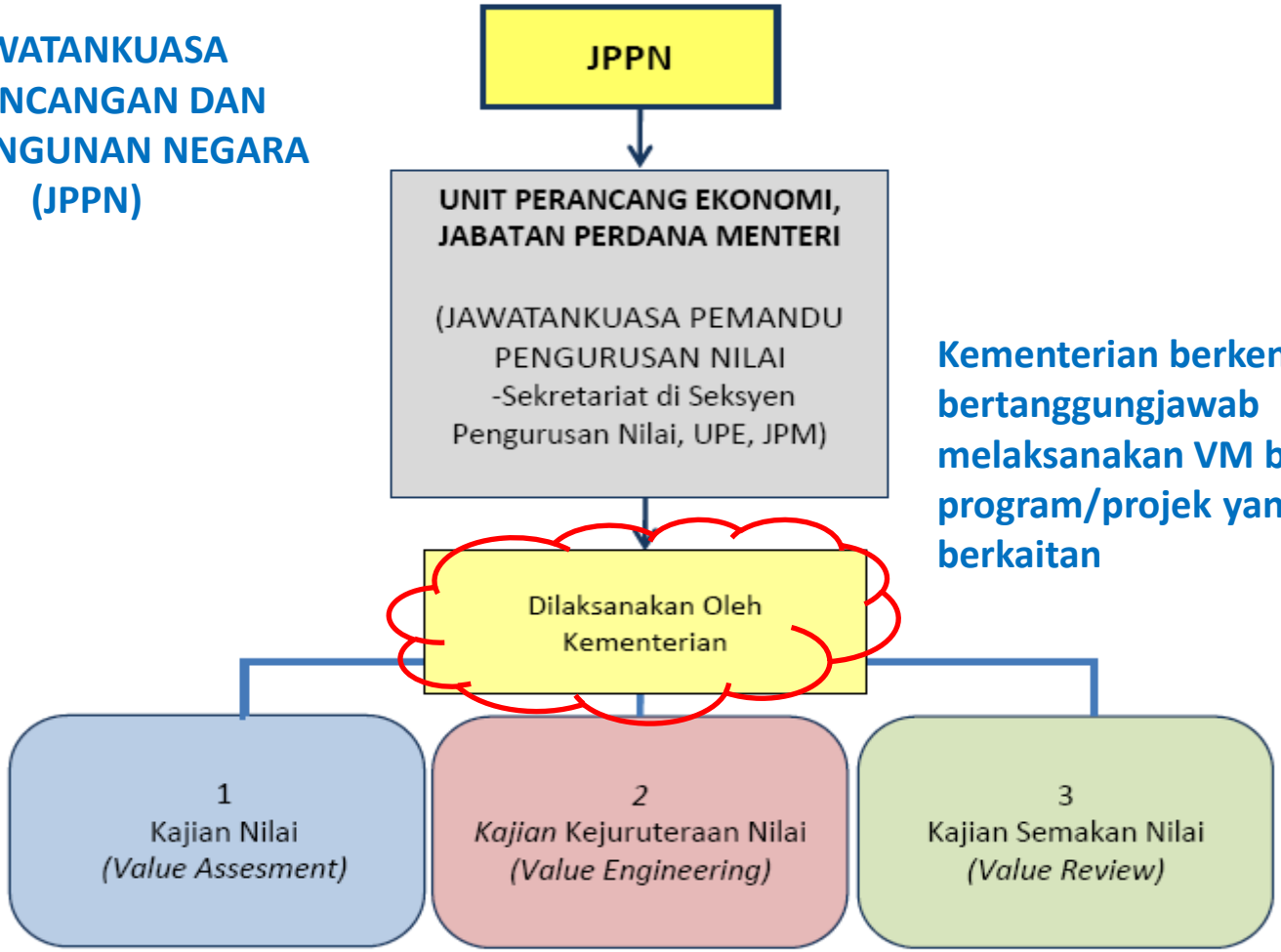
EPU VM Guide



Source: EPU's Panduan Pelaksanaan Pengurusan Nilai dalam Program/Projek Kerajaan.

EPU & Client's Roles

JAWATANKUASA PERANCANGAN DAN PEMBANGUNAN NEGARA (JPPN)



Kementerian berkenaan bertanggungjawab melaksanakan VM bagi program/projek yang berkaitan

Struktur Organisasi Pelaksanaan VM

Sumber : Panduan Pelaksanaan Pengurusan Nilai dalam Program/Projek Kerajaan.

