Architecting an Optimal FinOps Platform

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IT REVOLUTION

DevOps Enterprise Summit
Amsterdam 2023

Conversation

- What was the trigger for this activity?
- Problem Definition - What & Why?
- Approach to solving this problem
- Platform Capabilities & Building blocks
- Larger Context of Engineering Effectiveness
- Takeaways & where do we go from here?

Starting Point → 2023 Perspectives

Tactical cost optimization activities are prioritized over higher-impact strategic initiatives (**KPMG**)

85%

Organizations embracing Cloud Native Development (Gartner)

Mature FinOps practices shift left ….which enables engineering to ….. accountable for the cloud spending (**FinOps Foundation**)

Organizations need holistic platforms, not just a slew of tools and processes

Isolated Localized Optimizations continue to provide suboptimal results

30%

… cloud spend is categorized as "waste" spend that can be optimized (IDC)

60%

..of enterprises will underestimate their Cloud Infra and platform services consumption rates (Gartner)

Buying FinOps tools and allocating people to FinOps activities can cost you more than it saves (McKinsey).

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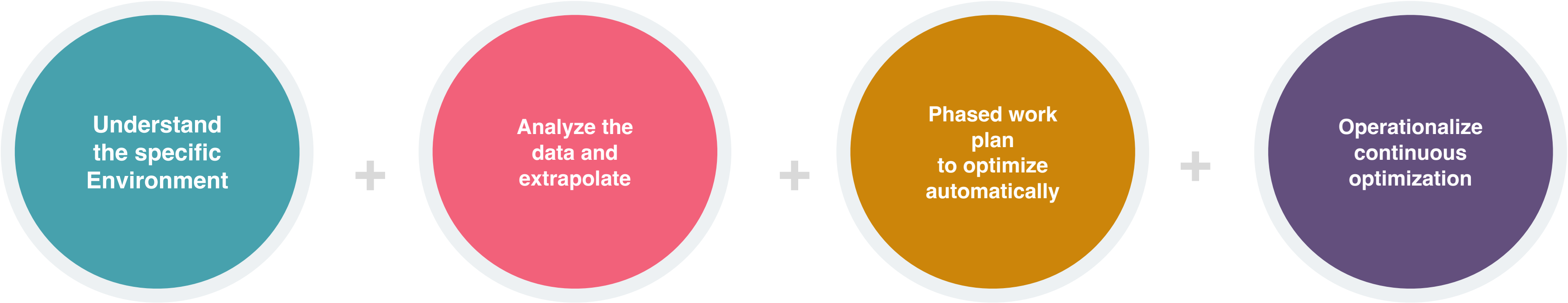
Solving the FinOps Problem

What’s New About a FinOps Platform?



Understand the specific Environment

+

Analyze the data and extrapolate

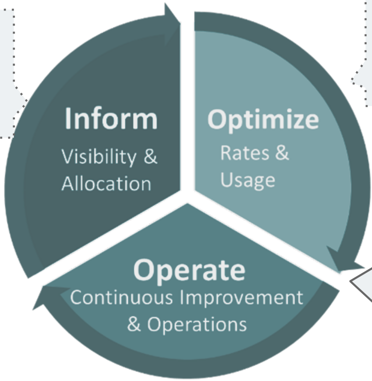
+

Phased work plan to optimize automatically

+

Operationalize continuous optimization

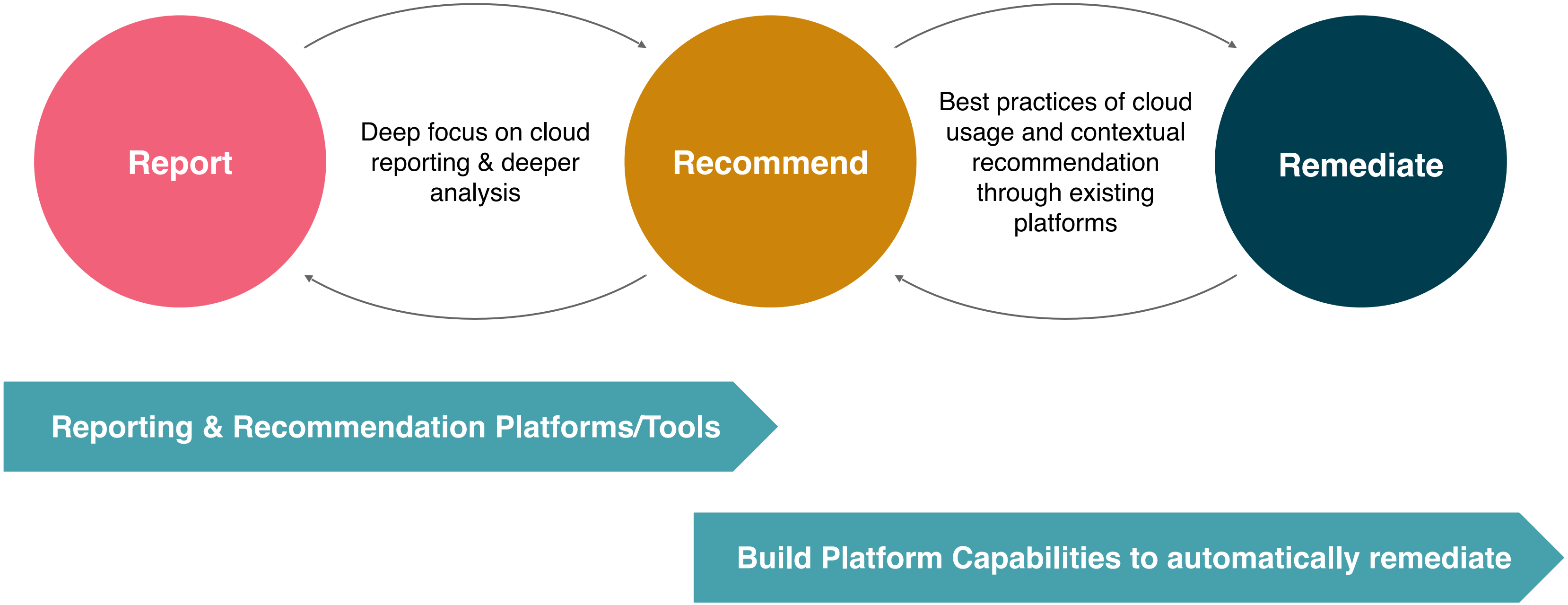
A plethora COTS **Reporting & Recommendation** Platforms!



Platforms providing limited AI based rate optimizations

Minimal inroads in COTS Platforms that provide **holistic optimizations** built into your ecosystem

3 R’s of FinOps



Report

Deep focus on cloud reporting & deeper analysis

Recommend

Best practices of cloud usage and contextual recommendation through existing platforms

