

ASSET MANAGEMENT AND ISO 55001

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AGENDA

- Introduction to Copperleaf
- ISO 55000 Today
- The Seven Subjects of Asset Management
- Asset Management Ecosystem
- Conclusions & References



WHO IS COPPERLEAF

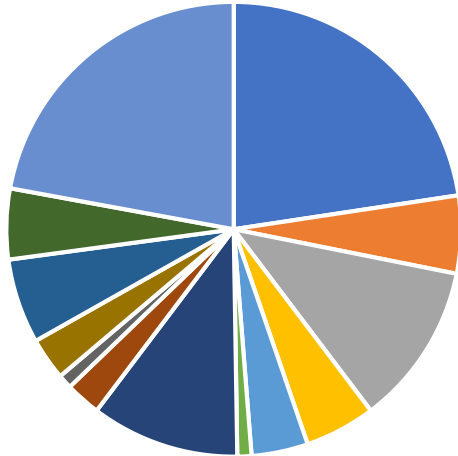


- Decision Analytics for asset intensive organizations
- Asset Investment Planning & Management
- Based in Vancouver, Canada
- Regional HQ in Singapore

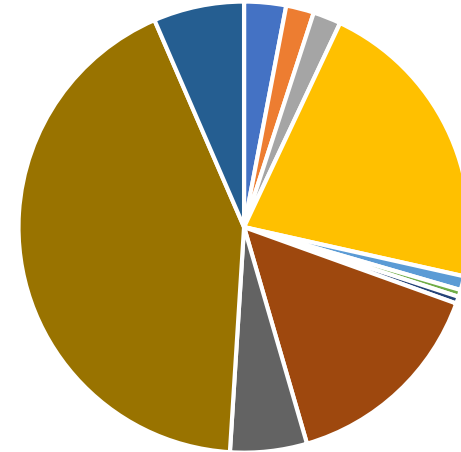


ISO 55000 IN THE WORLD

Organizations per Sector



Organizations by Country/Region



- Electrical Utility
- Facility Management
- Government
- Infrastructure
- Mining
- Ports & Airports
- Water & Wastewater
- Engineering/Construction
- Gas Utility
- Health
- Manufacturing, Process, Pharma
- Oil & Gas
- Transportation

- China
- Hong Kong
- Malaysia
- Singapore
- Middle East & Africa
- The Americas
- India
- Japan
- Philippines
- Australia/New Zealand
- Europe

Known certified organizations (Nov 2018): 199



ISO 55001 – ASSET MANAGEMENT SYSTEM

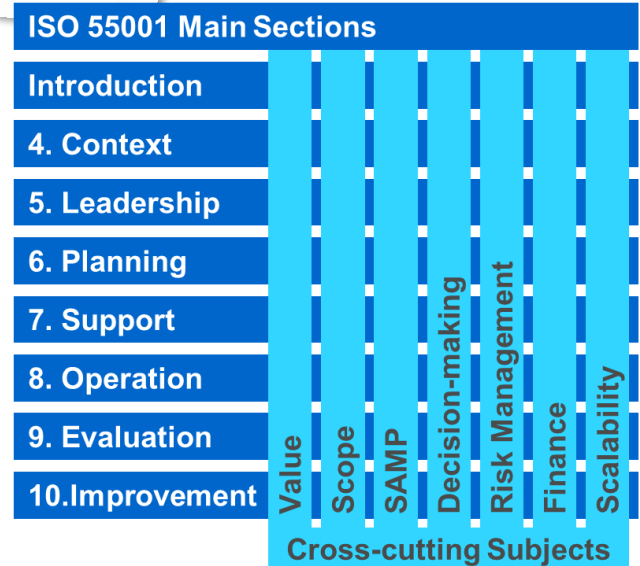
- Value
 - Assets exist to provide value to the organization and its stakeholders
 - Value can be tangible or intangible; positive or negative
 - Asset management enables realization of value
- Alignment (“Line of Sight”)
 - Asset management objectives align with organizational objectives
 - Asset management decisions, plans and activities (technical, financial and operational) collectively enable the achievement of AM objectives
- Leadership
 - Leadership and culture are determinants of realization of value
 - Roles, responsibilities and authorities for AM are clearly established
 - Employees are aware, competent, and empowered
- Assurance
 - AM gives assurance that assets will fulfill their required purpose
 - Assurance is derived from effective governance, controlled processes and robust management of risks
 - Monitoring, evaluation, review and continual improvement



THE NEW ISO 55002:2018



- Published in October 2018
- Expanded detailed guidance for each clause
- Clarification of the contribution of each requirement to the four ‘fundamentals’:
 - Value
 - Alignment
 - Leadership
 - Assurance
- How to apply the requirements to the key domains:
 - Asset Portfolio
 - Asset Management System
 - Asset Management activities
- New guidance on 7 ‘cross cutting’ subjects



1 - SCOPE OF THE ASSET MANAGEMENT SYSTEM

Importance of clearly defining the scope (boundaries) of the AMS

- The scope of the AMS is influenced by:
 - organizational design
 - roles & responsibility
 - decision making
 - nature and criticality of assets
 - contractual relations in outsourcing
 - period of applicability
 - interrelationship with other management systems



