



*Optimising portfolios and  
programmes in an ever changing  
world*

**pwc**

# Capital Efficiency - Overview

Successful organisations are **Capital Efficient**; integrating strategy with planning and execution across the asset lifecycle.

Portfolio Optimisation is a key aspect we see many organisations finding difficult to manage



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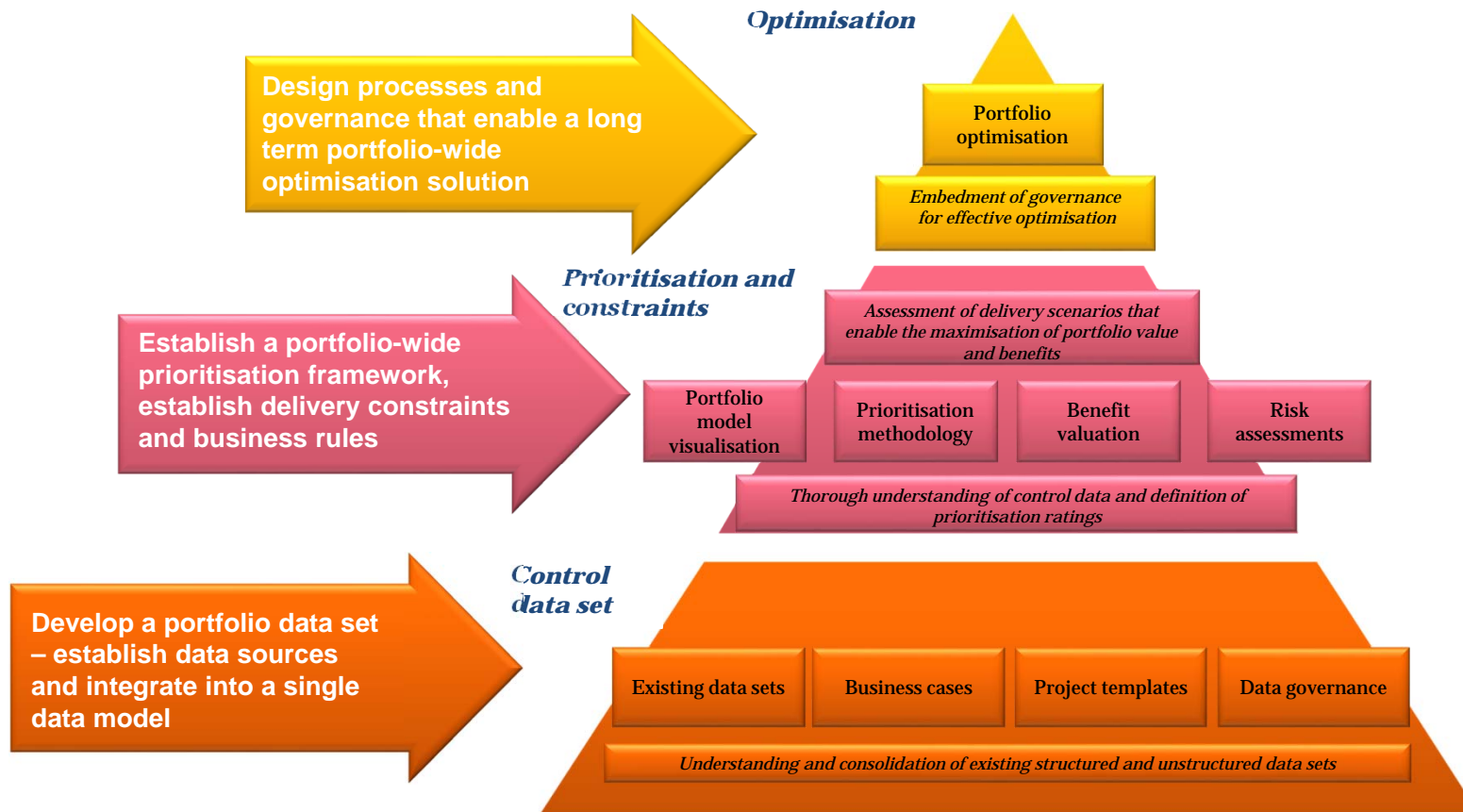
## ***Portfolio Optimisation***

To be successful, organisations must continually evolve to the changing world and delivery environment. Portfolio Optimisation aims to:

- Ensure money is spent on the **right projects** at the **right time**
- Provide a set of tools and processes to **support management decisions**
- Implement a benefit model against which **financial and non-financial benefits** are assessed against the strategic objectives and optimised **across the portfolio**
- Apply a mathematical algorithm to the portfolio model to **optimise the projects within the constraints** of the delivery environment, e.g. capital, cash flow, risk appetite, schedule etc.
- **Maximise benefits and outcomes, aligned to strategic objectives**



# The building blocks of optimisation



# Portfolio Optimisation - Process

## Control data set

## Prioritisation and constraints

## Optimisation

Build the portfolio database

Map project types to strategic objectives

Calculate benefit values and prioritise across the portfolio


Run the optimisation algorithm

Report scenarios

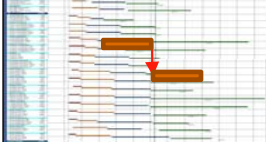
Act and Repeat

Gather project and benefit data; initially for sample project population, moving to full portfolio data set in next phase.

