Executive View of Portfolio and Project Performance : Business and Financial Outcomes, KPIs and Predictability

Martin van Vliet

VP EcoSys Business Development EMIA, Hexagon PPM

HEXAGON
PPM

Project Controls
EXPO
London, UK

Agenda

- Industry Trends
- Customer Business Outcomes, Impacts and Operating KPIs
- Defining SMART KPIs
- Important Business Processes
- Enabled by EPP
    - Role Based Performance Analysis
    - Predictability Analysis

About the Speaker

Martin van Vliet - VP EcoSys Business Development EMIA, Hexagon PPM

Martin has a career with over 20 years of experience in the Cost Engineering profession, providing services around estimating, planning, project controls to improve Projects Performance. With Hexagon PPM, Martin leads the EcoSys Business Development team in EMIA.

Hexagon

Technology Solutions
- Established leader in **information technologies** that improve **productivity** and **quality**

Global Reach
- **18,000+** employees in **60** countries

R&D Focused
- **10-12%** of net sales go to R&D
- **3,400+** employees in R&D
- **3,200+** active patents

Strong Financials
- **3.5 bn EUR** in sales
- **23.4% operating** margin

Hexagon PPM

Awarded Solutions Provider
Ranked **No. 1**
12 consecutive **years, 7** different **categories**
Recognized by the ARC Advisory Group

Global Presence
More than **2,500 employees**, with offices in **60 countries**

Hexagon PPM brings capital projects execution, design, construction, fabrication, and operations to the Hexagon portfolio

Our solutions are used by nearly all *Fortune* 500 Owner Operators and the majority of EPC companies within our industry segments

EcoSys™

Market Leadership
- First to market enterprise projects performance software
- Largest user adoption in project controls industry

Expertise
- Created by the original developers of Primavera P6
- Mature product on the market for 12+ years
- Deep portfolio and project management expertise

Project Controls EXPO
London, UK

EcoSys, Enterprise Project Performance Solution
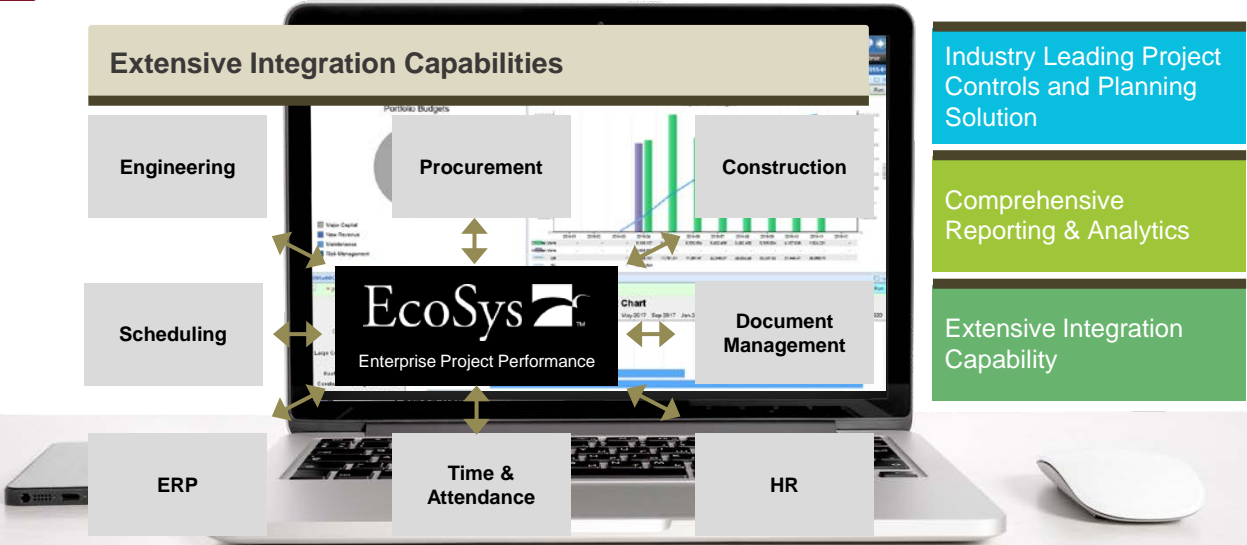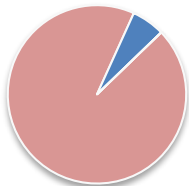
Industry Trends

Industry Trends

- What are the Trends impacting the Construction Industry?