2 - VALUE

- An asset is an item, thing or entity that has potential or actual value to an organization
- Assets exist to provide value to the organization and its stakeholders
- Asset management is the coordinated of an organization to realize value from assets
- Value is important because:



– Optimal decision making requires a way to compare options



– You can only manage what you can measure



– Stakeholders want to quantify (and verify) outcomes



ALIGNED OBJECTIVES

- Everybody must understand the organizational objectives
- A **value framework** can facilitate and capture the alignment of all stakeholders
- Use value metrics to connect actions to objectives



STRATEGIC OBJECTIVES



SAFETY

RELIABILITY

FINANCIAL

SUSTAINABILITY

**CUSTOMERS &
COMMUNITY**

Dam Safety Risk

Delivery Capacity Risk

Flooding Risk

Navigation Safety

Firm Capacity Risk

Outage Recovery

Grid Stability

Seasonal Storage

Avoided Lost Generation

Capacity Increase

Efficiency Increase

Green Incentives

Irrigation / Navigation Revenue

Drinking Water Supply Revenue

Fishing Revenue

Environmental Compliance

Ecosystem Improvements

Green Incentives

Drought Prevention

Perception

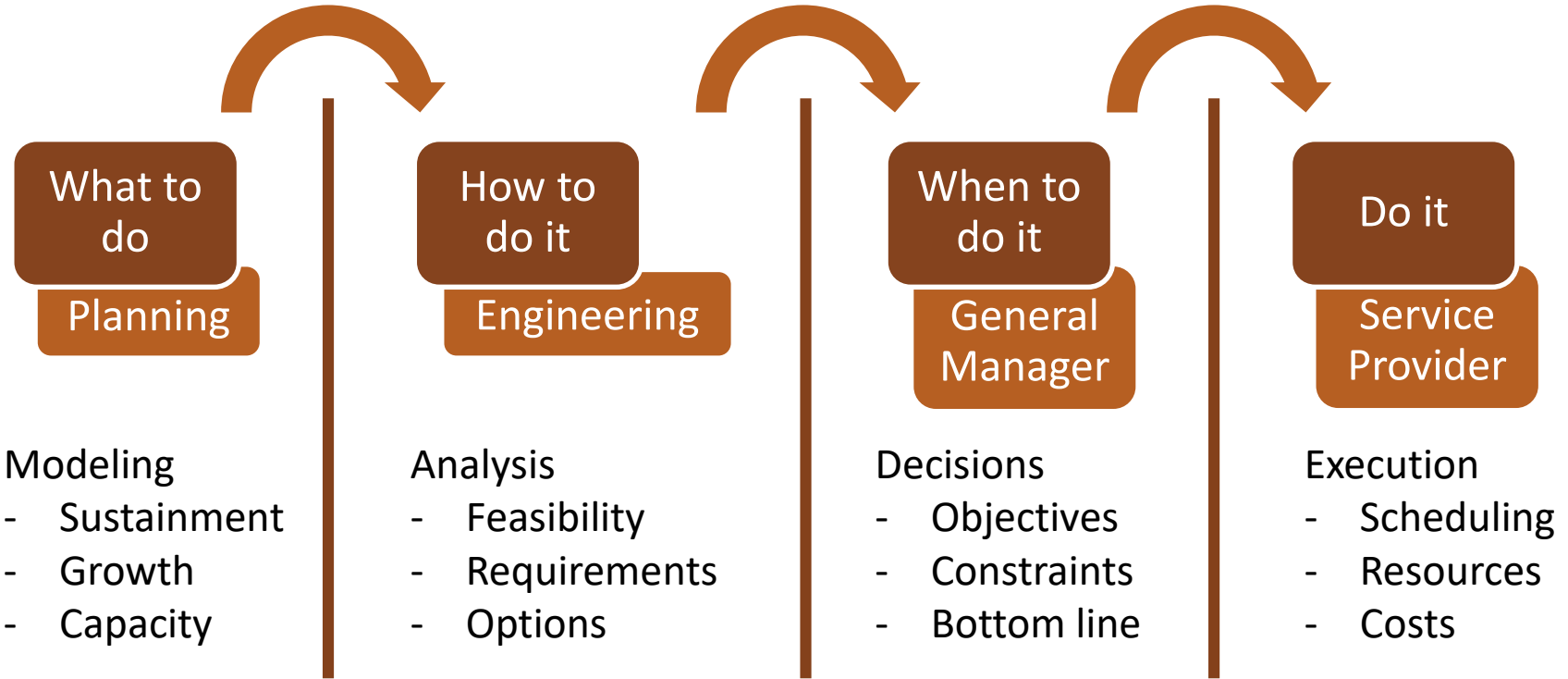
Environmental Compliance

Recreation / Fishing

Irrigation

Drinking Water Supply

THE NEED FOR ALIGNED OBJECTIVES

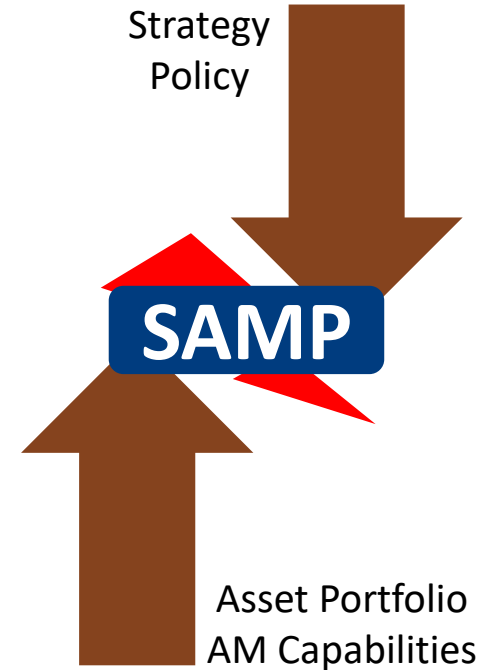
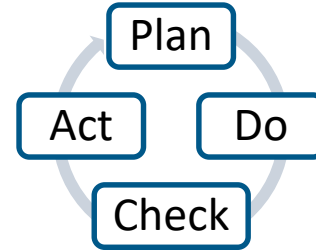


Different perspectives, focus, priorities, data, systems, etc.



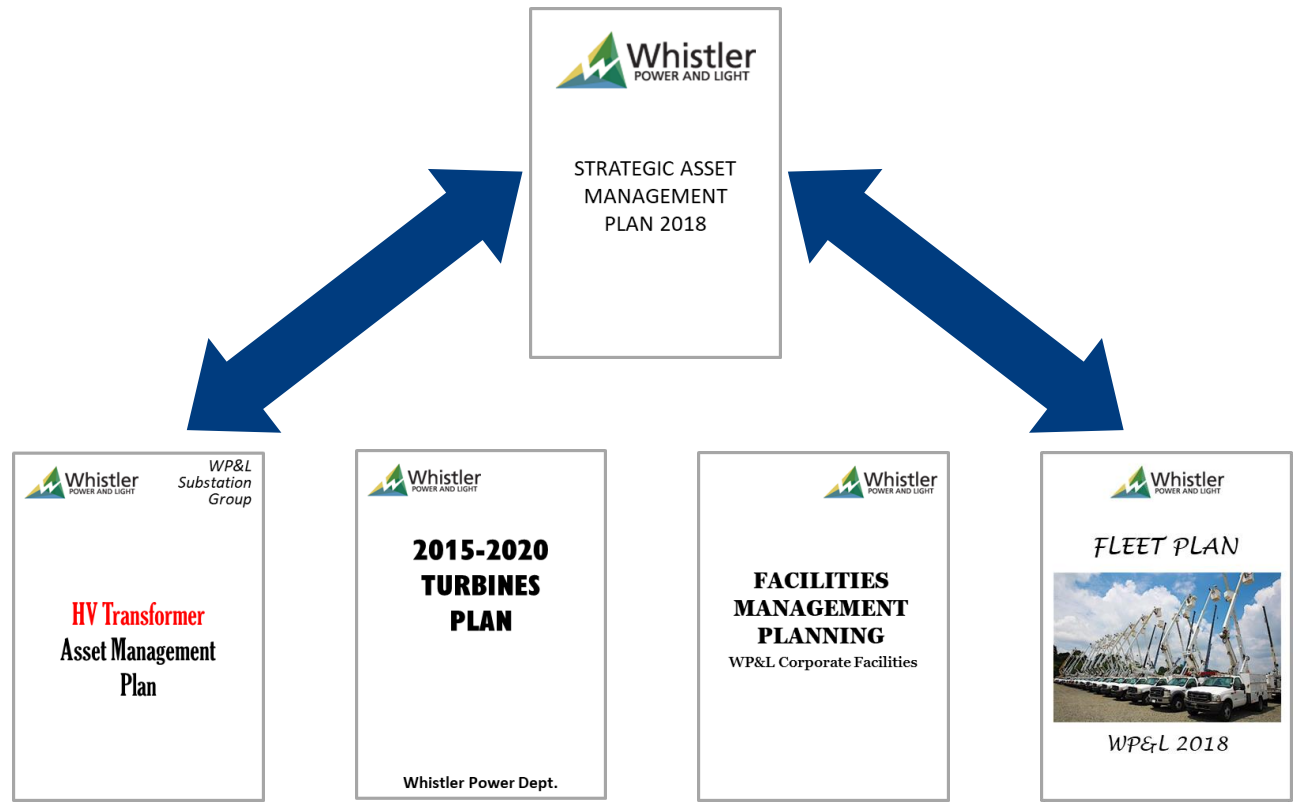
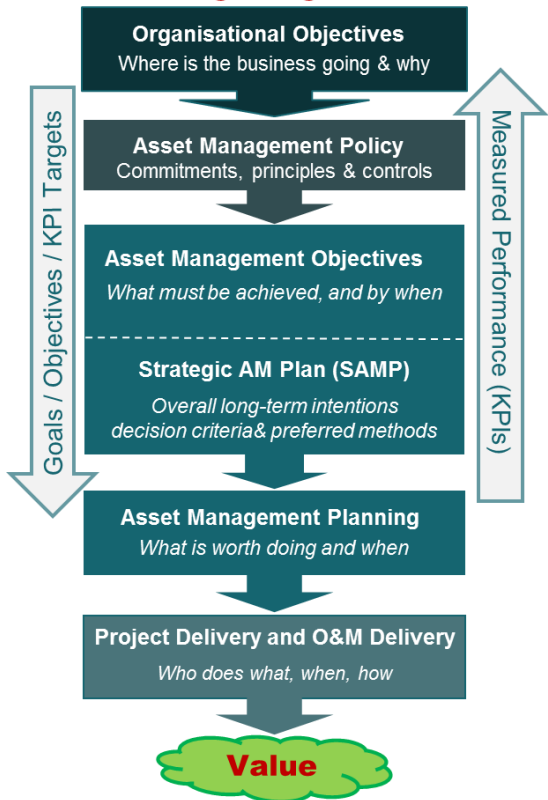
3 - STRATEGIC ASSET MANAGEMENT PLAN (SAMP)