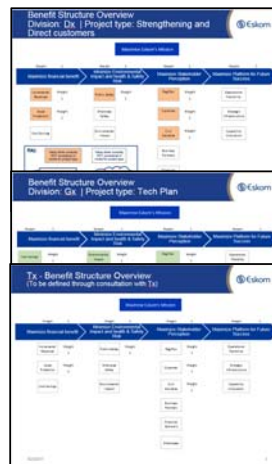
**Portfolio data set**



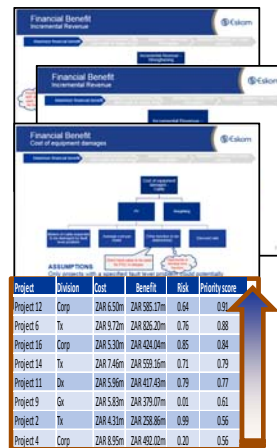
**Business rules and dependencies identified**



For each area/division map project types to strategic pillars and agree project "value trees" to quantify project contribution to each benefit.



Use financial drivers and "monetised" non-financial benefits to prioritise projects across the portfolio.



Project	Division	Cost	Benefit	Risk	Priority score
Project 12	Corp	248 6.50m	248 385.37m	0.64	0.91
Project 6	Tx	248 8.72m	248 826.20m	0.76	0.88
Project 16	Corp	248 5.30m	248 424.04m	0.85	0.84
Project 14	Tx	248 7.46m	248 559.56m	0.71	0.79
Project 11	Dx	248 5.96m	248 417.48m	0.79	0.77
Project 9	Gx	248 5.83m	248 379.07m	0.01	0.61
Project 2	Tx	248 4.31m	248 258.86m	0.99	0.56
Project 4	Corp	248 8.95m	248 492.02m	0.20	0.56

Use genetic algorithms to quickly trend to optimised scenarios on large and complex portfolio data.