- What are the Trends we need to accommodate for?

- How can we reduce the future impact?

- How can we reverse / fix Trends impacting goals, objectives and outcomes?

Industry Trends

Projects Over Budget & Behind Schedule

<6%
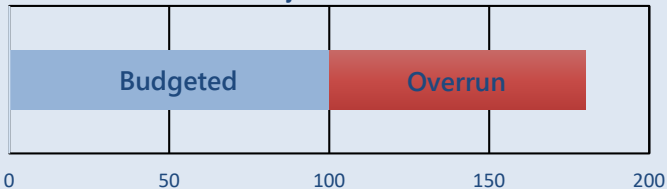of projects deliver planned financial returns

98%
of megaprojects see cost overruns greater than 30 percent

Construction Industry Institute
McKinsey: The Construction Productivity Imperative

Project Cost

Budgeted		Overrun	

0   50   100   150   200
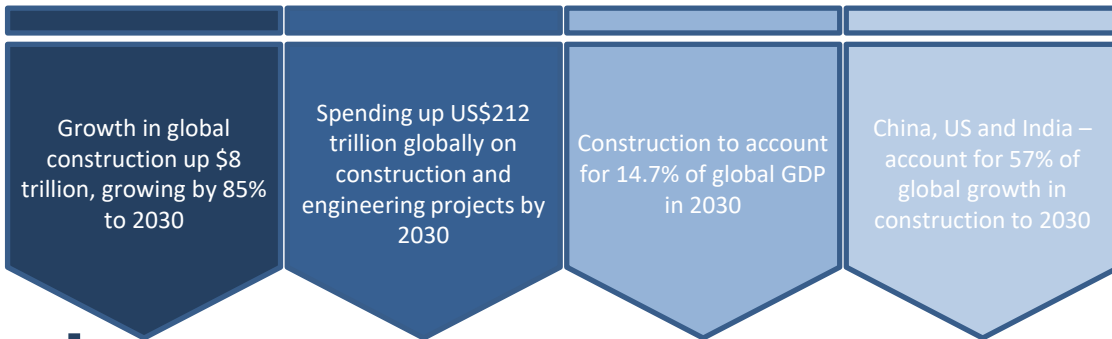
Average megaproject schedule slippage:
20 months

Average megaproject cost overrun:
80%

McKinsey: The Construction Productivity Imperative

Industry Trends
Expected Industry Growth

Growth in global construction up $8 trillion, growing by 85% to 2030

Spending up US$212 trillion globally on construction and engineering projects by 2030

Construction to account for 14.7% of global GDP in 2030

China, US and India – account for 57% of global growth in construction to 2030
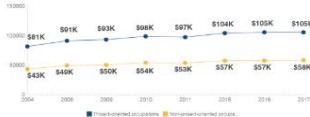
HEXAGON
PPM

Project Controls
EXPO
London, UK

Industry Trends

Skilled Labor Shortage

PMI's Project Management Job Growth and Talent Gap Report 2017-2027

The high demand for PM professionals leads to a higher average salary and salary growth