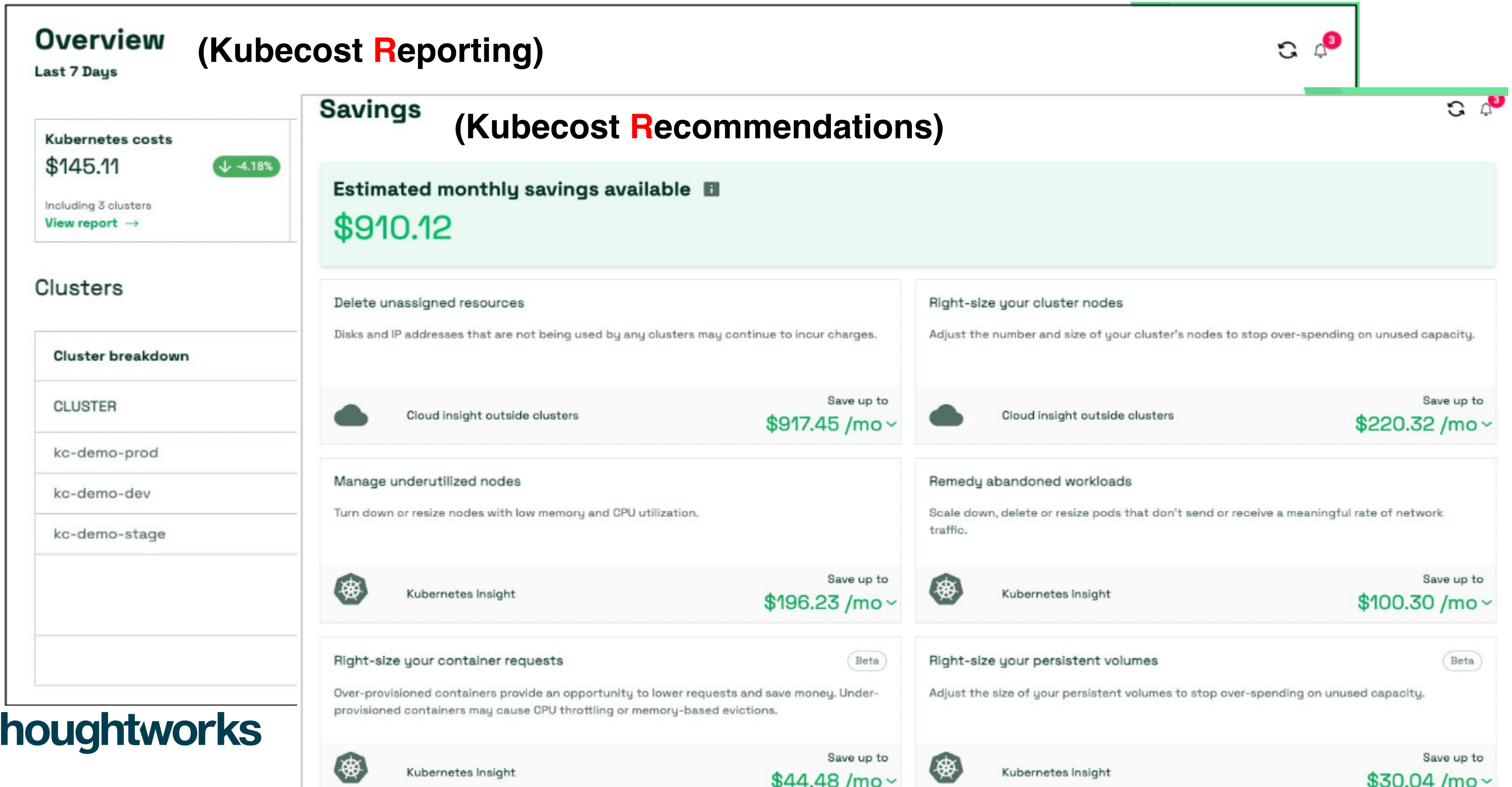
Remediate

Reporting & Recommendation Platforms/Tools

Build Platform Capabilities to automatically remediate

Accelerator Platforms - What does it tell you?

Reporting & Recommendation Platforms



Overview

Last 7 Days

(Kubecost Reporting)

Kubernetes costs

$145.11 ↓ -4.18%

Including 3 clusters

View report →

Clusters

Cluster breakdown
CLUSTER
kc-demo-prod
kc-demo-dev
kc-demo-stage

Savings

(Kubecost Recommendations)

Estimated monthly savings available

$910.12

Delete unassigned resources

Disks and IP addresses that are not being used by any clusters may continue to incur charges.

Cloud insight outside clusters — Save up to $917.45 /mo

Right-size your cluster nodes

Adjust the number and size of your cluster's nodes to stop over-spending on unused capacity.

Cloud insight outside clusters — Save up to $220.32 /mo

Manage underutilized nodes

Turn down or resize nodes with low memory and CPU utilization.

Kubernetes Insight — Save up to $196.23 /mo

Remedy abandoned workloads

Scale down, delete or resize pods that don't send or receive a meaningful rate of network traffic.

Kubernetes Insight — Save up to $100.30 /mo

Right-size your container requests — Beta

Over-provisioned containers provide an opportunity to lower requests and save money. Under-provisioned containers may cause CPU throttling or memory-based evictions.

Kubernetes Insight — Save up to $44.48 /mo

Right-size your persistent volumes — Beta

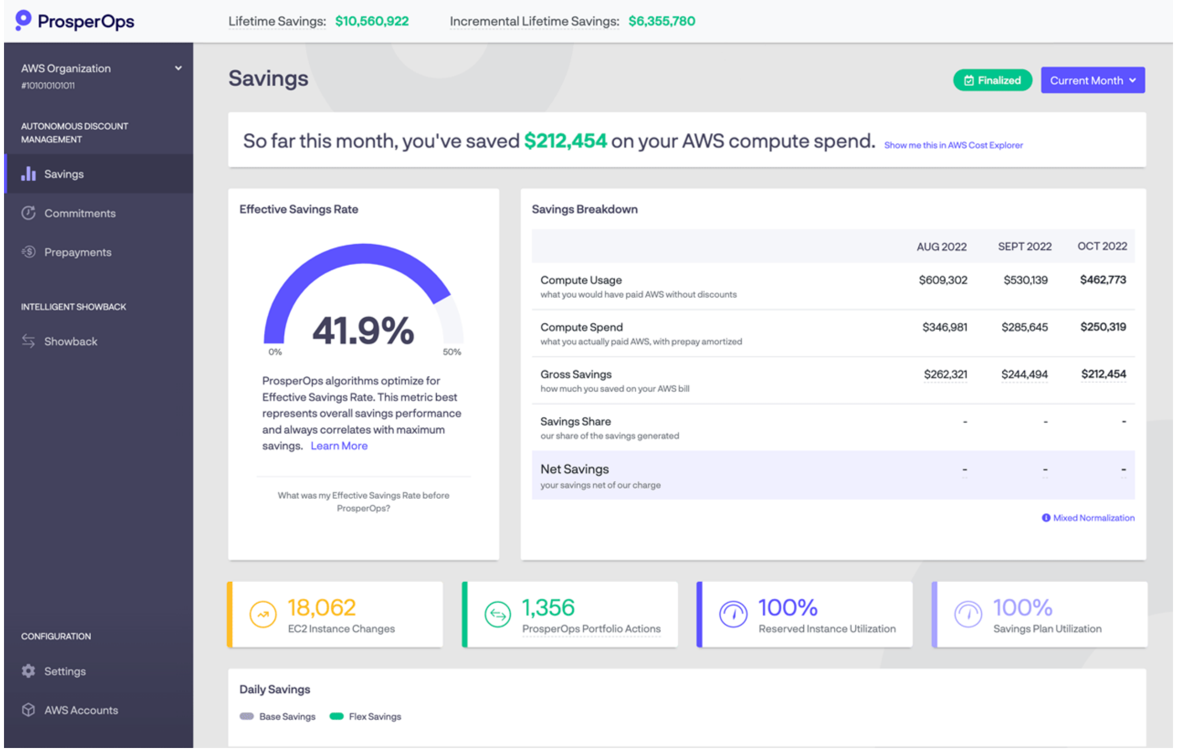
Adjust the size of your persistent volumes to stop over-spending on unused capacity.

Kubernetes Insight — Save up to $30.04 /mo

Accelerator Platforms - What does it tell you?

Automated Commitments Optimization - Plans & Usage

- Spot Discounts
- Commitment based discounts
- Sustained Usage
- Private Pricing
- Automated Optimization



ProsperOps Lifetime Savings: $10,560,922 Incremental Lifetime Savings: $6,355,780

AWS Organization
#101010101011

AUTONOMOUS DISCOUNT MANAGEMENT

Savings

Commitments

Prepayments

INTELLIGENT SHOWBACK

Showback

CONFIGURATION

Settings

AWS Accounts

Savings

Finalized

Current Month

So far this month, you've saved $212,454 on your AWS compute spend. Show me this in AWS Cost Explorer

Effective Savings Rate

41.9%

0% 50%

ProsperOps algorithms optimize for Effective Savings Rate. This metric best represents overall savings performance and always correlates with maximum savings. Learn More

What was my Effective Savings Rate before ProsperOps?

