Energy as a Strategy

Which came first?

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What is a Product and a Service?

- PRODUCT is … a tangible or intangible good that satisfies a need

- SERVICE is … an intangible commodity or economic good

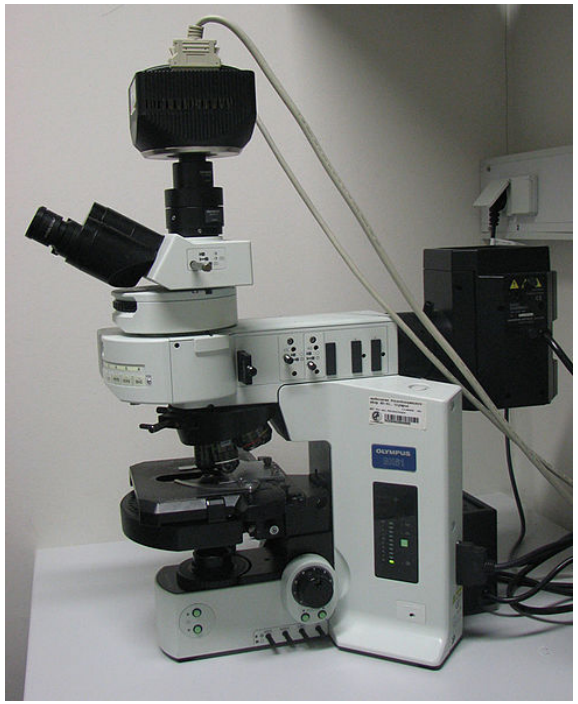
http://en.wikipedia.org/wiki/File:Service-goods_continuum.png

So what are we buying?

PRODUCT
Commodity

Microscope

Inspection Equipment



SERVICE
Value-add

Faster/Cheaper/ Ergonomical means of performing quality control

So what are we buying?

PRODUCT
Widget

Electrons
kW / kWh
Thermostat

SERVICE
Outcome

Universal access
Comfort
Mobility
Convenience

Energy Problems in the built environment

10% of the built environment

60% of the built environment

Why do few companies sell energy efficiency outside of downtown cores?

Energy Problems in the built environment

- Middle market
- Relationship
- Non-existence of savings
- No budget
- No one responsible
- Mixed Tenancy
- Conflicting needs

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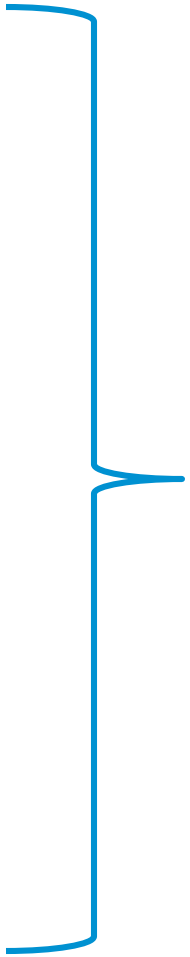
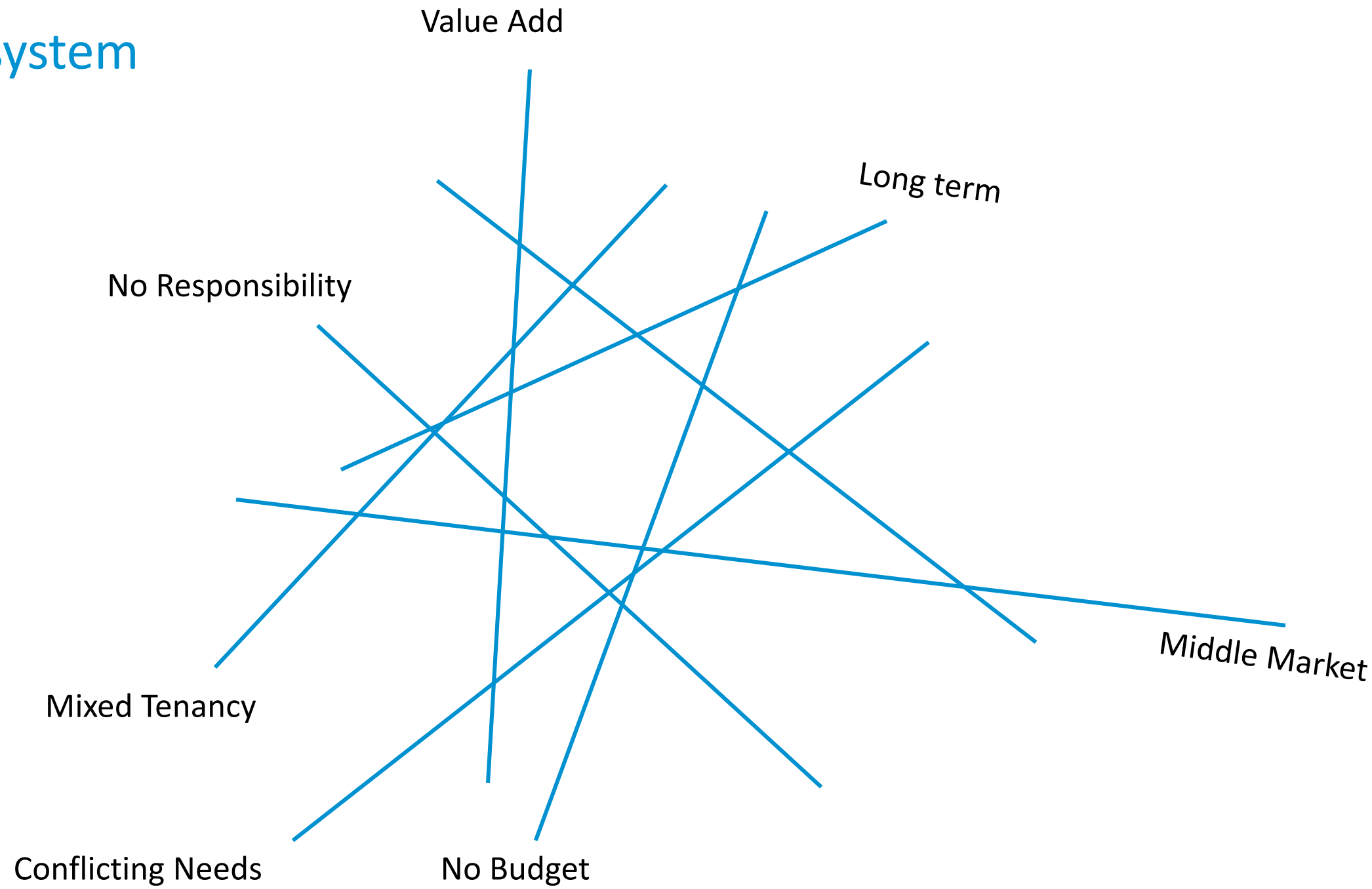