- SAMP helps align everybody
 - Roles along the lifecycle of the assets
 - Various functional groups
 - Forces all to agree on a common plan
- Translate general business objectives into more tangible AM objectives and plans
 - Ensures the long-term objectives are not lost
 - Reconcile with bottom-up reality
- Express the value of an asset portfolio in economic terms
 - Highlight risks, long term consequences, etc.
 - Sets the rules of the game
- Can expose/highlight needs for change



THE SAMP IN CONTEXT

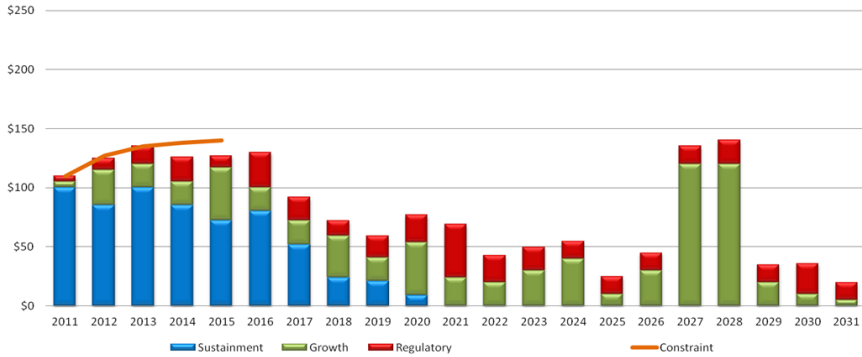
Strategic Alignment



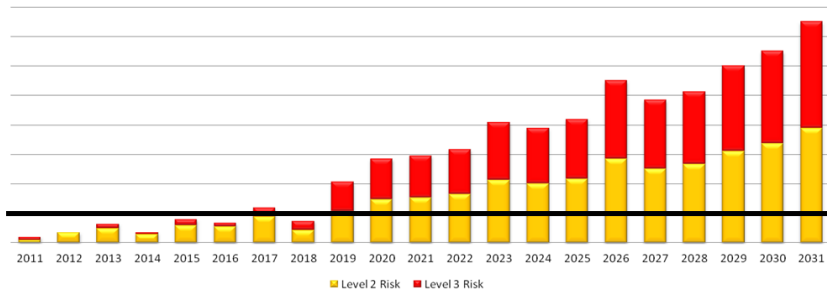
LONG TERM STRATEGIC VIEW



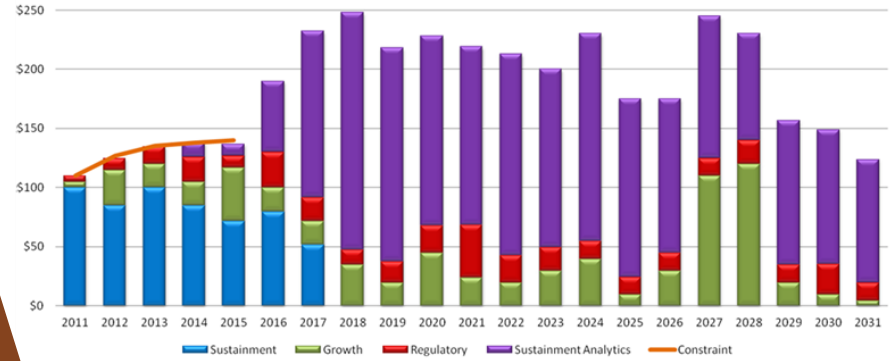
Consolidated Investment Plan (\$M)



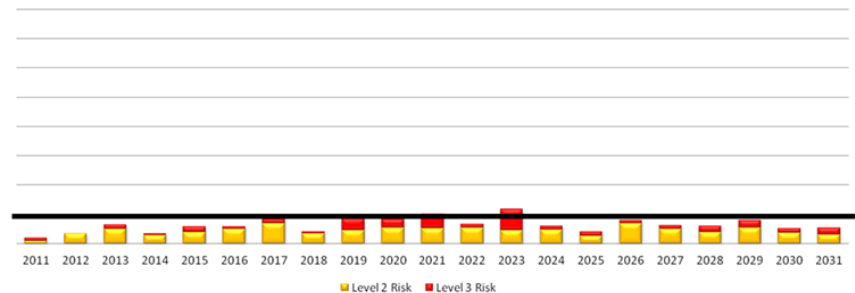
Aggregate Risk



Consolidated Investment Plan (\$M)