VM Interventions (EPU)

VALUE ASSESSMENT
(Asset Creation)

VA

- **Business Case validation**
- **Project Scope Definition**
- **Budget Capping**

VALUE ENGINEERING
(Design & Construction)

VE

- **Cost Optimization**
- **Functional Design**
- **Meet User Satisfaction**

VALUE REVIEW
(Operation)

VR

- **Benefits or Outcomes Review**
- **Operational Improvement**
- **Lessons Learned**

VE APPLICATION IN PUBLIC PROJECTS

VALUE ENGINEERING
APPLICATION GUIDELINES
For Public Projects

prokom
PROJECT MANAGEMENT EXCELLENCE

VE APPLICATION IN PUBLIC PROJECTS

GOVERNMENT'S DIRECTIVE :

All public projects that has undergone VA studies to progress into the relevant VE studies to **ensure continuity and consistency** of **value transmission** into design development.

VE STUDY → systematic approach → **REQUIRED FUNCTIONS**

Minimum cost,
Focusing on improving value

VE Study "Must Have" Characteristics:

- **Structured and dynamic VE Study process**
- **Application of appropirate VE tools and techniques**
- **Multi-diciplinary teamwork orientation**
- **Emphasis on function analysis**
- **Clarity of value criteria (value objectives)**

Source : JKR VE Application Guidelines for Public Projects.

VE APPLICATION GUIDELINE IN PUBLIC PROJECTS

PURPOSE:

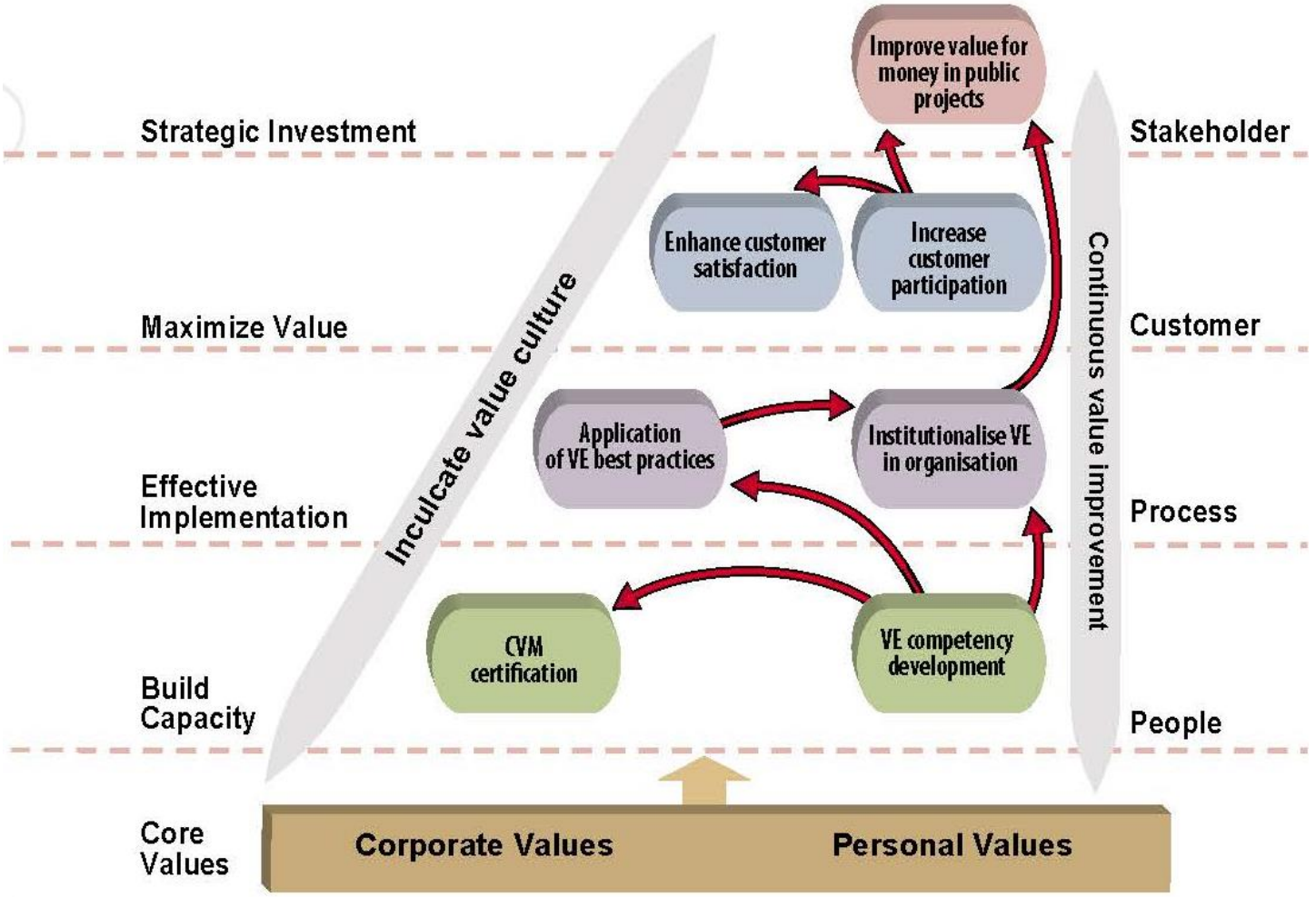
To further clarify the policy, process and procedure on VE implementation in line with Malaysia Government's Circulars : Value Management Implementation Guideline No.3/2009 and Value Management Implementation Guide in Government Programmes/Projects" published by EPU.