These are just ***constraints***

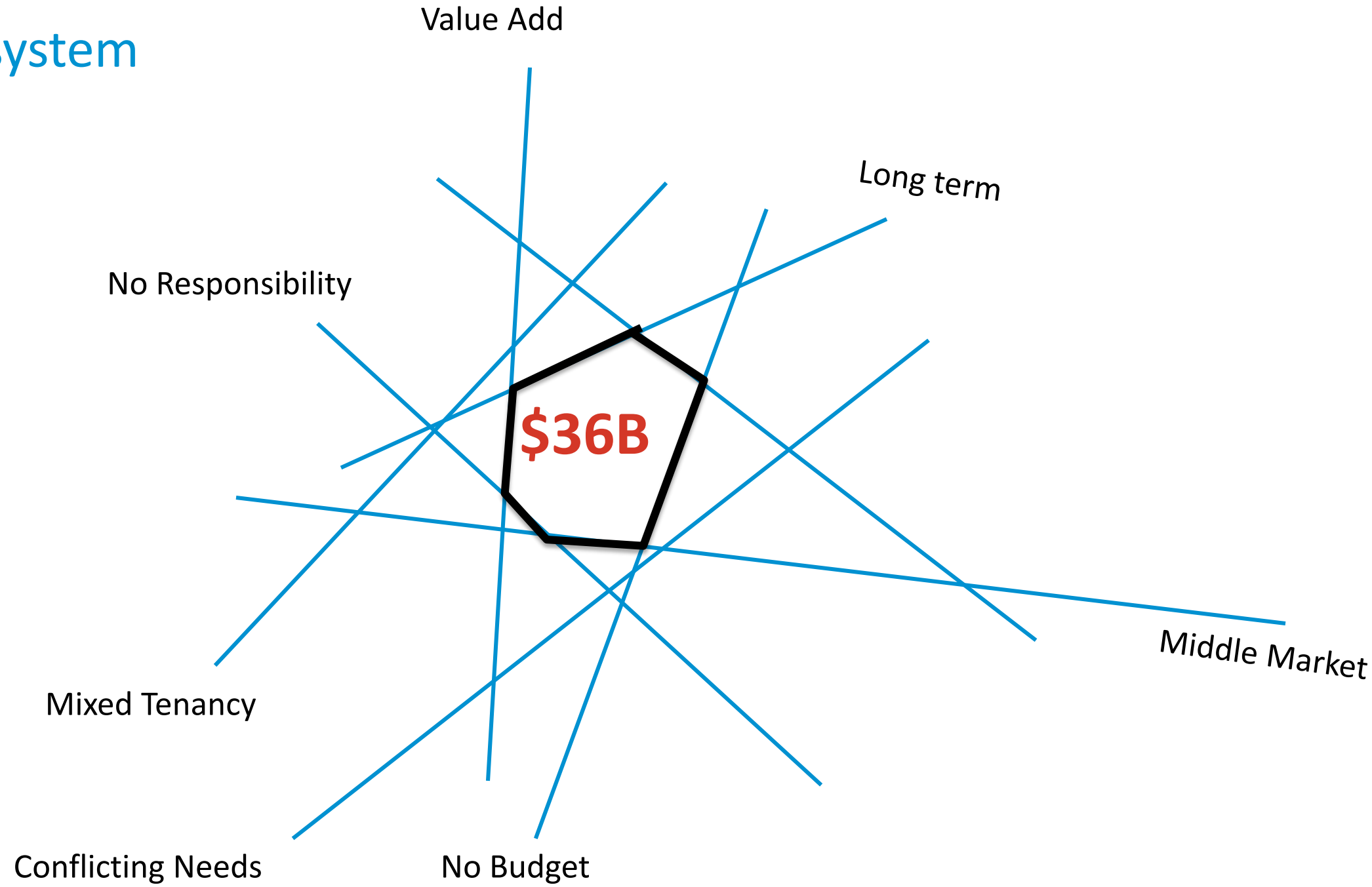
If this is true, what else is true?