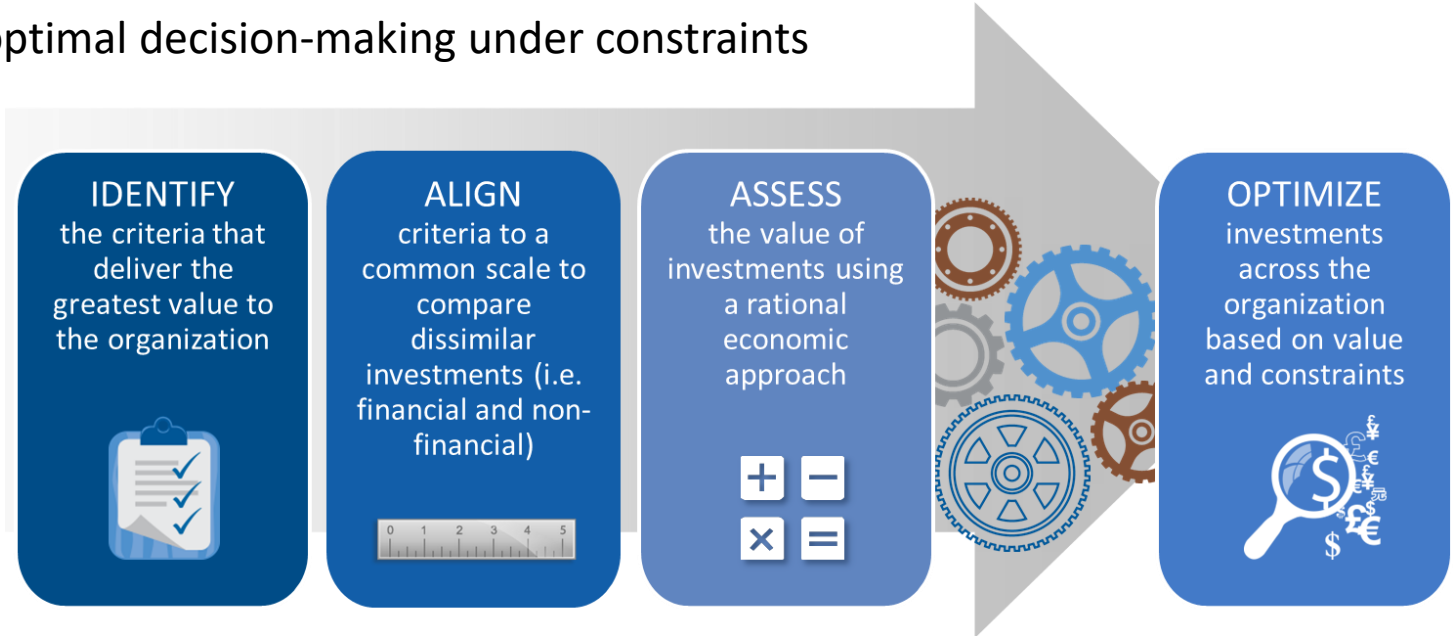


Aggregate Risk

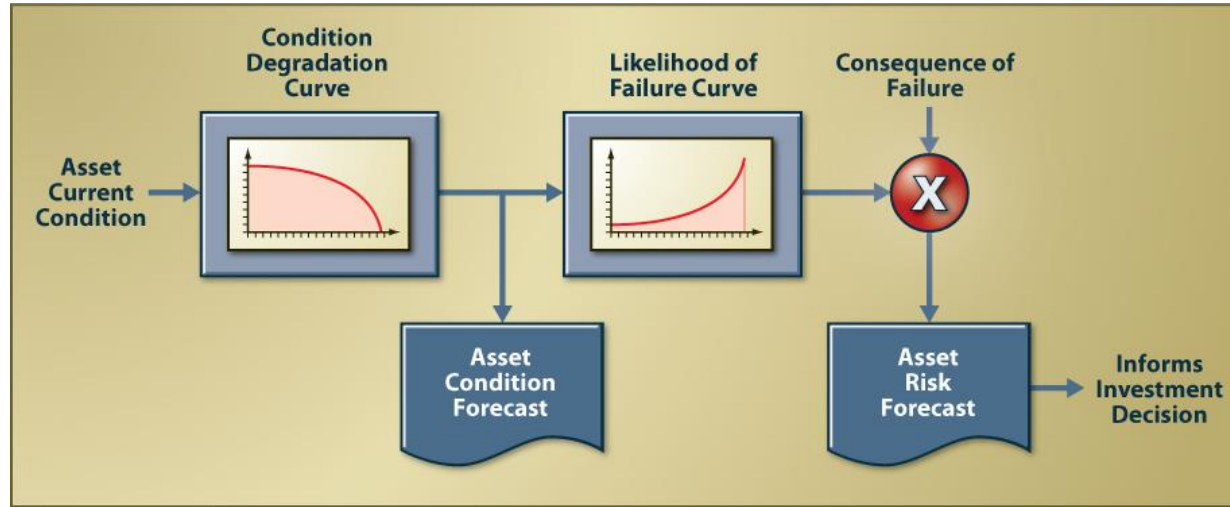


4 - DECISION-MAKING

- Consistent, repeatable and documented processes
- Understand **how and why** decisions are made
- Foundation of optimal decision-making under constraints