The Document Outlines Policies On:

- **VE GOVERNANCE**
- **VE FRAMEWORK**
- **VE INTERVENTIONS**

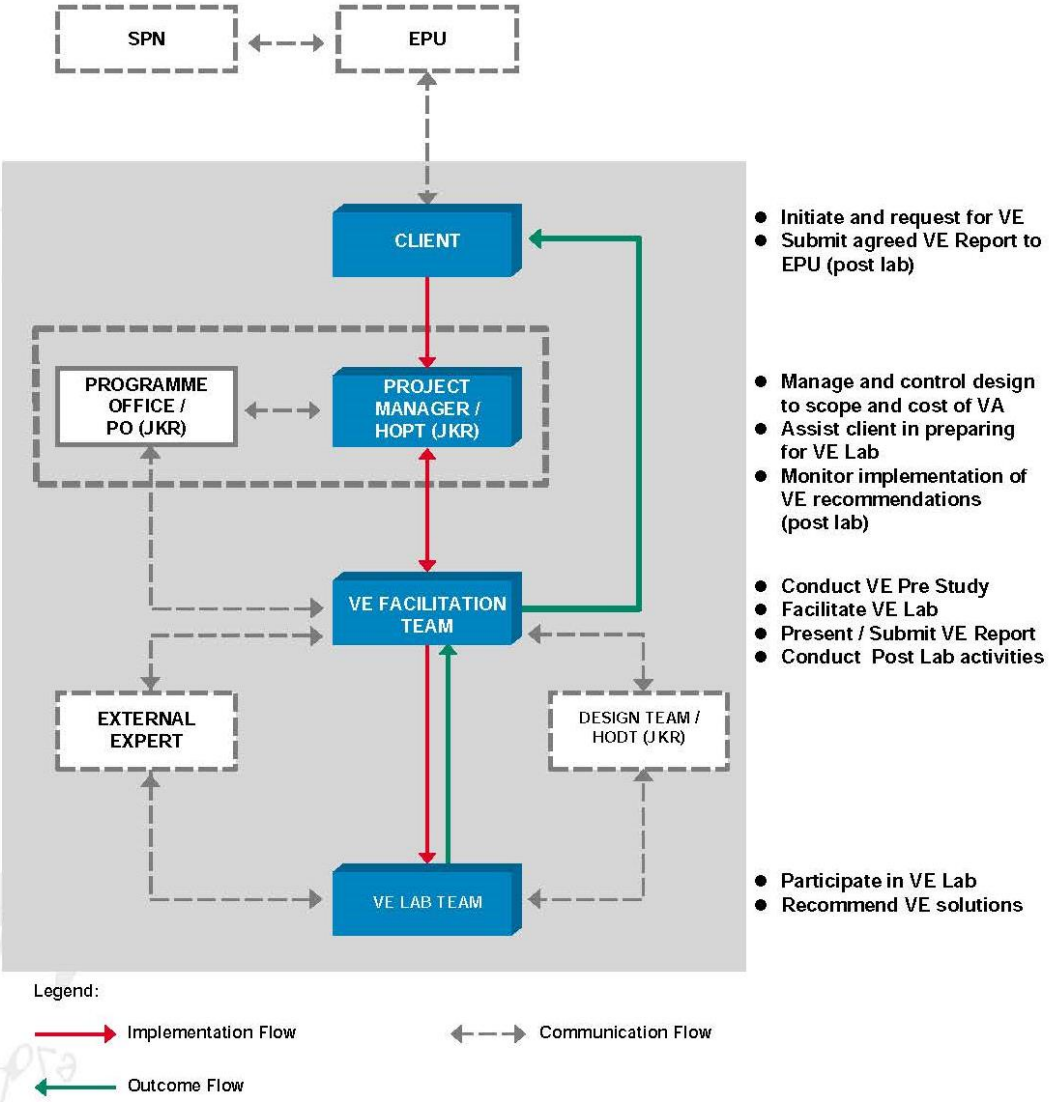
Focusing on JKR work process, as well as to SET STANDARDS OF VE PRACTICE IN PUBLIC PROJECTS.