Savings Breakdown

	AUG 2022	SEPT 2022	OCT 2022
Compute Usage what you would have paid AWS without discounts	$609,302	$530,139	$462,773
Compute Spend what you actually paid AWS, with prepay amortized	$346,981	$285,645	$250,319
Gross Savings how much you saved on your AWS bill	$262,321	$244,494	$212,454
Savings Share our share of the savings generated	-	-	-
Net Savings your savings net of our charge	-	-	-

Mixed Normalization

18,062 EC2 Instance Changes

1,356 ProsperOps Portfolio Actions

100% Reserved Instance Utilization

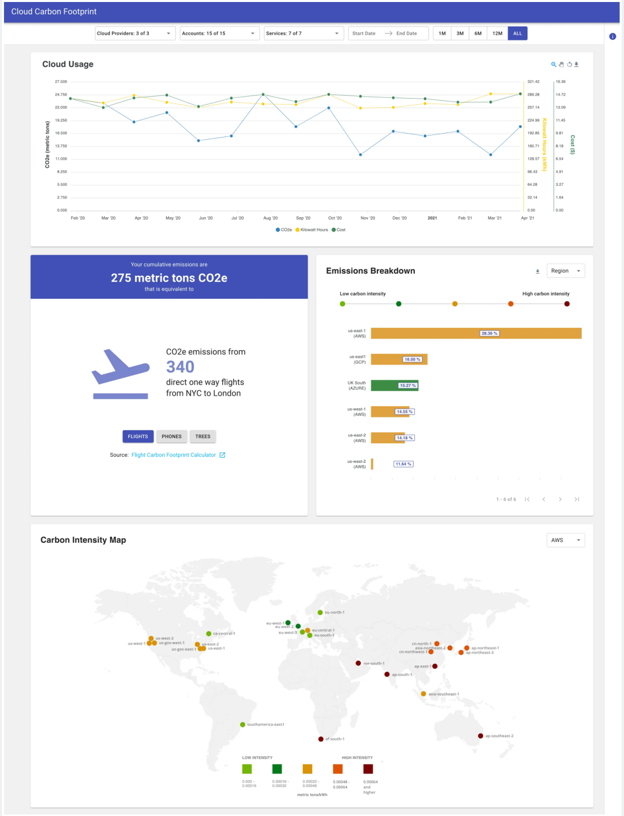
100% Savings Plan Utilization

Daily Savings

Base Savings

Flex Savings

Carbon Footprint Measuring Tool: CCF



Cloud Carbon Footprint

Cloud Providers: 3 of 3 | Accounts: 15 of 15 | Services: 7 of 7 | Start Date → End Date | 1M | 3M | 6M | 12M | ALL

Cloud Usage

Your cumulative emissions are

275 metric tons CO2e

that is equivalent to

CO2e emissions from

340

direct one way flights from NYC to London

FLIGHTS | PHONES | TREES

Source: Flight Carbon Footprint Calculator

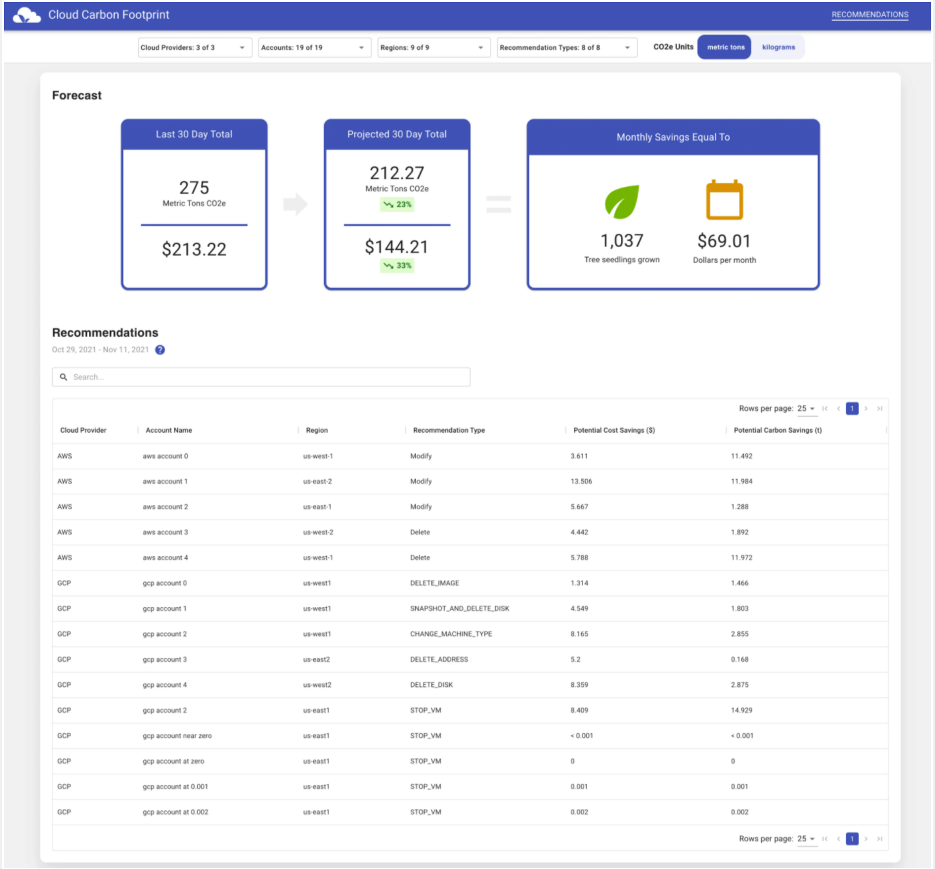
Emissions Breakdown

Region

1 - 6 of 6

Carbon Intensity Map

AWS



Cloud Carbon Footprint

RECOMMENDATIONS

Cloud Providers: 3 of 3 | Accounts: 19 of 19 | Regions: 9 of 9 | Recommendation Types: 8 of 8 | CO2e Units: metric tons | kilograms

Forecast

Last 30 Day Total

275
Metric Tons CO2e

$213.22

Projected 30 Day Total

212.27
Metric Tons CO2e
23%

$144.21
33%

Monthly Savings Equal To

1,037
Tree seedlings grown

$69.01
Dollars per month

Recommendations

Oct 29, 2021 - Nov 11, 2021

Search...

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Cloud Provider	Account Name	Region	Recommendation Type	Potential Cost Savings ($)	Potential Carbon Savings (t)
AWS	aws account 0	us-west-1	Modify	3.611	11.492
AWS	aws account 1	us-east-2	Modify	13.506	11.984
AWS	aws account 2	us-east-1	Modify	5.667	1.288
AWS	aws account 3	us-west-2	Delete	4.442	1.892
AWS	aws account 4	us-west-1	Delete	5.788	11.972
GCP	gcp account 0	us-west1	DELETE_IMAGE	1.314	1.466
GCP	gcp account 1	us-west1	SNAPSHOT_AND_DELETE_DISK	4.549	1.803
GCP	gcp account 2	us-west1	CHANGE_MACHINE_TYPE	8.165	2.855
GCP	gcp account 3	us-east2	DELETE_ADDRESS	5.2	0.168
GCP	gcp account 4	us-west2	DELETE_DISK	8.359	2.875
GCP	gcp account 2	us-east1	STOP_VM	8.409	14.929
GCP	gcp account near zero	us-east1	STOP_VM	< 0.001	< 0.001
GCP	gcp account at zero	us-east1	STOP_VM	0	0
GCP	gcp account at 0.001	us-east1	STOP_VM	0.001	0.001
GCP	gcp account at 0.002	us-east1	STOP_VM	0.002	0.002

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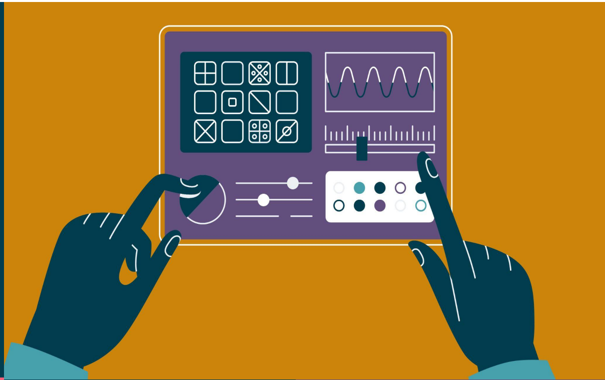
Whose problem is it to solve this?