$81K $91K $93K $96K $97K $104K $105K $105K
$43K $49K $50K $54K $53K $57K $57K $58K

Job openings in project-oriented sectors

Manufacturing and Construction **9.7 million**

Information Services and Publishing **5.5 million**

Finance and Insurance **4.6 million**

Management and Professional Services **1.7 million**
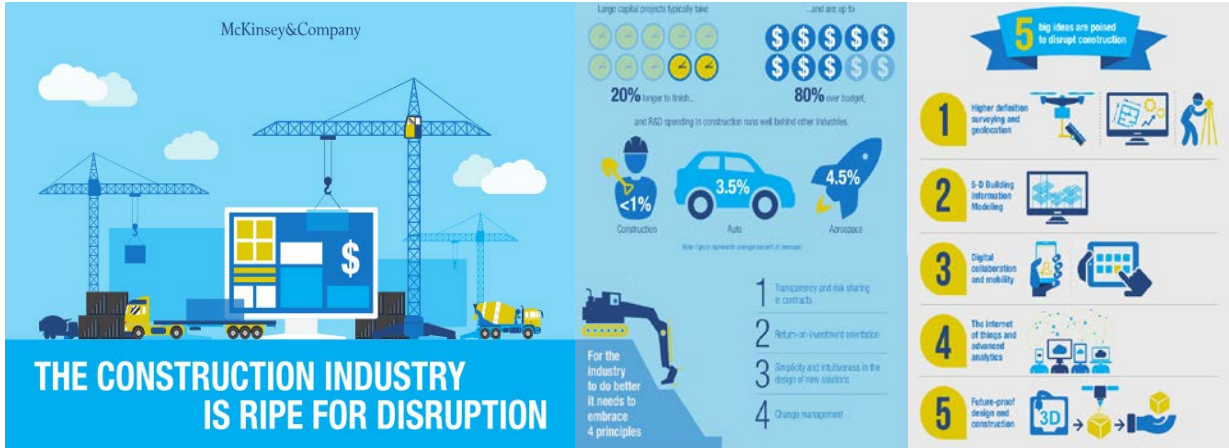
Utilties **279,000**

Oil and Gas **49,000**

New jobs for project talent per year

16,820
8,964
11,690
1,1 m
213,974
36,979
56,440
706,682
9,990

Source(s): PMI's Project Management Job Growth and Talent Gap Report 2017-2027: PMI

HEXAGON PPM

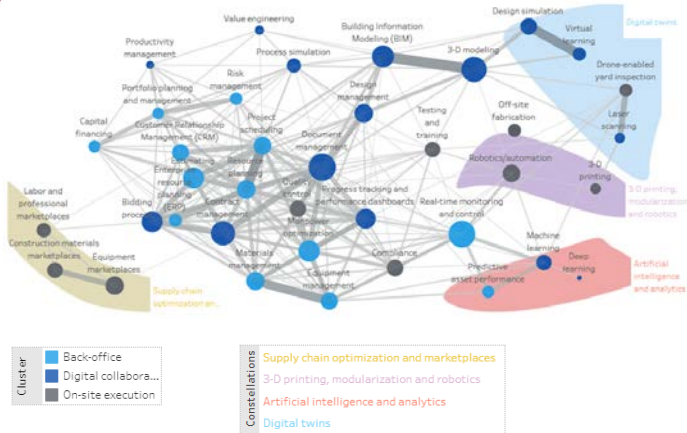Project Controls EXPO London, UK

Industry Trends

Primed For Digital Disruption

Source(s): McKinsey Global Institute Industry digitization index ; McKinsey & Company

Industry Trends
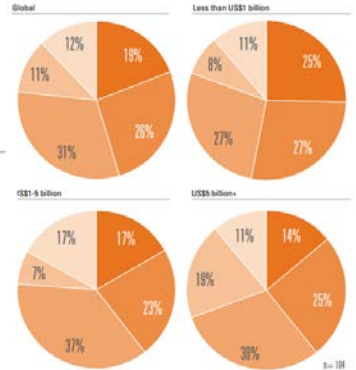
Increasing Governance & Compliance Needs

Source(s): Seizing the opportunity in todays construction technology ecosystem; McKinsey
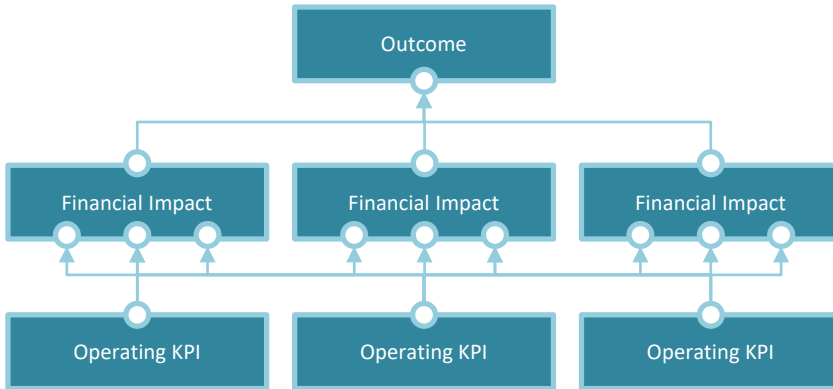