5 - RISK MANAGEMENT



VALUE

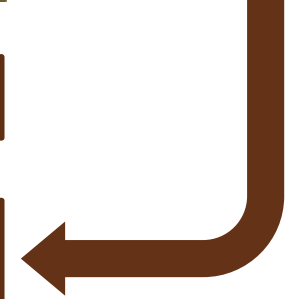
**Growth
Technology
Efficiency
Competition**

Model the Long Term

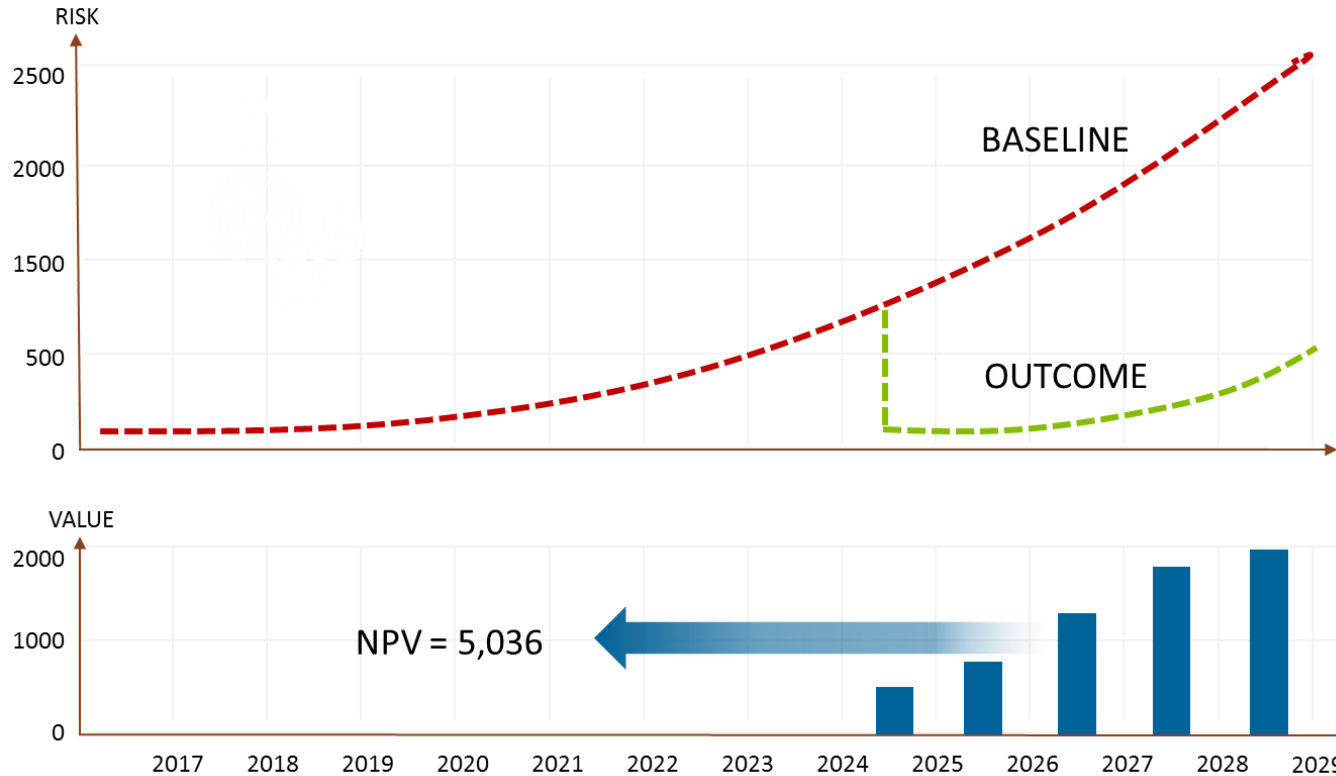
Optimize the Short Term

Funding Needs & Shopping List

Decision-Making & Execution



RISK AND VALUE



6 - FINANCE

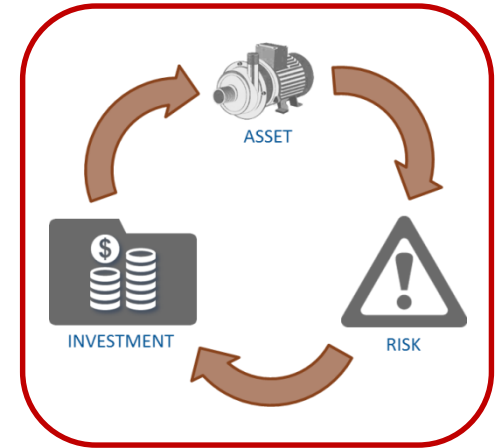