Finance

Product

Tech



Better Budgeting & Forecasting

Improved Cost Control

True cost of solutions

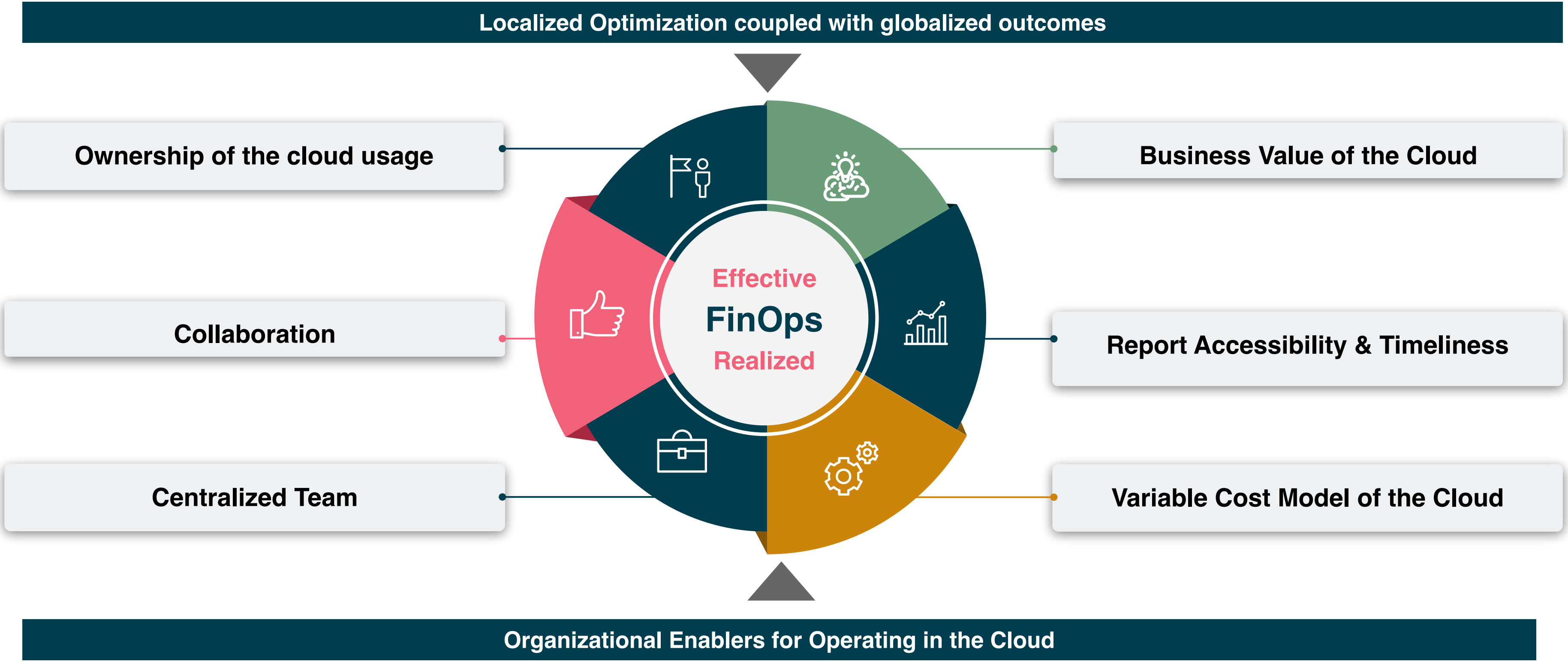
COR/COGS

Roadmap Prioritization

Data Driven Decisions

Self-Serve & Sensible defaults

Core Principles and why does it matter?



Localized Optimization coupled with globalized outcomes

Ownership of the cloud usage

Collaboration

Centralized Team

Business Value of the Cloud

Report Accessibility & Timeliness

Variable Cost Model of the Cloud

Organizational Enablers for Operating in the Cloud

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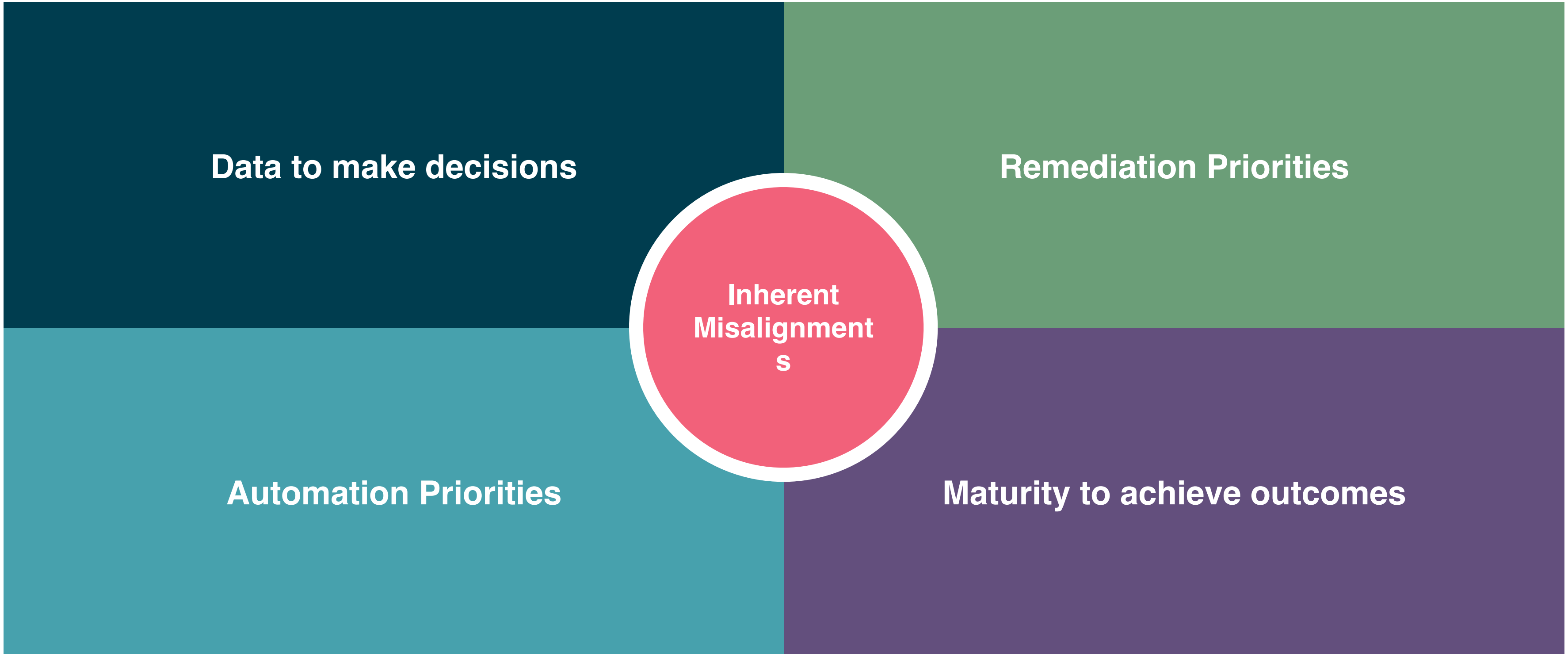
Solving the Remediation Problem - Why?



