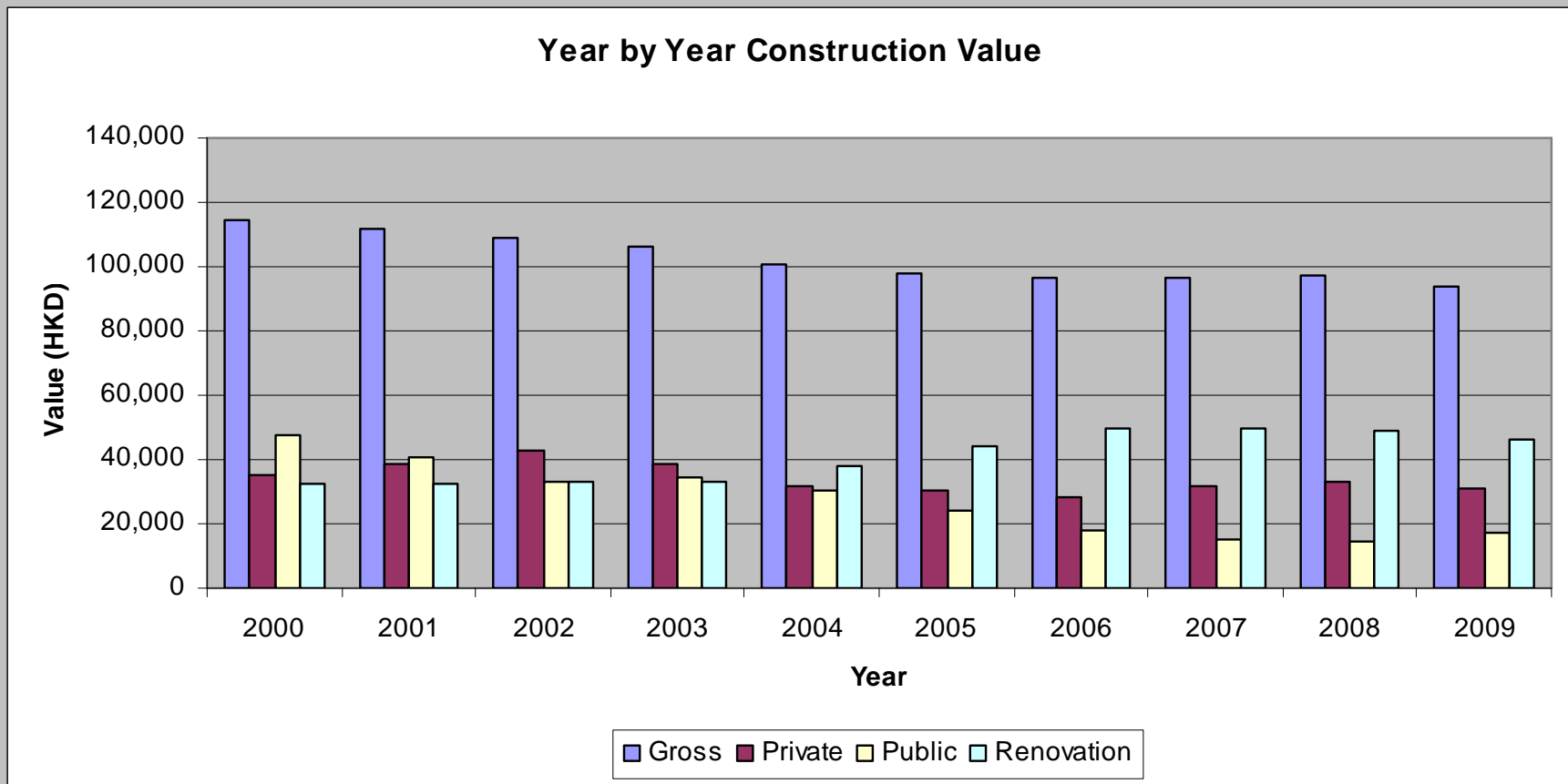


# Management of Infrastructure Rehabilitation, Redevelopment or Revitalisation (MIRROR) –

## *Summary of Research Findings*

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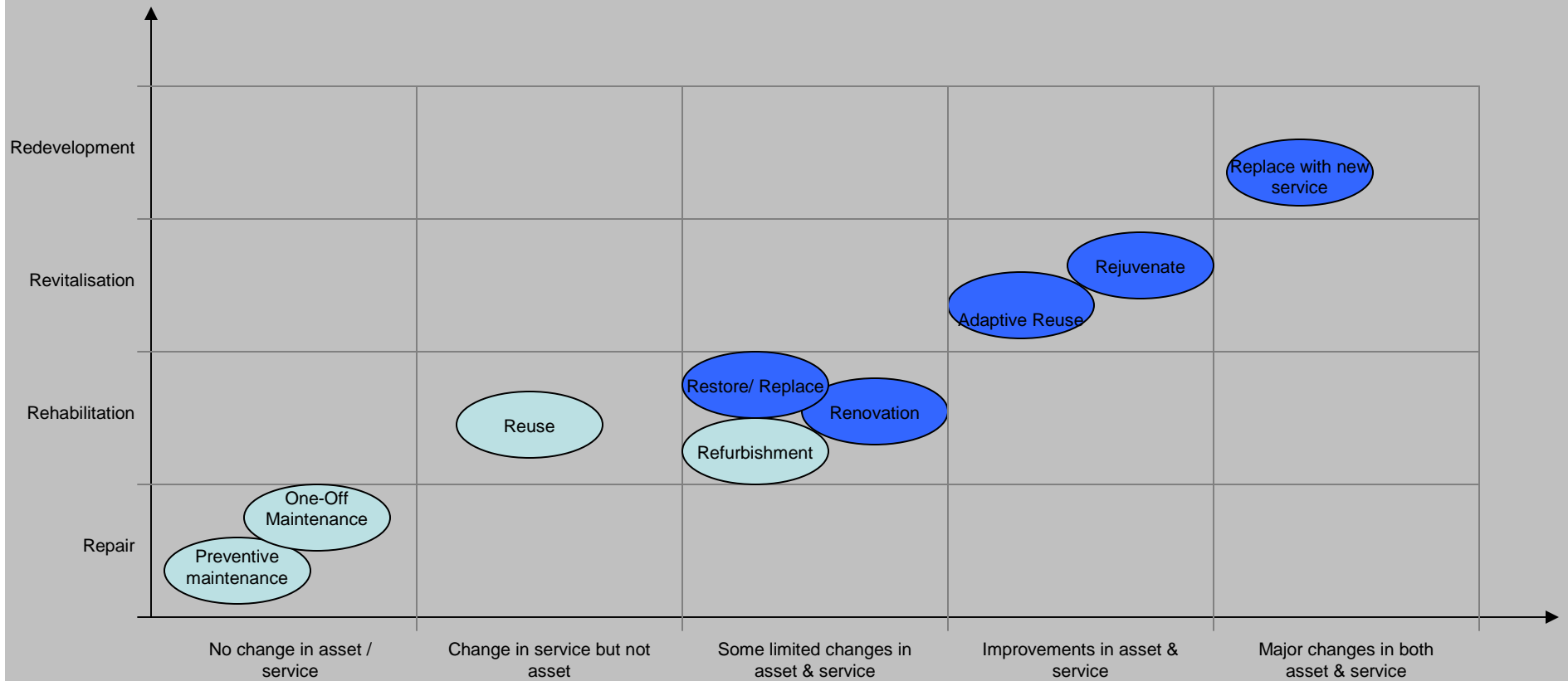
# Significance of '3R Projects'



# Objectives - Summary

1. Identify **specific characteristics** and **challenges** of '3R projects' vis a vis new infrastructure; that warrant special consideration by Project Managers in general
2. Unveil **special risks, typical performance criteria** and **critical success factors** for '3R projects' in Hong Kong
3. **Assess the potential for traditional infrastructure project management strategies, techniques and tools** to handle forthcoming '3R projects' in Hong Kong; and identify any shortcomings
4. Develop a **framework for (with examples)** of management strategies & techniques, organisational & contractual structures, and managerial skill-sets and mind-sets to address shortcomings and achieve required performance levels
5. Formulate a well-structured **RD&D (Research Development and Dissemination) agenda**, to move forward with above framework

# Classification



- Planning
- Stakeholder Engagement and Management
- Detailed Design & Construction

# Hong Kong's '3R' Sector

- Unregulated till recent times
- Predominantly small scale contractors; especially in building works
- Prone to safety hazards
- Large 3R works governed similarly to 'new-build' works
- Smaller works governed by 'minor-works control system' - launched recently
- Minor works contractor registration scheme – to provide entry barrier - for sector improvement

# Challenges of '3R' Projects: Planning Stage

- Information availability and accuracy
- Asset in use - constraints
- Constructability issues and asset capacities
- Difficulties in preparing accurate estimates and timeframes
- Meeting the updated statutory codes and standards
- Outlining the scope of works
- Standardisation
- Meeting sustainability objectives and contingency planning

# Challenges of '3R' Projects: Detailed Design & Construction stage

- Material matching and technology upgrades
- Resource intensive
  - Time constraints
  - Logistics constraints and difficulties in mechanising
  - Higher Co-ordination levels required
- Difficulties in sourcing materials and skilled labour
- Spatial constraints