Source(s): Global Construction Survey 2015; Climbing the curve; KPMG

Customer Business Outcomes

Outcomes, Financial Impacts and Operating KPIs

Customer Business Outcomes

Customer Type

- Owner Operators
- EPC / Contractors

Outcome

- Maximize Returns on Capital Investment
- Increase Margin and Profit

Business Specific Outcomes
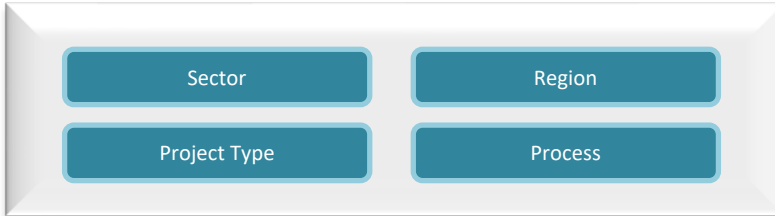
- Sector
- Region
- Project Type
- Process

Keys to Effective Business Outcomes

Accurate setting of outcome targets and measures

Ensure work remains aligned to outcome enabling benefits

Analyze, validate and course correct performance against targets

HEXAGON PPM | Project Controls EXPO London, UK

Financial Impacts

Objectives / Needs

- Standardization
- Consistency
- Consolidation
- Single Source of Truth
- Visibility
- Integrated

Operational Results

- Improve Productivity
- Reduce Rework
- Reduce Time on Low Value Activities
- Increase Time on Value Adding Activity
  - Manage / Avoid Changes
  - Mitigate Risks
  - Trend Analysis
  - Timely Corrective Actions

Financial Impacts

- Cost Reductions
- Cost Savings

Project Controls EXPO
London, UK

Key Internal Operating KPIs

- Increase Efficiency
- Improve Predictability
- Greater Control

How do you measure success?

How do you know if you are on target to meet your goals?

How do justify and qualify your initial and continued investment?

HEXAGON PPM | Project Controls EXPO London, UK

Defining Smart KPIs

S — **SPECIFIC**
Clear and focused towards performance targets

M — **MEASURABLE**
Can be expressed quantitatively

A — **ATTAINABLE**
Targets are reasonable and achievable

R — **REALISTIC**
Directly pertinent to the work being performed

T — **TIMELY**
Measured and reported in a given time period

HEXAGON PPM | Project Controls EXPO London, UK

Defining Smart KPIs

🕐 Increase Efficiency

⏱ Reduced time needed to perform tasks	📋 Reduced number of report reviews and revisions	👥 Increased resource involvement across multiple projects
📄 Improved report cycle timeframes	⚛ Improved response times to workflow actions	💼 Increased use of common tools and processes
📅 Reduction in delays to monthly report production	🎯 Increased frequency of tasks delivered on time	👥 Reduction in amount of Project Management time booked

HEXAGON
PPM

Project Controls
EXPO
London, UK

Defining Smart KPIs

Improve Predictability

Reduced variation between budget baseline and final actuals	Reduction in number of budget iterations prior to sanction
Reduced variance between period planned and actual values	Reduction in late forecast changes
Reduction in resource waste with improved schedule accuracy	Reduction in contingency allocated to projects

Increase in number of projects completed on time

Improved and consistent CPI and SPI

Reduction in number of cancelled projects

HEXAGON PPM | Project Controls EXPO London, UK

Defining Smart KPIs

Greater Control

Reduction in project rework	Improved audit trail between risks, issues and changes	Improved quality and completeness of project deliverables
Reduction in action/query response times	Monitor appropriate use of contingency	Consistent use of terms, classifications, categories and types
Increased number/percentage of risks managed and/or mitigated	Increased alignment with business strategy	Improving maturity levels and ratings

HEXAGON PPM | Project Controls EXPO London, UK

Important Business Processes

Project Portfolio Management

Portfolio Planning	Capital Budgeting & Planning	Benchmarking & Concept Estimating
Fund Management	Resource Planning	Pipeline Management
Project Development	Optimization & Control	

HEXAGON PPM

Project Controls EXPO London, UK

Project Controls

- Planning & Scheduling
- Detailed Estimating & Budgeting
- Resource Management
- Change Management
- Risk & Issue Management
- Performance Management
- Forecasting
- Project Administration

HEXAGON PPM | Project Controls EXPO London, UK

Contract Management

Procurement Planning	Vendor & Bid Management	Contract Budget & Cost Control
Contract Change Management	Claim Management & Resolution	Field Progress Measurement
	Contract Administration	