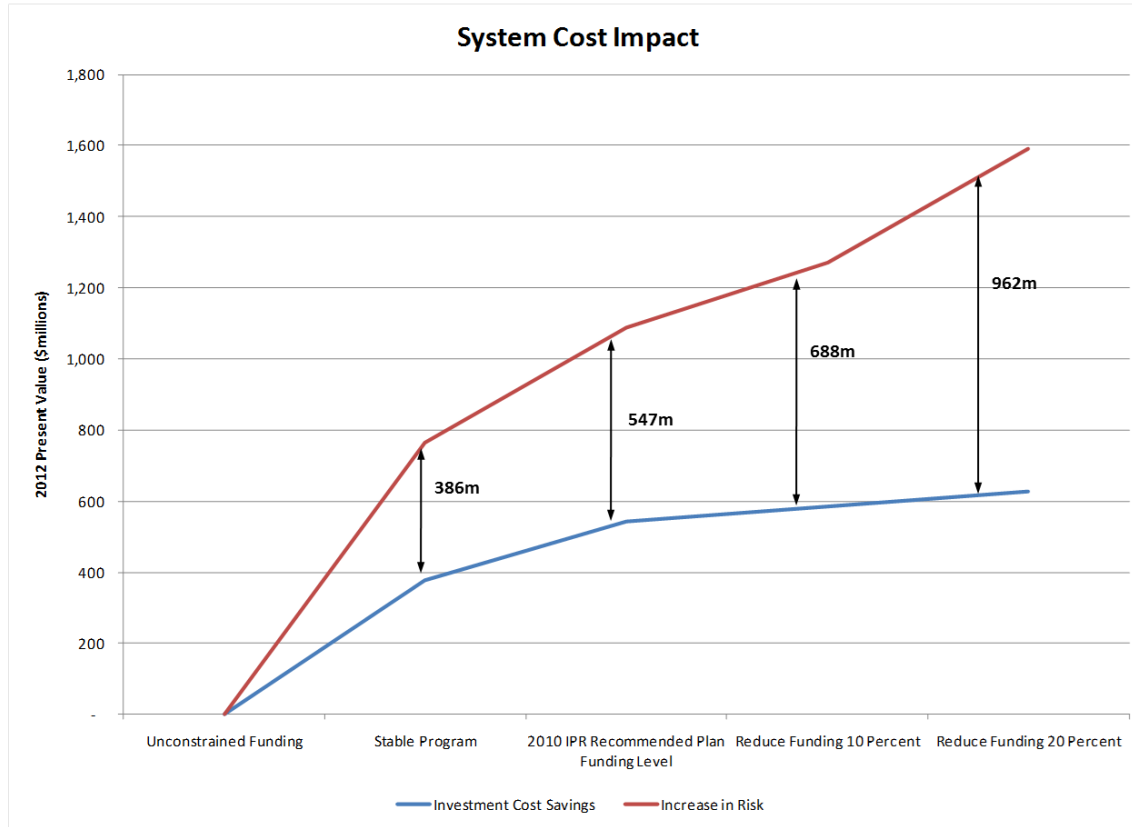
- Importance of relationships between financial and non-financial (e.g. technical) functions for asset management
- Accuracy and traceability between the financial and non-financial data and information across the organization is imperative to support consistent decision-making
- Monetization of value:

- Risks
- Benefits
- Costs

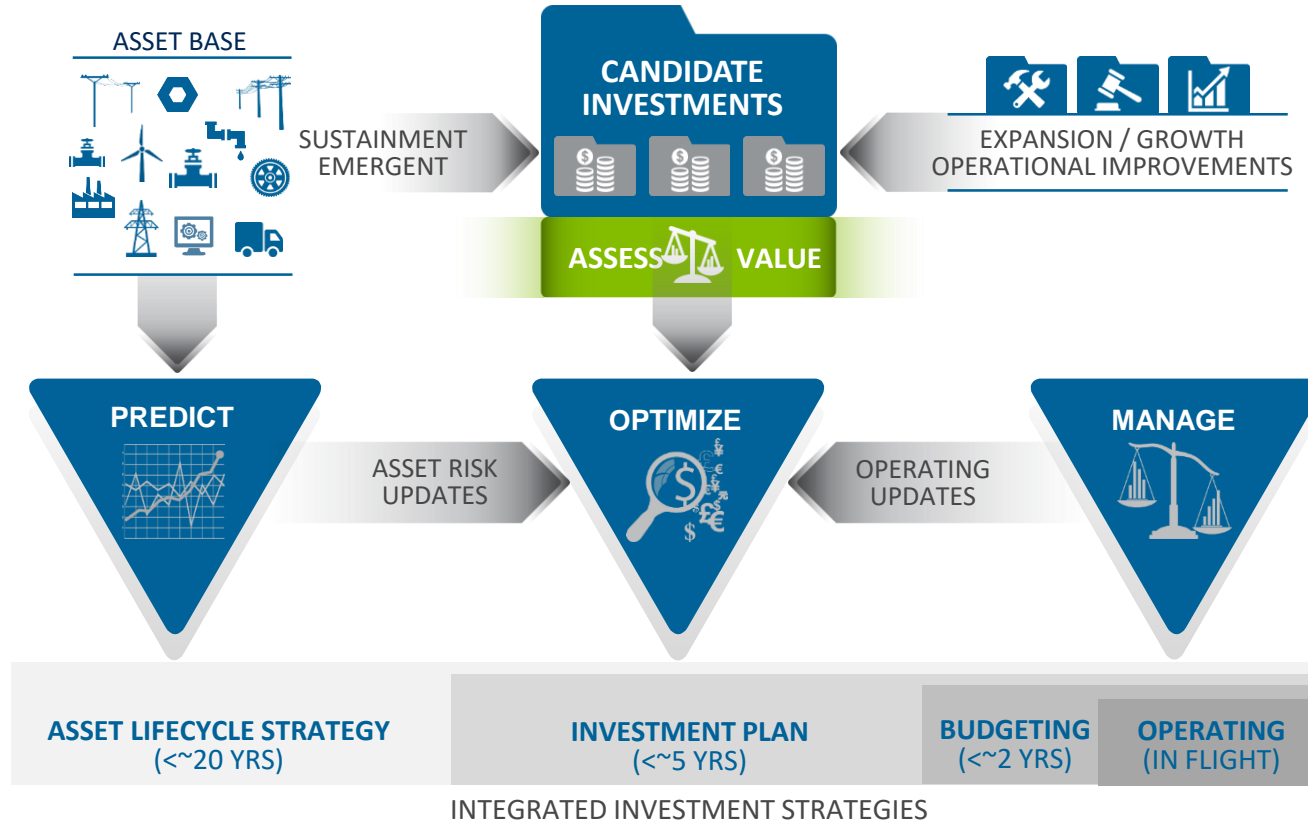


Event Type	Negligible	Small	Minor	Moderate	Major	Extreme
Safety	On-Site first aid injury	Injury requiring medical attention / near miss	Injury requiring medical attention / lost time	Multiple injuries requiring medical attention / lost time	Permanent disability	Fatality / multiple fatalities
Environmental	Minor impact / no remediation required	Minor impact / contained on-site / simple remediation	Minor impact / contained / moderate remediation	Limited impact offsite / contained / moderate impact on site	Detrimental impact / on or offsite / long term remediation	Catastrophic offsite / impossible to mitigate / uncontained
Financial	< ¥10M	¥10M → ¥50M	¥50M → ¥100M	¥100M → ¥500M	¥500M → ¥1B	> ¥1B
Lost Generation	< 2 GWh	2 → 11 GWh	11 → 22 GWh	22 → 110 GWh	110 → 220 GWh	> 220 GWh

THE COST OF NOT DOING



ASSET INVESTMENT PLANNING & MANAGEMENT



7 - SCALABILITY

- Organizations of any size can benefit from an Asset Management System
- Scale the scope and requirements to the organization's complexity, context and asset portfolio
- Also applies to the processes and IT systems:



ASSET MANAGEMENT ECOSYSTEM (EXAMPLES)

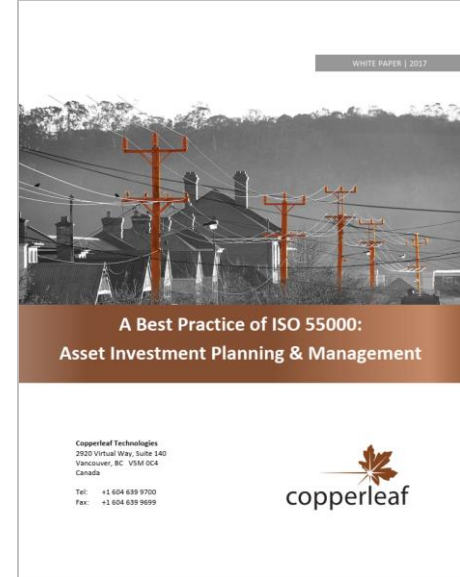
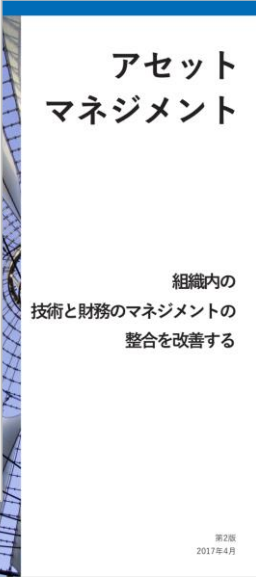


8 - CONCLUSIONS

- Asset management is relevant to all organizations – small or large, new or experienced
- Risk and value are central to modern asset management techniques
 - Risk drives the need for sustainment interventions
 - Value is core to all investments
- A value framework captures the strategic objectives
 - Translates the big picture into measurable items
 - Aligns all internal and external stakeholders
- Decision-making must be understood and supported by all
 - Value frameworks make the process transparent and consistent
- A long term view is essential
 - Both to predict asset needs and justify investments
- Where will you spend your last 10000 ¥?



GOOD REFERENCE MATERIAL



THANK YOU!

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More information:



www.copperleaf.com



committee.iso.org/tc251



theIAM.org



www.ceati.com