Data to make decisions

Remediation Priorities

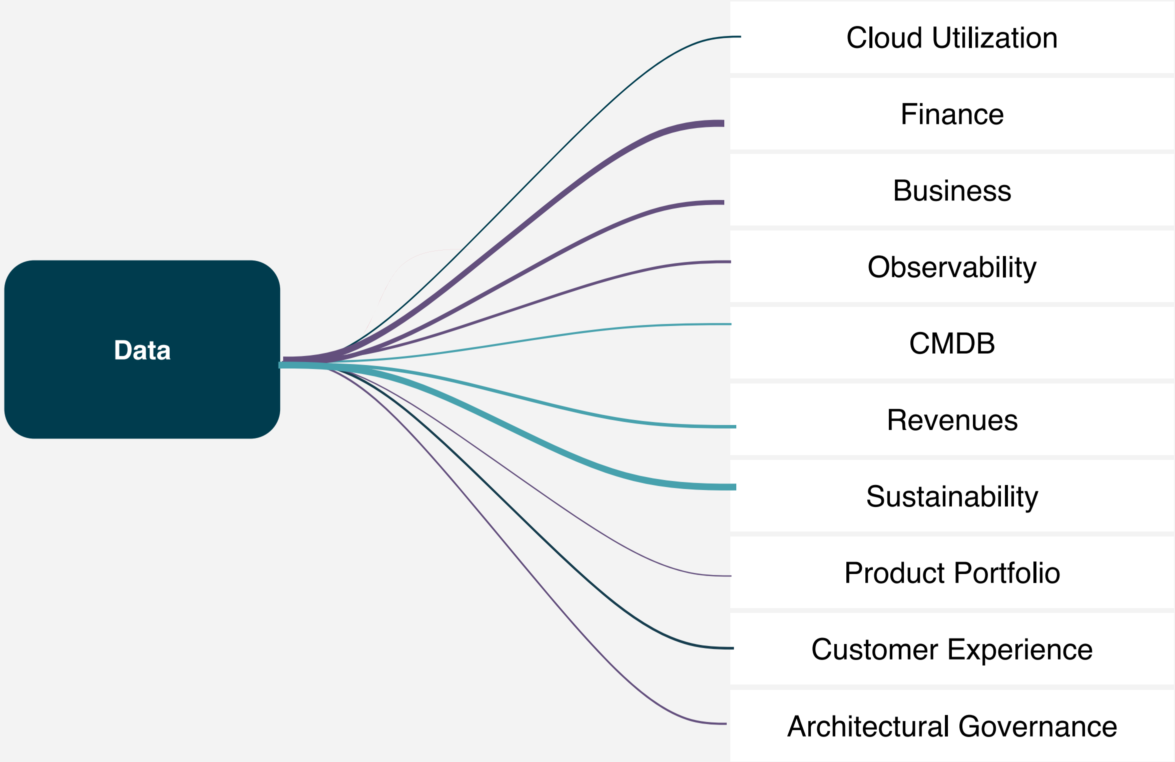
Inherent Misalignments

Automation Priorities

Maturity to achieve outcomes

*Data Courtesy: FinOps Foundation + TW Experience

Data Driven Decision Making


Data

Cloud Utilization

Finance

Business

Observability

CMDB

Revenues

Sustainability

Product Portfolio

Customer Experience

Architectural Governance

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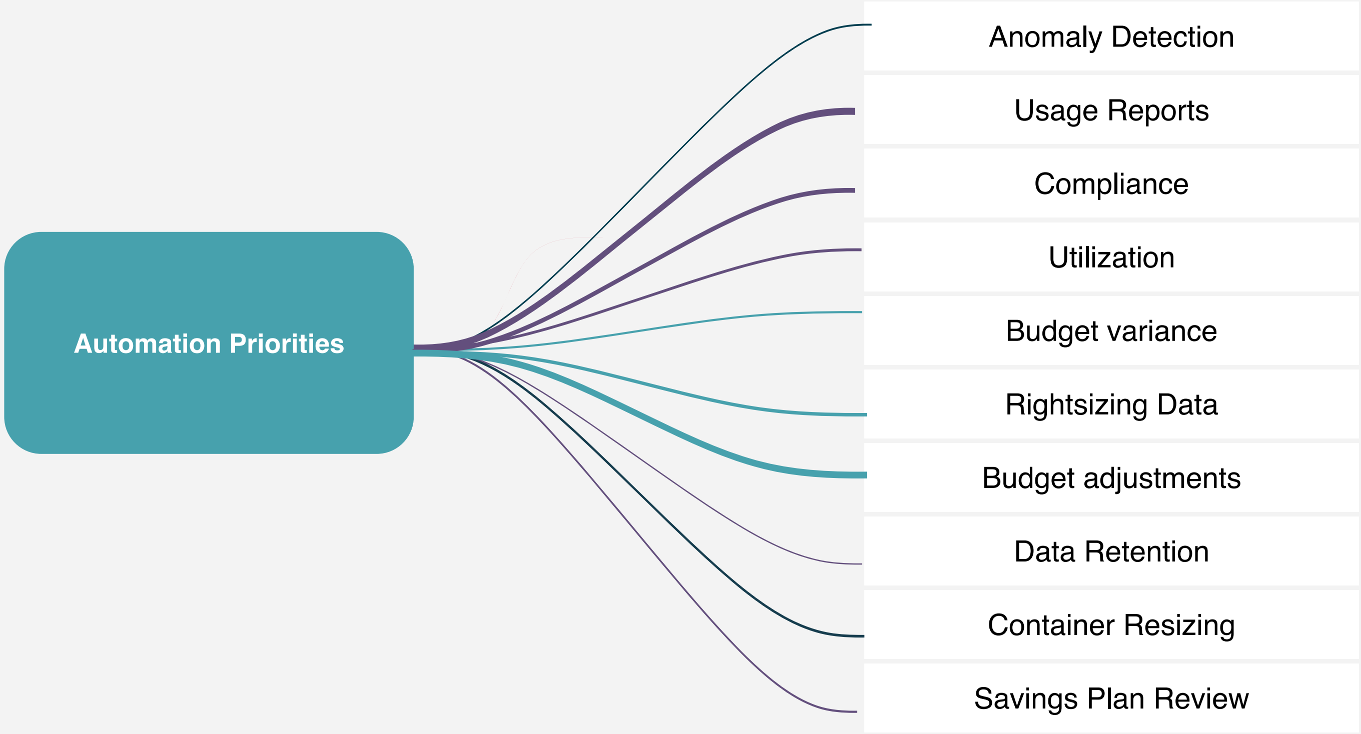
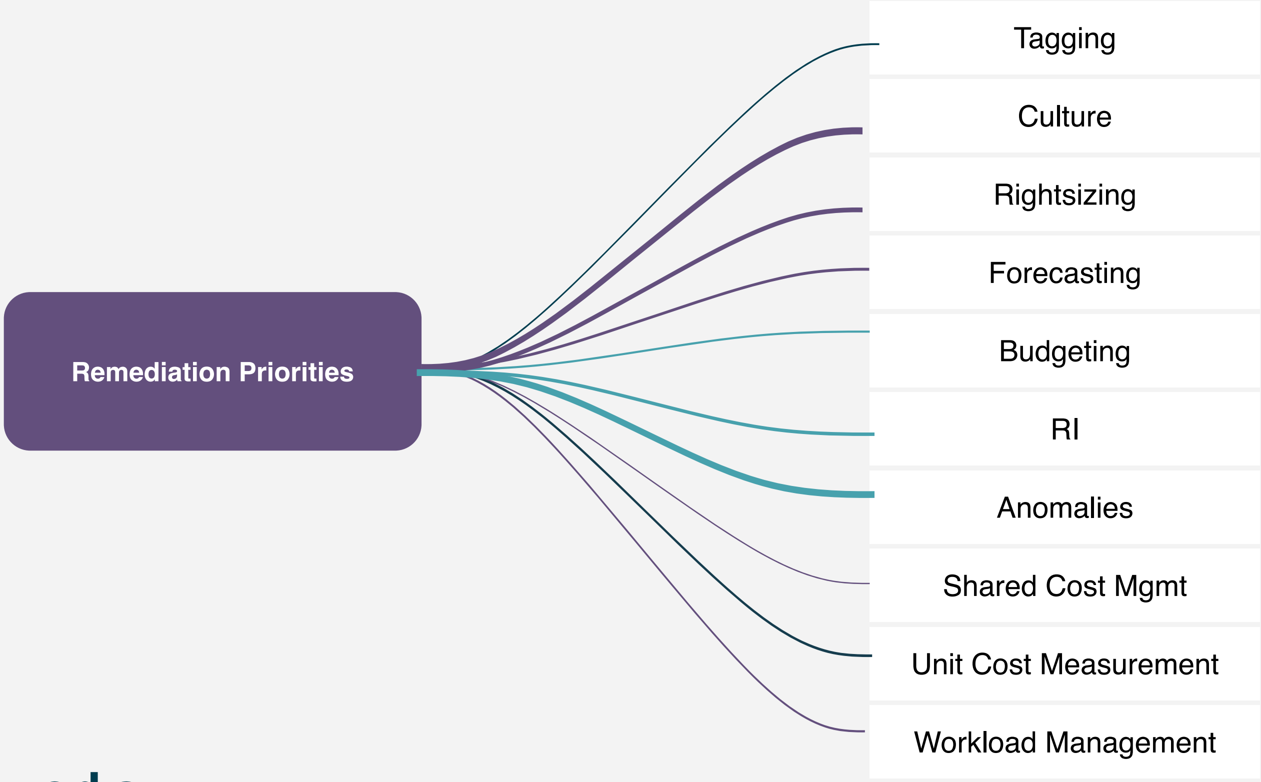
*Data Courtesy: FinOps Foundation + TW Experience

Automation Priorities at Organizations



*Data Courtesy: FinOps Foundation + TW Experience

What are you remediating?