HEXAGON PPM | Project Controls EXPO London, UK

Role Based Performance Analysis

HEXAGON PPM

Project Controls EXPO
London, UK

Role Based Performance Analytics

Setting Performance KPIs

Path ID	Project KPI Setup Instructions
⊟ Control	
Control.Risk Score	If Average Risk Score > Amber Maximum Target then RED; else if Average Risk Score > Green Maximum Target then AMBER; else GREEN
Control.Open Risks	If (Total Unmitigated and Uncontrolled Risks/Total Risks) > Amber Maximum Target then RED; else if (Total Unmitigated and Uncontrolled Risks/Total Risks) > Green Maximum Target then AMBER; else GREEN
Control.Open Issues	If (Total Open Issues/Total Issues) > Amber Maximum Target then RED; else if (Total Open Issues/Total Issues) > Green Maximum Target then AMBER; else GREEN
Control.Open Changes	If (Total Open Changes/Total Changes) > Amber Maximum Target then RED; else if (Total Open Changes/Total Changes) > Green Maximum Target then AMBER; else GREEN
⊟ Schedule	
Schedule.SPI	If SPI < Amber Maximum Target then RED; else if SPI < Green Maximum Target then AMBER; else GREEN
Schedule.On Schedule	If # Days (Forecast Max Date - Planned End Date) > GREEN Maximum Target then RED; else GREEN
⊟ Cost	
Cost.CPI	If CPI < Amber Maximum Target then RED; else if CPI < Green Maximum Target then AMBER; else GREEN
Cost.Forecast Variance	If (Forecast and Forecast Variance Changes / Original Budget) > Amber Maximum Target then RED; else if ((Forecast - Current Budget) / Current Budget) > Green Maximum Target then AMBER; else GREEN
Cost.Budget Variance	If (Scope and Budget Changes / Original Budget) > Amber Maximum Target then RED; else if (Scope and Budget Changes / Original Budget) > Green Maximum Target then AMBER; else GREEN
Cost.On Budget	If (Current Forecast / Current Budget) > Green Maximum Target then RED; else GREEN

- Create New or Select from available Performance KPIs (Cost, Schedule and Control)
  - Identify Subject Area e.g. Forecasting, Risk, Change
  - Identify and Define Performance Metric e.g. Forecast Variance, Open Issues, Risk Tolerance Level

HEXAGON PPM | **Project Controls EXPO** London, UK

Role Based Performance Analytics

Set Target and Thresholds

* Portfolio: My Other Portfolio - My Other Portfolio

Sheet   Edit   Display   Rows

KPI ID	Name	Setup Instructions	Green Maximum Target	Amber Maximum Target
Forecast Variance	03 Forecast Variance	If (Forecast and Forecast Variance Changes / Original Budget) > Amber Maximum Target then RED; else if ((Forecast - Curren	15.00	25.00
Budget Variance	02 Budget Variance	If (Scope and Budget Changes / Original Budget) > Amber Maximum Target then RED; else if (Scope and Budget Changes / C	10.00	20.00
Open Changes	01 Open Changes	If (Total Open Changes/Total Changes) > Amber Maximum Target then RED; else if (Total Open Changes/Total Changes) > Gi	3.00	5.00
CPI	04 CPI	If (CPI < Amber Maximum Target then RED; else if CPI < Green Maximum Target then AMBER; else GREEN	1.05	1.20
On Budget	01 On Budget	If (Current Forecast / Current Budget) > Green Maximum Target then RED; else GREEN	1.00	
On Schedule	01 On Schedule	If # Days (Forecast Max Date - Planned End Date) > GREEN Maximum Target then RED; else GREEN	3.00	
Open Issues	02 Open Issues	If (Total Open Issues/Total Issues) > Amber Maximum Target then RED; else if (Total Open Issues/Total Issues) > Green Maxi	5.00	3.00
Open Risks	03 Open Risks	If (Total Unmitigated and Uncontrolled Risks/Total Risks) > Amber Maximum Target then RED; else if (Total Unmitigated and	2.00	3.00
Risk Score	04 Risk Score	If Average Risk Score > Amber Maximum Target then RED; else if Average Risk Score > Green Maximum Target then AMBER;	20.00	0.00
SPI	02 SPI	If SPI < Amber Maximum Target then RED; else if SPI < Green Maximum Target then AMBER; else GREEN	1.00	1.10