**Scenario 1: Maximise portfolio benefit value**



**Scenario 2: Maximise under FY1 adjusted capex budget**



**Scenario N: Maximise under constraints A and B**

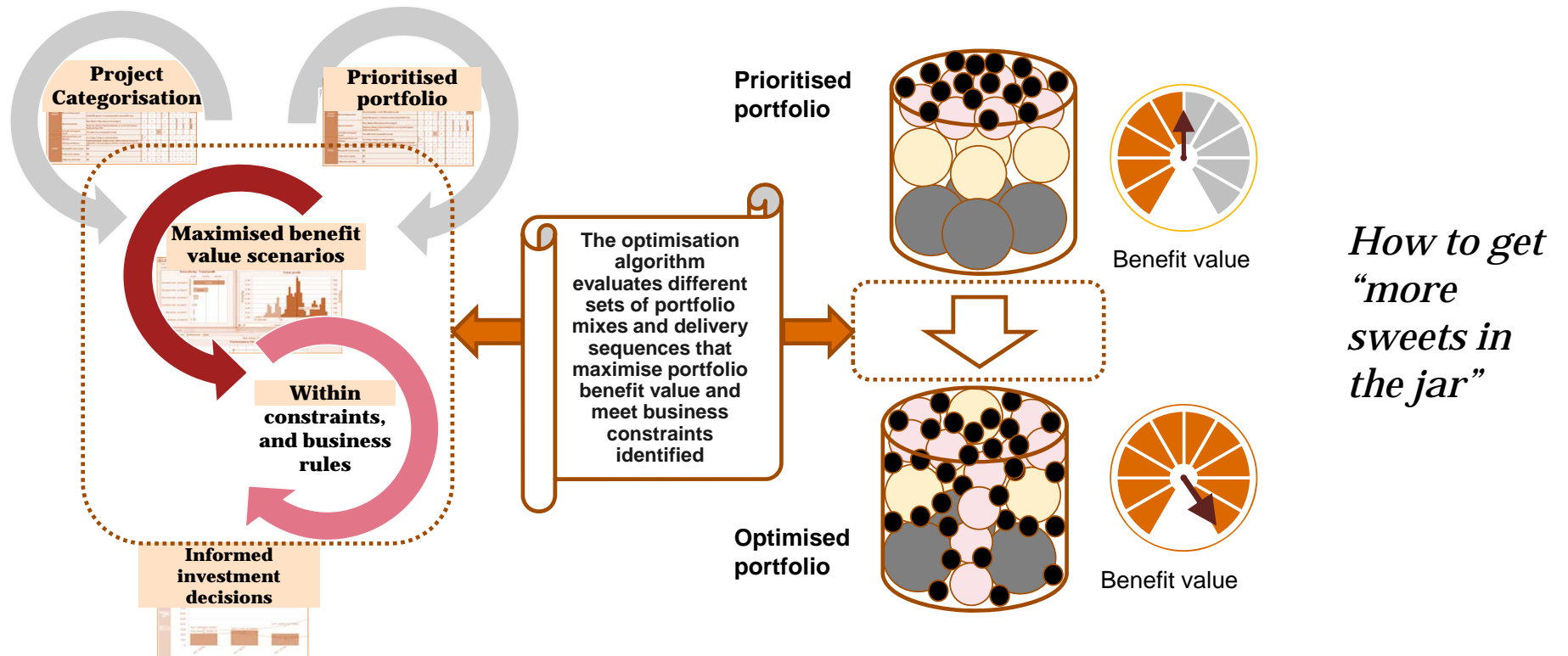


Use a mathematical modelling scenario functionality to scrutinise model outputs; use a reporting platform to present scenario outcomes and results (Tableau).




# How does the optimisation algorithm work?

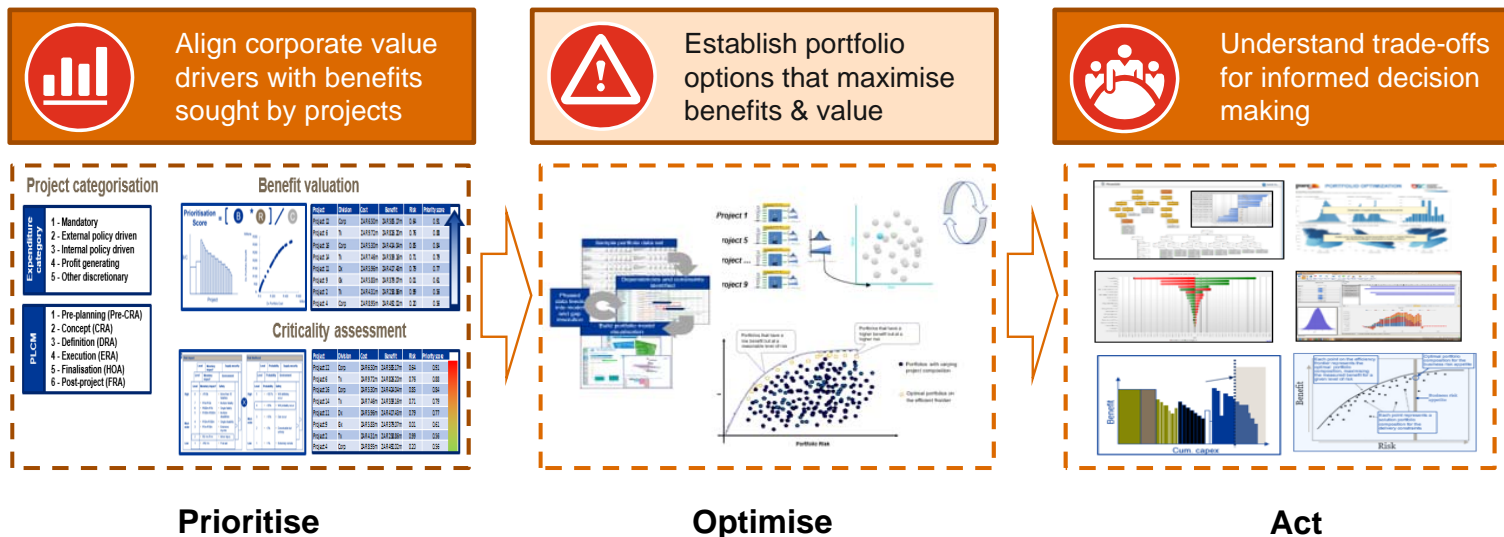
The optimisation algorithm uses the benefit value calculations from the prioritisation, and runs iterations to identify portfolio mixes that meet the delivery constraints (e.g. funding envelop) and business rules (e.g. include all mandatory projects) and deliver greatest benefit to the business. We use a learning algorithm to greatly increase the speed of finding solutions.



# The benefits of optimisation...

An optimal portfolio strategy looks at what is best for the company, individual projects and / or business divisions. A portfolio modelling solution enables rapid generation of portfolio options showing the economics / benefits of different portfolio configurations, so that management can make informed decisions in executing the strategy of the business.

- Provides a **consolidated view** across the business of the **capital portfolio**
- Enables **effective prioritisation** of the capital allocation through a **portfolio-wide framework**, integrating **business strategy and financial & resource planning**
- Enables the **optimisation** of the portfolio by identifying **delivery scenarios** that **maximise value and benefits** to the business
- Supported by **the processes and governance** that will enable the embedment of the **prioritisation framework and optimisation** tool into the organisation and Business-as-usual



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