VE FRAMEWORK IN JKR



Source : JKR VE Application Guidelines for Public Projects.

VE GOVERNANCE IN JKR



Source : JKR VE Application Guidelines for Public Projects.

VM Advantages to Government

- Establish clients' needs and value systems
- Establish objectives and project functions
- Establish quality and design criteria
- Facilitate design development and innovation
- Eliminate or reduce unnecessary costs
- Minimize variation works (VO)
- Improve construction methods and performance
- Manage risk affecting project value
- Optimize Whole Life Cost / Life Cycle Cost
- Enhance operational effectiveness
- Satisfy users' requirements
- Improve communications and collaborations

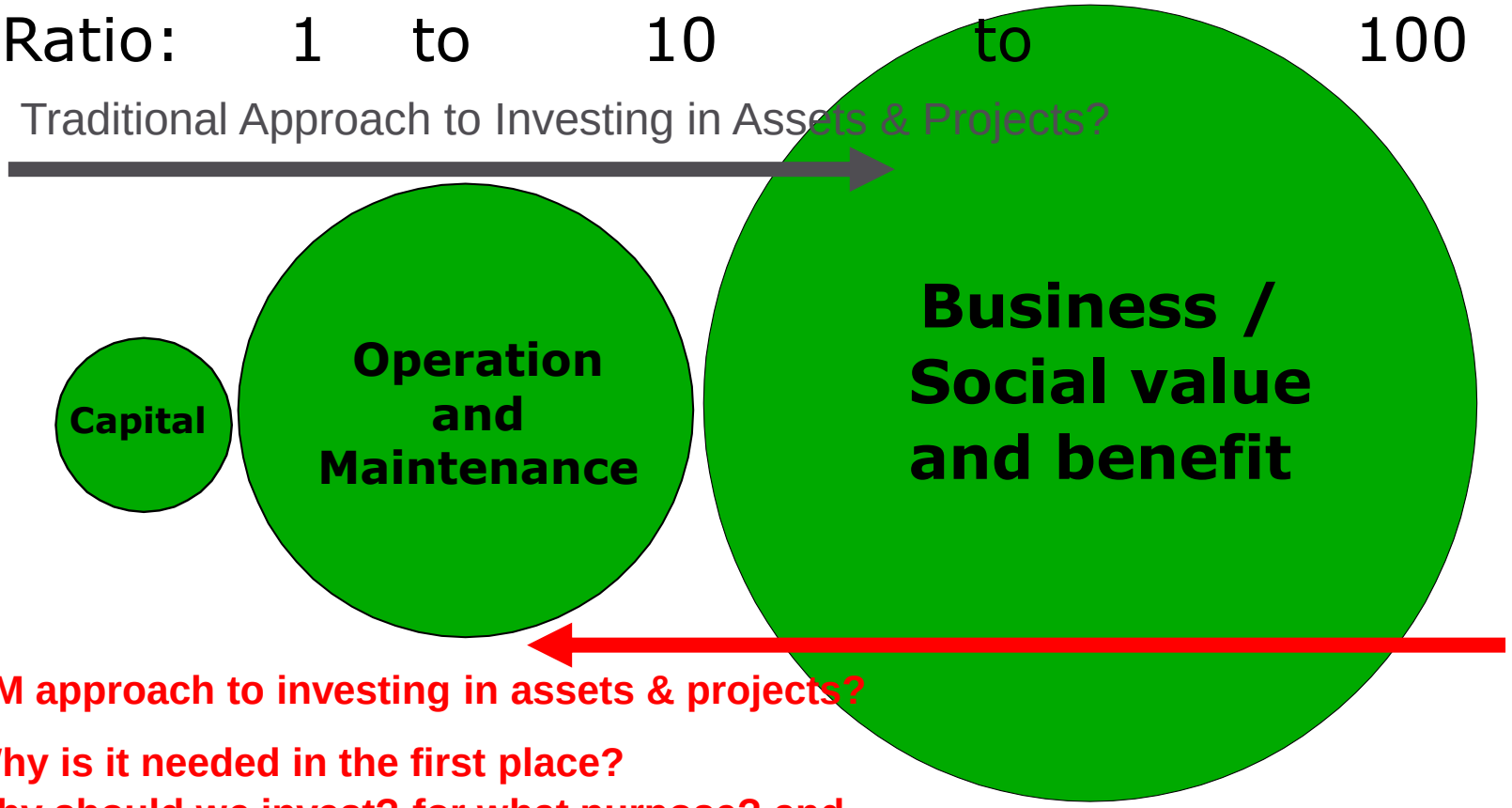
Ways Forward

- VM in Asset Management Strategy
- VM with Life Cycle Cost (LCC) driven
- VM integration with *Gerbang Nilai* process
- VM and Risk Management (VRM)
- VE Change Proposal (Incentive based)
- VM in Partnering Overlay (Incentive based)