- Define RAG Targets and Threshold Values

HEXAGON PPM

Project Controls EXPO London, UK

Role Based Performance Analytics

Analyze KPIs
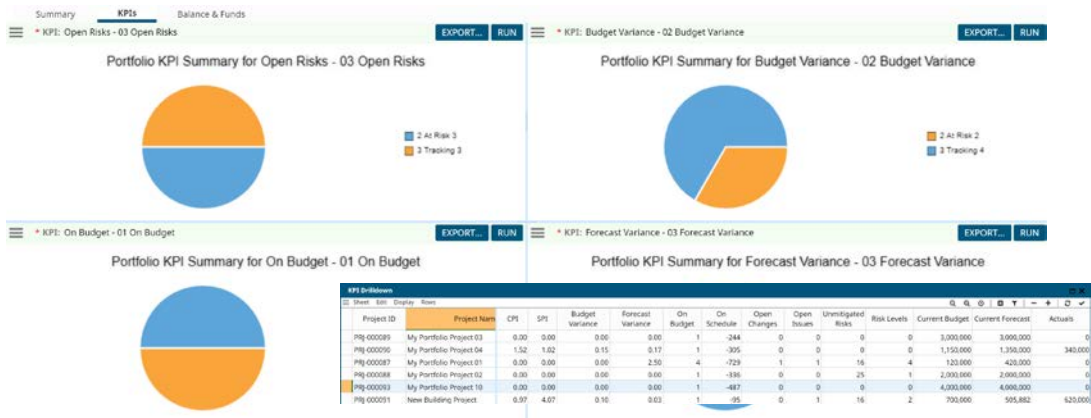
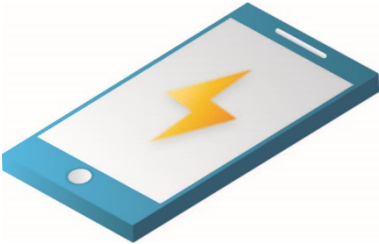- Select and View KPIs
- Analyze By Exception
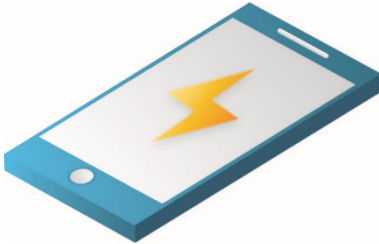- Drilldown into root cause

Pop Quiz

Welcome Smartphones!

www.menti.com

Welcome Smartphones!