- Middle market → costs had to be low
- Relationship → service had to be long-term subscriptions
- Non-existence of savings → service had to focus on value add
- No budget → create one for the business
- No one responsible → Sell to upper management
- Mixed Tenancy → Create a simple responsibility matrix
- Conflicting needs → find lowest common denominator

Ecosystem


Value Add
Long term
No Responsibility
Middle Market
Mixed Tenancy
Conflicting Needs
No Budget

Ecosystem


Value Add
Long term
No Responsibility
$36B
Middle Market
Mixed Tenancy
Conflicting Needs
No Budget

Wasted Energy

USA Commercial Electricity Consumption ~$120 Billion

Wasted Utilities: 30% of electric consumption

The ***Energy Efficiency*** industry is positioned to address this problem.

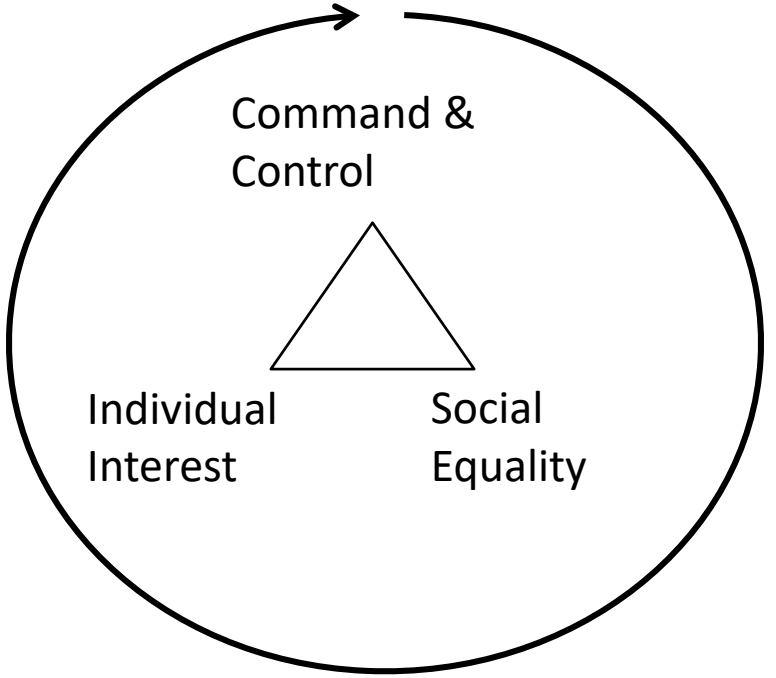
Addressed as a Marketing concern

How can I save money?