- VM in PPP/PFI or Relational Contracting (Integrated Procurement Strategies)

VM in Asset Strategy

(Reverse Engineering of Client's Assets and Projects)

Ratio: 1 to 10 to 100



Why is it needed in the first place?
why should we invest? for what purpose? and
what benefits will be derived from that investment?

Source: Adapted from Professor Ken Treadaway (5RE)

LCC Concept in VM

LIFE CYCLE COST (LCC):

is a management tool that details all costs - capital, operational and replacement costs associated with either a total asset or any of components over its economic life or a specific period of time.

An investment decision should be made on the total LCC of an asset or a component and not just on the initial capital cost.

Elements of LCC

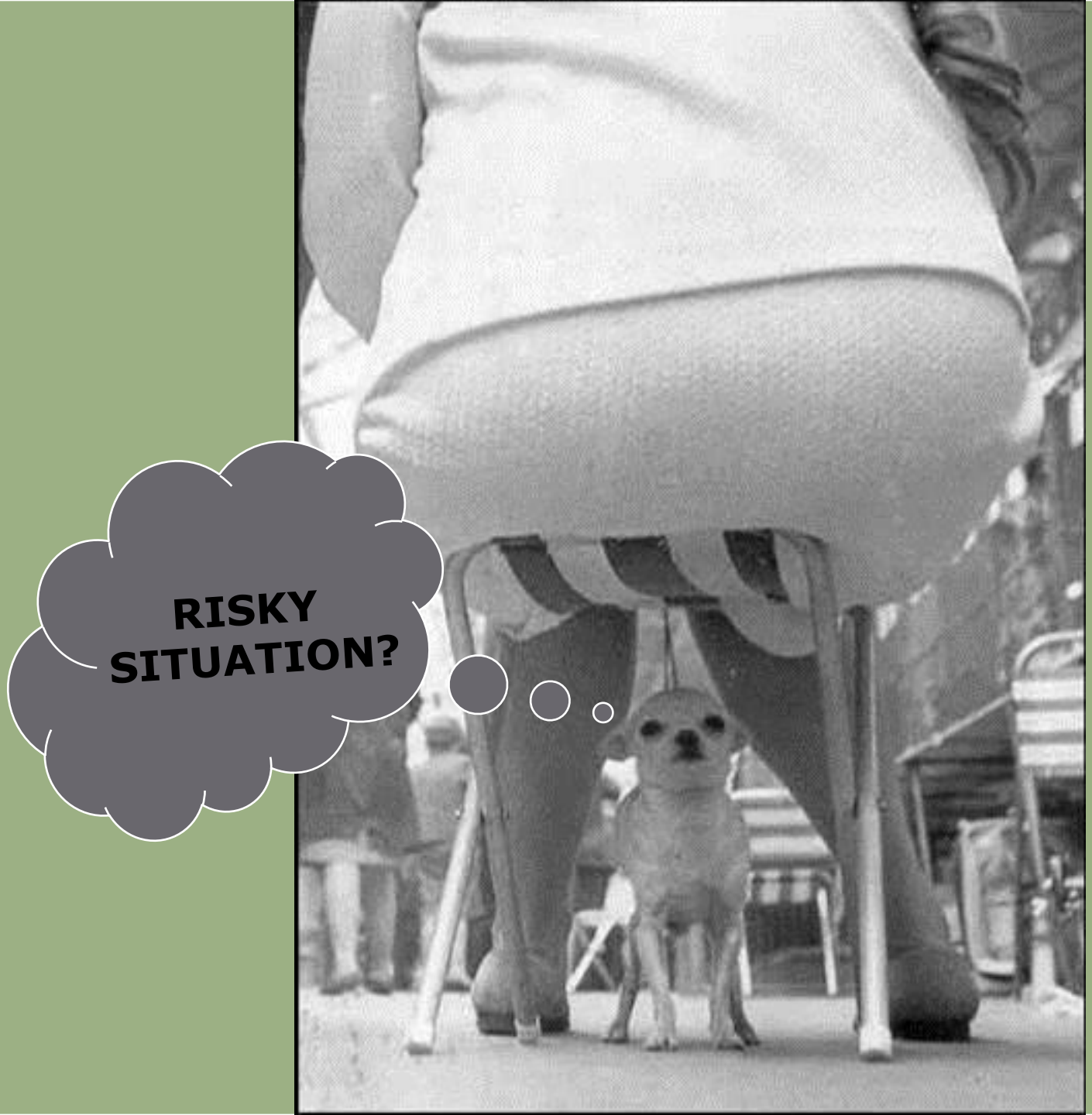
- **INITIAL COST**
- **FINANCING COST**
- **OCCUPANCY COST**
- **OPERATING (ENERGY) COST**
- **MAINTENANCE COST**
- **ALTERATION COST**
- **REPLACEMENT COST**
- **ASSOCIATED COST (INSURANCE, SECURITY, TAX ETC)**
- **SALVAGE / DISPOSAL COST**