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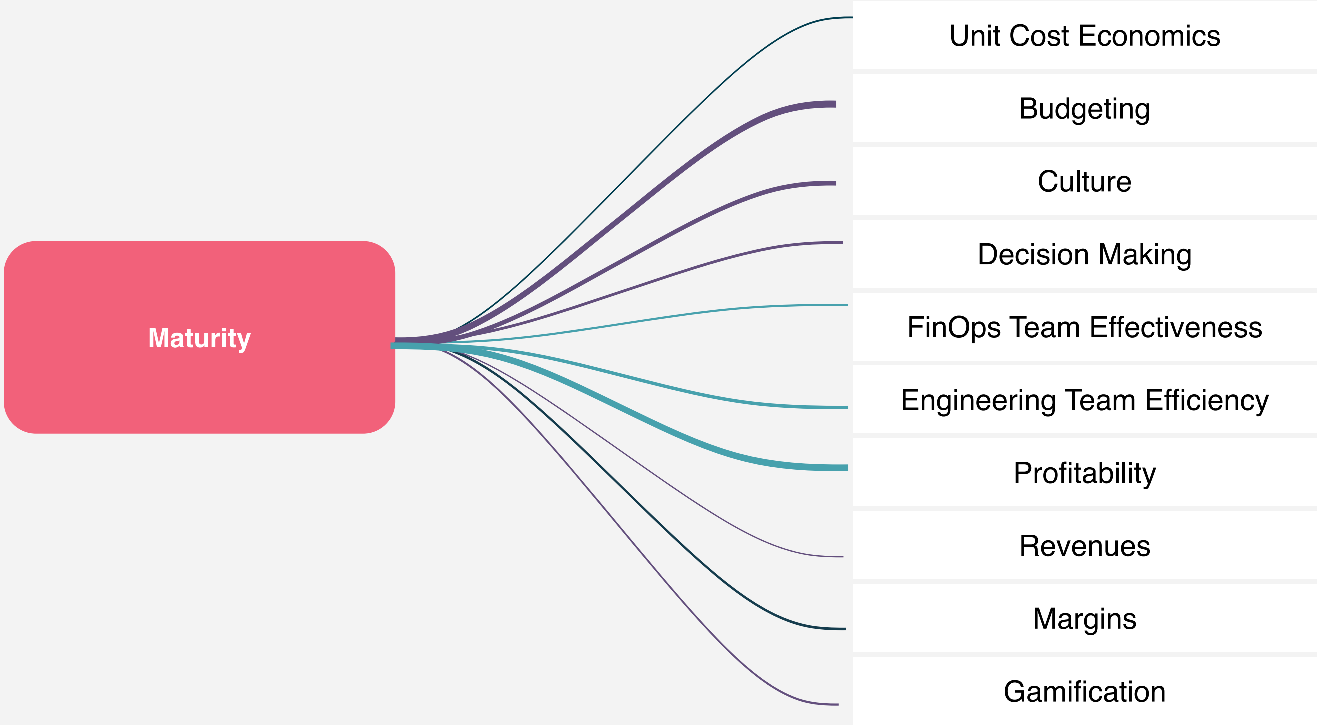
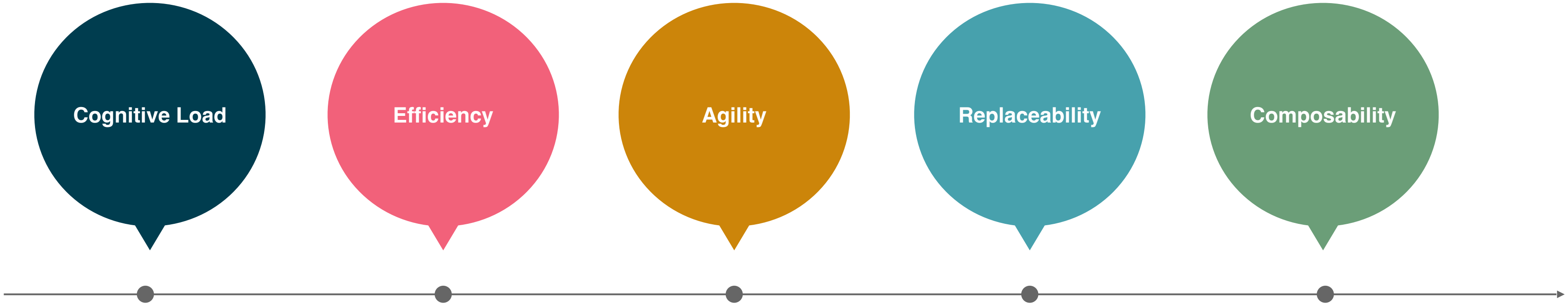
*Data Courtesy: FinOps Foundation + TW Experience

What’s the level of maturity?



Platform Capabilities in FinOps Remediation



Cognitive Load

- Hide Complexity
- Self Serve
- Easy Onboarding
- Faster Feedback

Efficiency

- SLAs/SLOs
- Shared Responsibility Model
- User Centricity
- Enablement
- Reduce Churn

Agility

- Discoverability
- Support Model
- Timeliness of Data
- Value based Prioritization