- Minimising asset downtime and mitigating nuisance to users and stakeholders

# Stakeholder Engagement & Management

## Key Challenges:

- Rehabilitation plan for existing users
- Meeting stakeholder value objectives & consensus building

## Critical Success Factors:

- Early involvement of stakeholders
- Sense of ownership of the project



# Critical Success Factor for '3R' Projects: Planning Stage

- Holistic Approach to design
- Clear time horizon
- A thorough initial evaluation of the asset
- Clear and absolute brief
- Early involvement of contractors
- Knowledgeable and involved client
- Simplified and flexible regulatory environment

# Critical Success Factor for '3R' Projects: Detailed Design & Construction

- Previous experiences in managing similar projects and flexibility to react to endemic uncertainties
- Appropriate project team
- A systematic and realistic construction execution plan and schedule
- Quick RFI turnaround time and efficient change management systems
- Efficient co-ordination
- Just-in-time procurement planning

# Typical Performance criteria

- Asset utilisation and life enhancement
- Return on investment
- Accuracy of estimates
- Asset down time
- Minimisation of adverse nuisance to users and other stakeholders
- Safety
- Wastage
- Rework

# Strategies to Improve Management of '3R' Projects

- An independent project coordinator
- Framework agreements for clients with large no. of assets under management
- Long term collaborative contracts to eliminate 'build & go' mentality
- BIM models for spatial co-ordination and simulation
- Updated and freely available databases of building inspection information
- Skills improvement programme for workers in the sector

# Conclusions

- Similar to ‘new-build’ projects but with higher uncertainties and limited information
- Risk management, co-ordination levels and stakeholder engagement and management levels required are intense
- Traditional project management strategies sufficient but with enhanced project control systems
- Establishing relational network between ‘building’ and ‘operations’ phase to mitigate ‘build & go’ mentality

# Topic for Discussion 1

## *Failure to mitigate 'Build & Go' Mentality*

*How should one build relational networks between 'building' and 'operations' phase?*

## Topic for Discussion 2

***Simplified and Flexible regulatory environment***

***Is it appropriate?***