Risk Management

DEFINITION OF RISK MANAGEMENT

" The culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects "


RISK !!


RISKY
SITUATION?

Value & Risk Management Integration

- Minimizes the concern that project values cannot be maximized unless the associated risks have been managed.

- Both methodologies are interrelated and complement each other
  - Managing value can reduce project risks
  - Managing risks provides opportunities to increase value

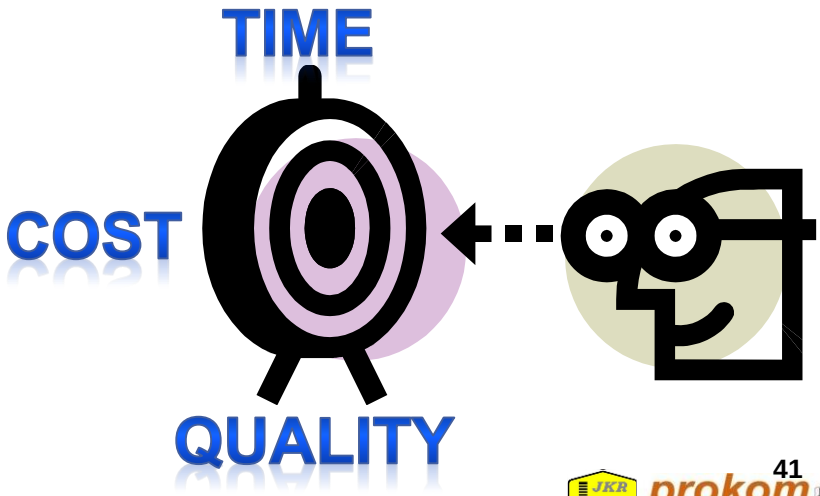
- Both are best managed in parallel

- Integration through the project cycle may produce better results with optimum performance and quality

Source : JKR VE Application Guidelines for Public Projects.