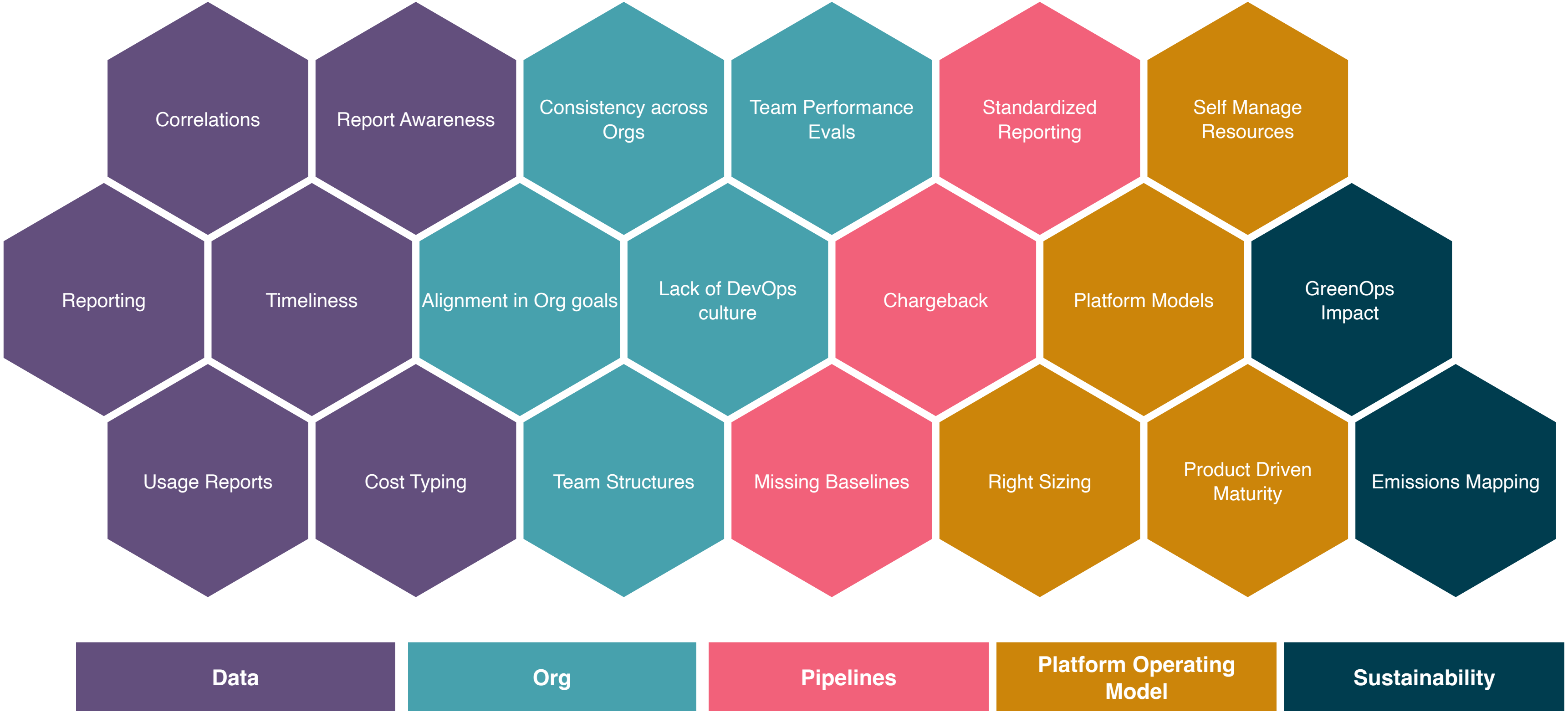
Replaceability

- Accelerators
- Monitoring
- Internal Processes
- Cloud Vendors

Composability

- Focus on Outcomes
- Open APIs
- Autonomy
- Orchestration

Expanding the building blocks



Correlations

Report Awareness

Consistency across Orgs

Team Performance Evals

Standardized Reporting

Self Manage Resources

Reporting

Timeliness

Alignment in Org goals

Lack of DevOps culture

Chargeback

Platform Models

GreenOps Impact

Usage Reports

Cost Typing

Team Structures

Missing Baselines

Right Sizing

Product Driven Maturity

Emissions Mapping

Data

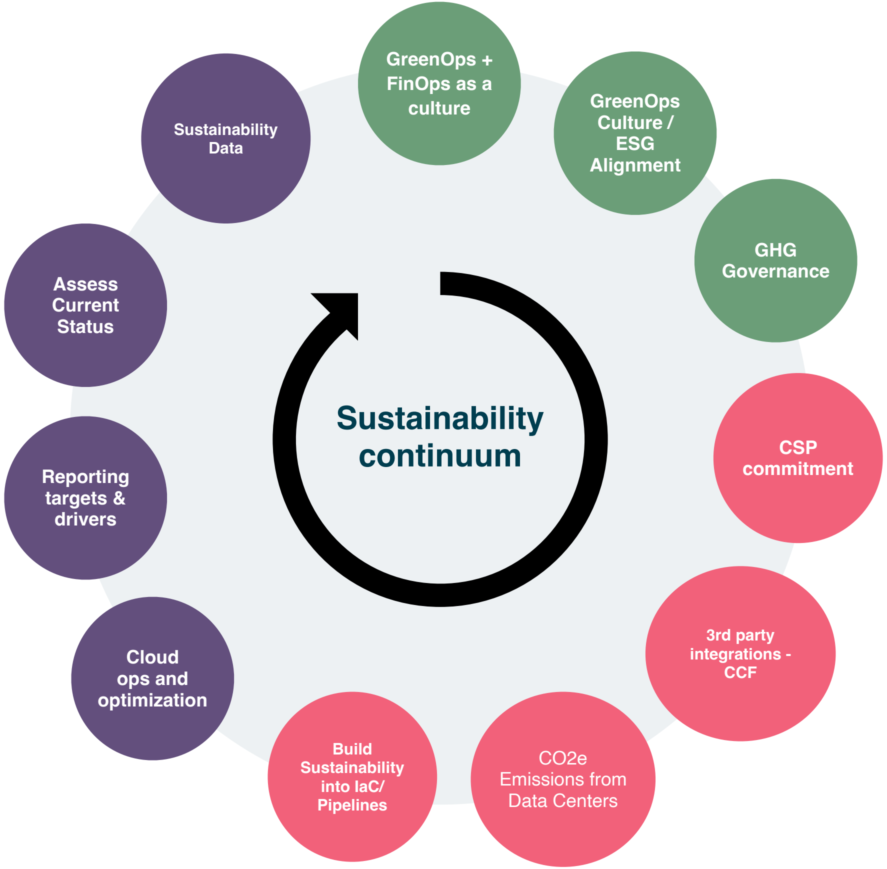
Org

Pipelines

Platform Operating Model

Sustainability

GreenOps as a Platform

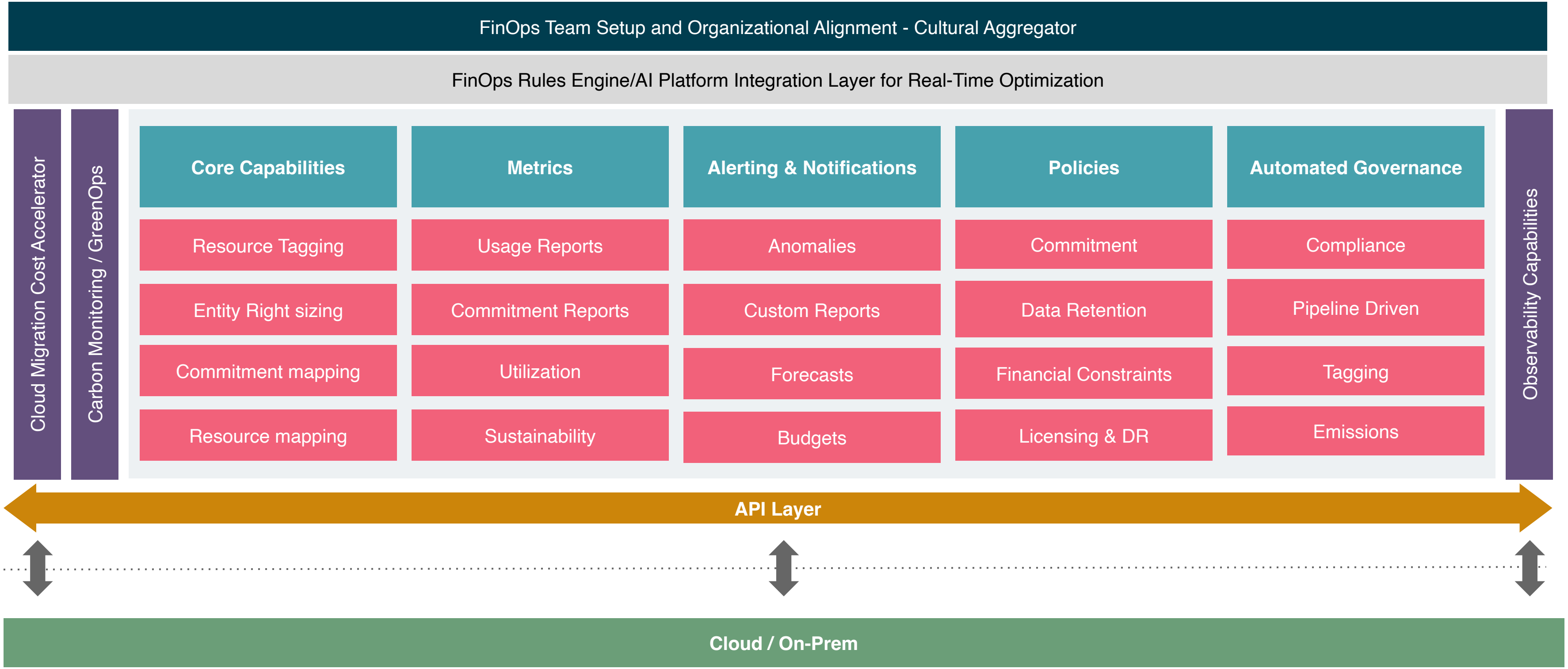

Sustainability continuum
GreenOps + FinOps as a culture
GreenOps Culture / ESG Alignment
GHG Governance
CSP commitment
3rd party integrations - CCF
CO2e Emissions from Data Centers
Build Sustainability into IaC/ Pipelines
Cloud ops and optimization
Reporting targets & drivers
Assess Current Status
Sustainability Data

Inform

Optimize

Operate

A Notional Diagram of the Platform Approach



FinOps Team Setup and Organizational Alignment - Cultural Aggregator

FinOps Rules Engine/AI Platform Integration Layer for Real-Time Optimization

Cloud Migration Cost Accelerator

Carbon Monitoring / GreenOps

Core Capabilities	Metrics	Alerting & Notifications	Policies	Automated Governance
Resource Tagging	Usage Reports	Anomalies	Commitment	Compliance
Entity Right sizing	Commitment Reports	Custom Reports	Data Retention	Pipeline Driven
Commitment mapping	Utilization	Forecasts	Financial Constraints	Tagging
Resource mapping	Sustainability	Budgets	Licensing & DR	Emissions