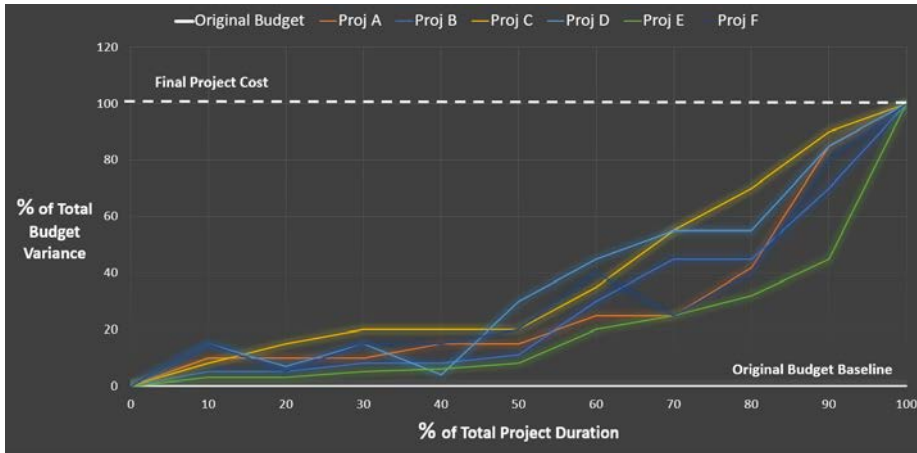## www.menti.com

Predictability Analysis

Impacts of Poor and Improved Predictability

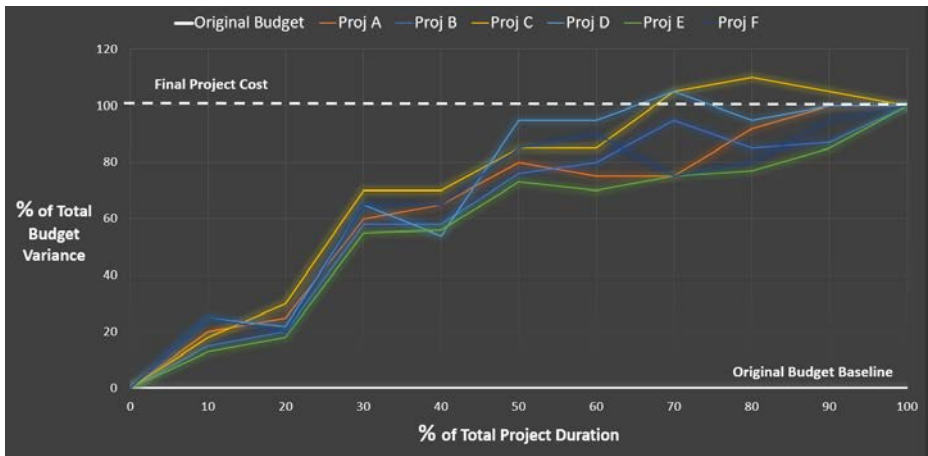Reported % of Total Budget Variance at % of Total Project Duration

Late forecasts
↓
No ability to take corrective action
↓
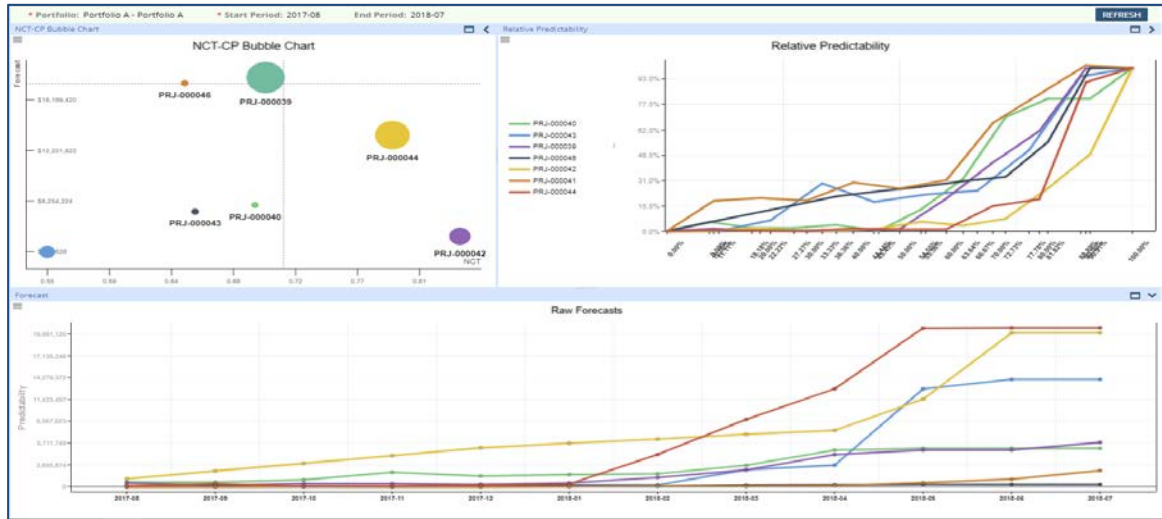Excessive cost

Predictability Analysis

Impacts of Poor and Improved Predictability

Reported % of Total Budget Variance at % of Total Project Duration

Timely forecasts
↓
Corrective action
↓
Cost reduction

Predictability Analysis

EcoSys Predictability Index

EPP – A Broader Perspective

Performance: *B*oth business performance and Project Performance

Goal:
Maximize Returns or Margins

Methodology:
Strategic Alignment +
Optimal Execution

Structure & Underpinnings:

One Database, One Login
Viable Replacement for Common Tools

1. Enterprise Standards
2. Enterprise Scalability
3. Flexible Setup
4. Real-Time Analytics
5. Data Integration

Thank you

- The EcoSys team will be available during the day at stand 15 to show you how to increase your predictability and increase your projects performance with EcoSys.
We look forward to seeing you there!