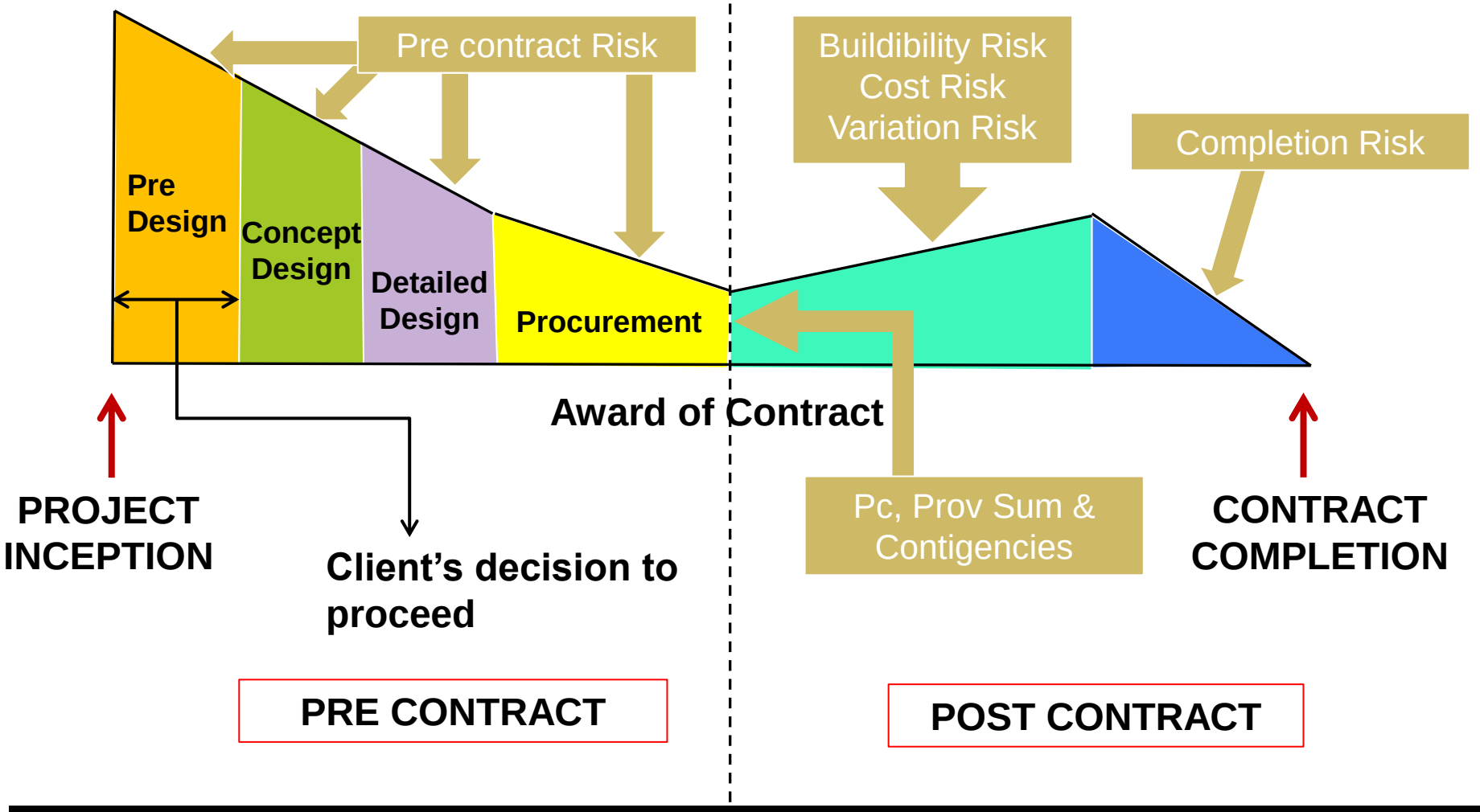
Value & Risk Management Integration

- **Aims:**
  - A fully integrated Value and Risk Management (VRM) will be considered together to deliver benefits to projects (Time, cost & Quality)
  - VRM best practices indicated that wherever possible, VRM process, tools and techniques need to be integrated with the existing VM practice.



Source : JKR VE Application Guidelines for Public Projects.