Observability Capabilities

API Layer

Cloud / On-Prem

Engineering Effectiveness as your FinOps Recipe

Planning → **Define and design** → **Delivery**

Cloud Pricing Models

Reporting Integration

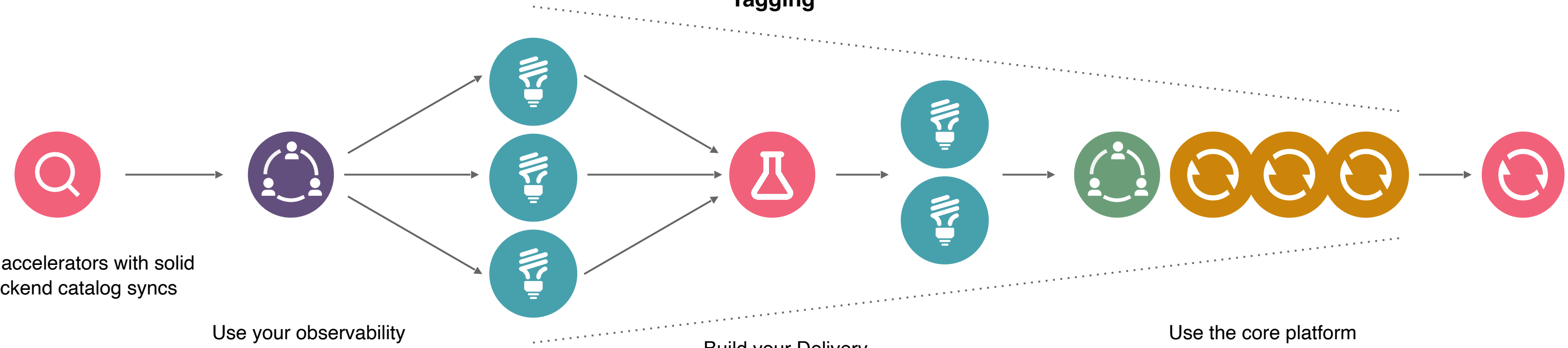
Architectural and Development Rigor

Right Sizing and Resource Tagging

Data Driven Approach

Continuous FinOps

Continuous delivery



Use accelerators with solid backend catalog syncs

Use your observability Platform

Loosely Coupled
Functional Optimization
CN Development & Delivery

Build your Delivery Infrastructure with key IaC and resource mapping

Set the appropriate business goals and align with the spend

Use the core platform capabilities seamlessly through frictionless adoption

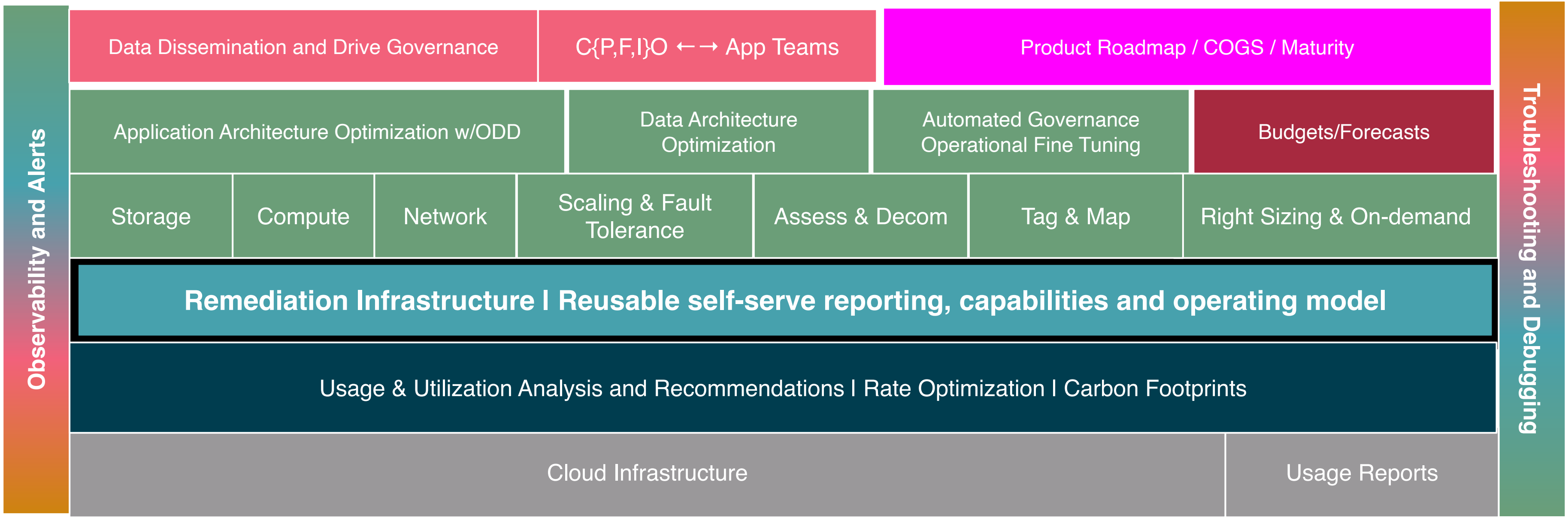
Shared Responsibility Model

Finance | Product Mgmt | Technology | FinOps Team

Platform Team

Accelerators

Cloud Provider



Observability and Alerts

Data Dissemination and Drive Governance

C{P,F,I}O ←→ App Teams

Product Roadmap / COGS / Maturity

Application Architecture Optimization w/ODD

Data Architecture Optimization

Automated Governance Operational Fine Tuning

Budgets/Forecasts

Storage

Compute

Network

Scaling & Fault Tolerance

Assess & Decom

Tag & Map

Right Sizing & On-demand

Remediation Infrastructure I Reusable self-serve reporting, capabilities and operating model

Usage & Utilization Analysis and Recommendations I Rate Optimization I Carbon Footprints

Cloud Infrastructure

Usage Reports

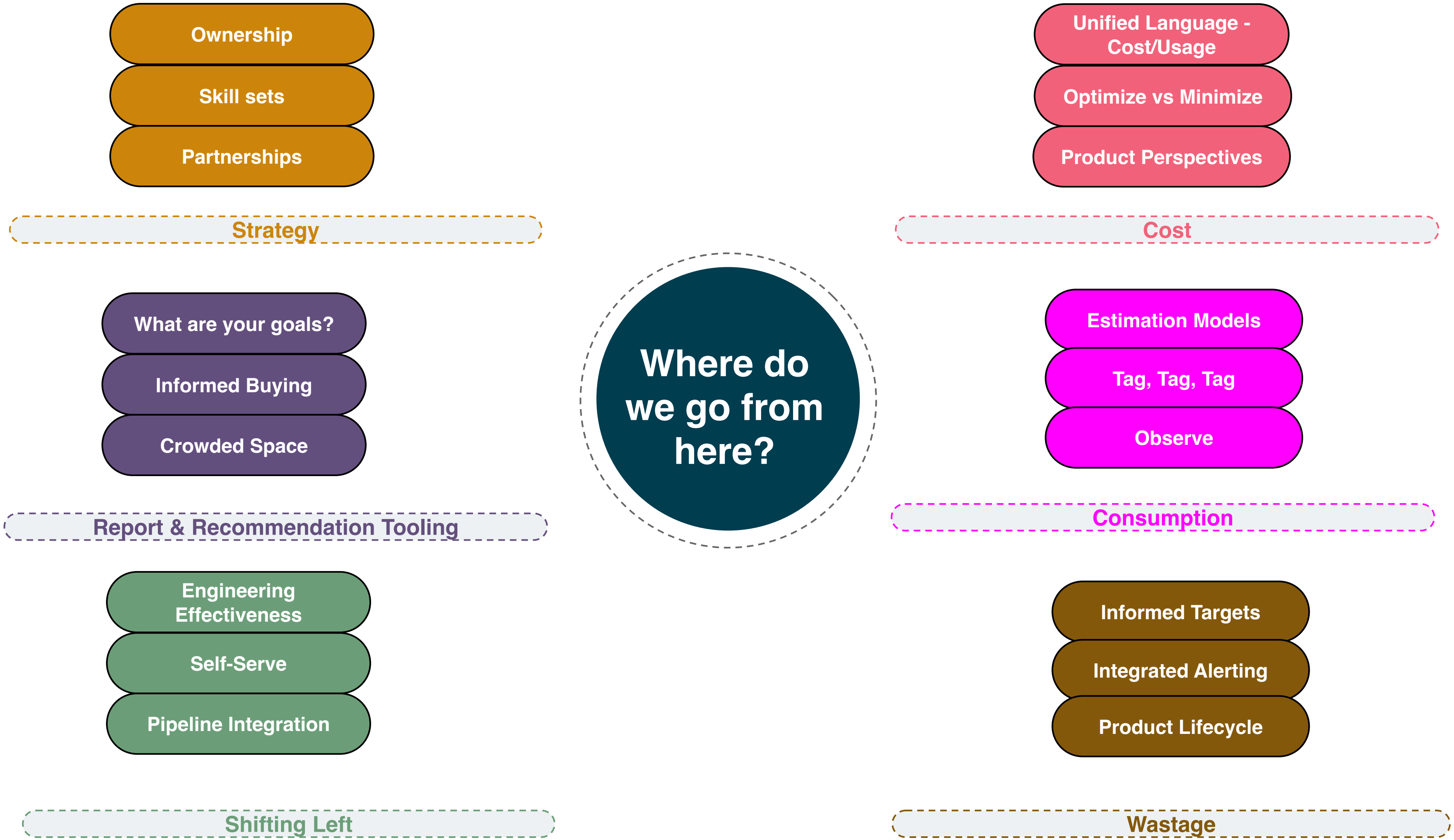
Troubleshooting and Debugging

Takeaways

Why a Platform for Remediation?

Key Capabilities of the Platform

Addressing Finance, Product and Technology needs



Where do we go from here?

- Ownership
- Skill sets
- Partnerships

Strategy

- What are your goals?
- Informed Buying
- Crowded Space

Report & Recommendation Tooling

- Engineering Effectiveness
- Self-Serve
- Pipeline Integration

Shifting Left

- Unified Language - Cost/Usage
- Optimize vs Minimize
- Product Perspectives

Cost

- Estimation Models
- Tag, Tag, Tag
- Observe

Consumption

- Informed Targets
- Integrated Alerting
- Product Lifecycle

Wastage

Questions/More Information?

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- **FinOps Platforms**
  FinOps I Thoughtworks

- **Platforms** in the Context of Engineering Effectiveness
  Engineering effectiveness I Thoughtworks

- **CCF** Tool - Cloud Carbon Footprint

- What I Talk About When I Talk About Platforms - Evan Bottcher

- Building Infrastructure Platforms - Rowse & Shepherd