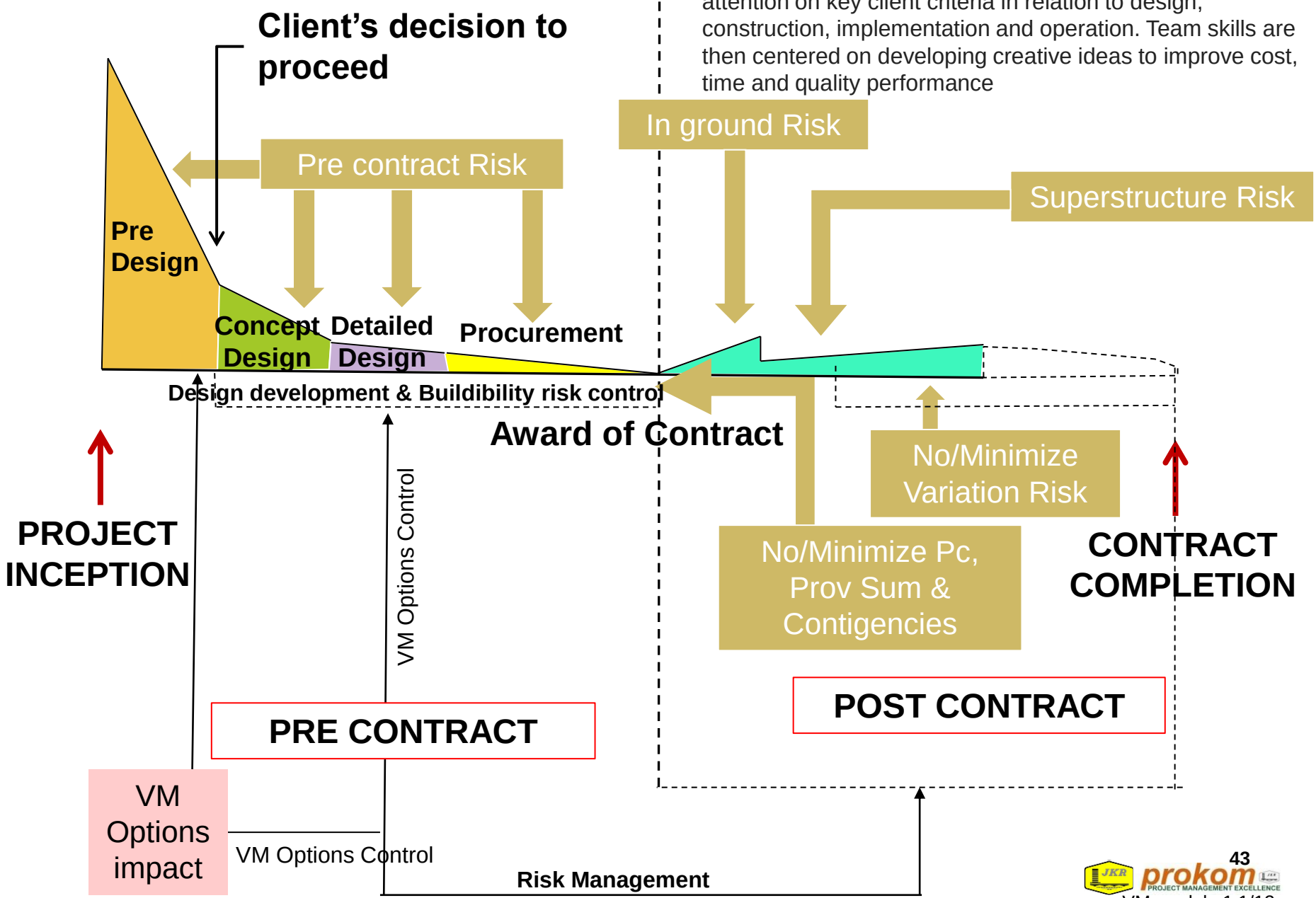
Conventional Project Management



an effective management system which calls for the identification of risks, opportunities and uncertainties at project level, then quantify and analyze risks to support decision making and on-going risk management.

Risk Integration in Project Management

Value Management
-assists in the achievement of objectives and maximizes the relationship between functionality and cost, focusing attention on key client criteria in relation to design, construction, implementation and operation. Team skills are then centered on developing creative ideas to improve cost, time and quality performance



Partnering

DEFINITIONS OF PARTNERING

" A **strategic alliance** between 2 parties, the objective is for **mutual benefit** " (Bonine, 1995)

"…is **managerial approach** used by 2 or more organizations to achieve **specific business objectives**…" (Bennett, 1995)

"…a **structured management** approach to facilitate team-working across **contractual boundaries**…" (CIB, 1998)

VM in Partnering

VM implementation can be integrated with Partnering to exploit these benefits:

- **Reduced barriers**
- **Developed trust**
- **Team working**
- **Increased communication**
- **Adversarial relationship avoided**
- **Mutual objectives achieved**

Integrated Procurement

Definition of Integrated Procurement Systems (*Masterman, 2006*):

The procurement systems which integrate the management of "Design" and "Construction" elements under one entity; with or without the integration of other elements such "Financing", "Maintenance" and / or "Operation"

Types Of Integrated Procurement Systems (*Masterman, 2006*):

- **Pure Design & Build**
- **Novated Design & Build**
- **Develop & Construct**
- **Turnkey**
- **Concession Contracts (PPP/PFI etc.)**
- **Prime Contracting / Allliance Contract**

VM in Integrated Procurement

Benefits of VM in the Integrated Procurement Systems:

- **Establish client's needs, value systems & project functions**
- **Establish quality and design criteria**
- **Facilitate design development and innovation**
- **Evaluating and auditing proposals & alternatives**
- **Improve communications and collaborations**
- **Eliminating & reducing unnecessary costs**
- **Improve construction methods & performance**
- **Manage risks affecting project value**
- **Optimize Whole Life Cost or Life Cycle Cost**
- **Enhancing operational effectiveness & user satisfaction**


THANK YOU