Source: EPA

Constraint: Wicked Problem

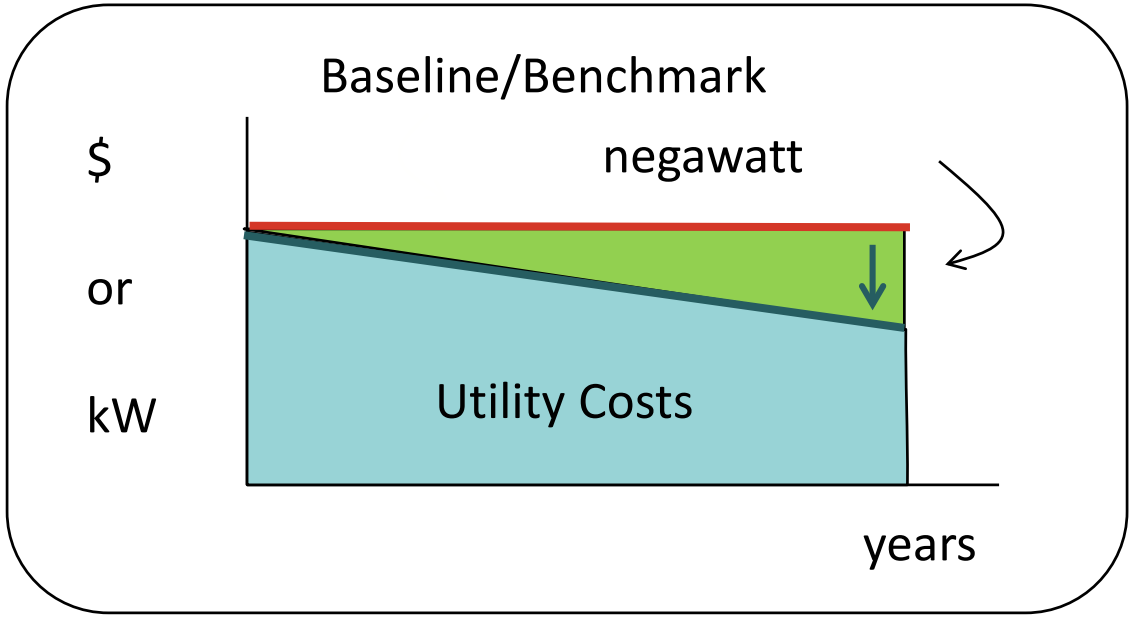
Energy “Solution” depends on the framing of the question!



Align to company strategy == the Frame of Reference

Manage instead of ***Solve*** == Long-term subscription

Constraint: Value-added



Energy Savings Does Not Exist

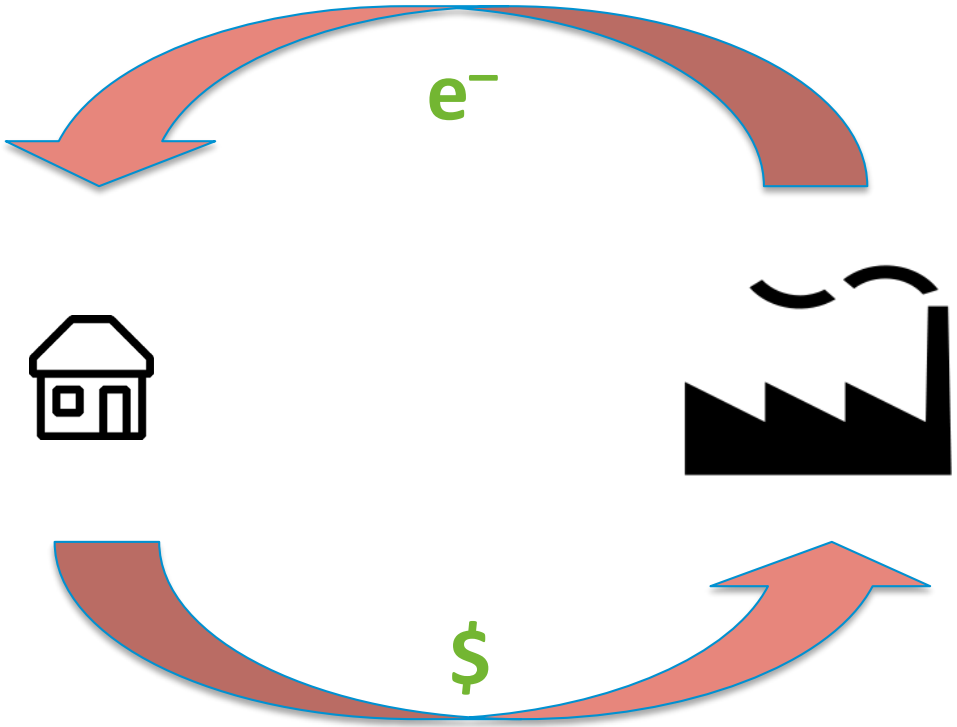
Year-over-year savings gets smaller and smaller.

Value added services that improve a SMB's operations

Problem: Energy is invisible

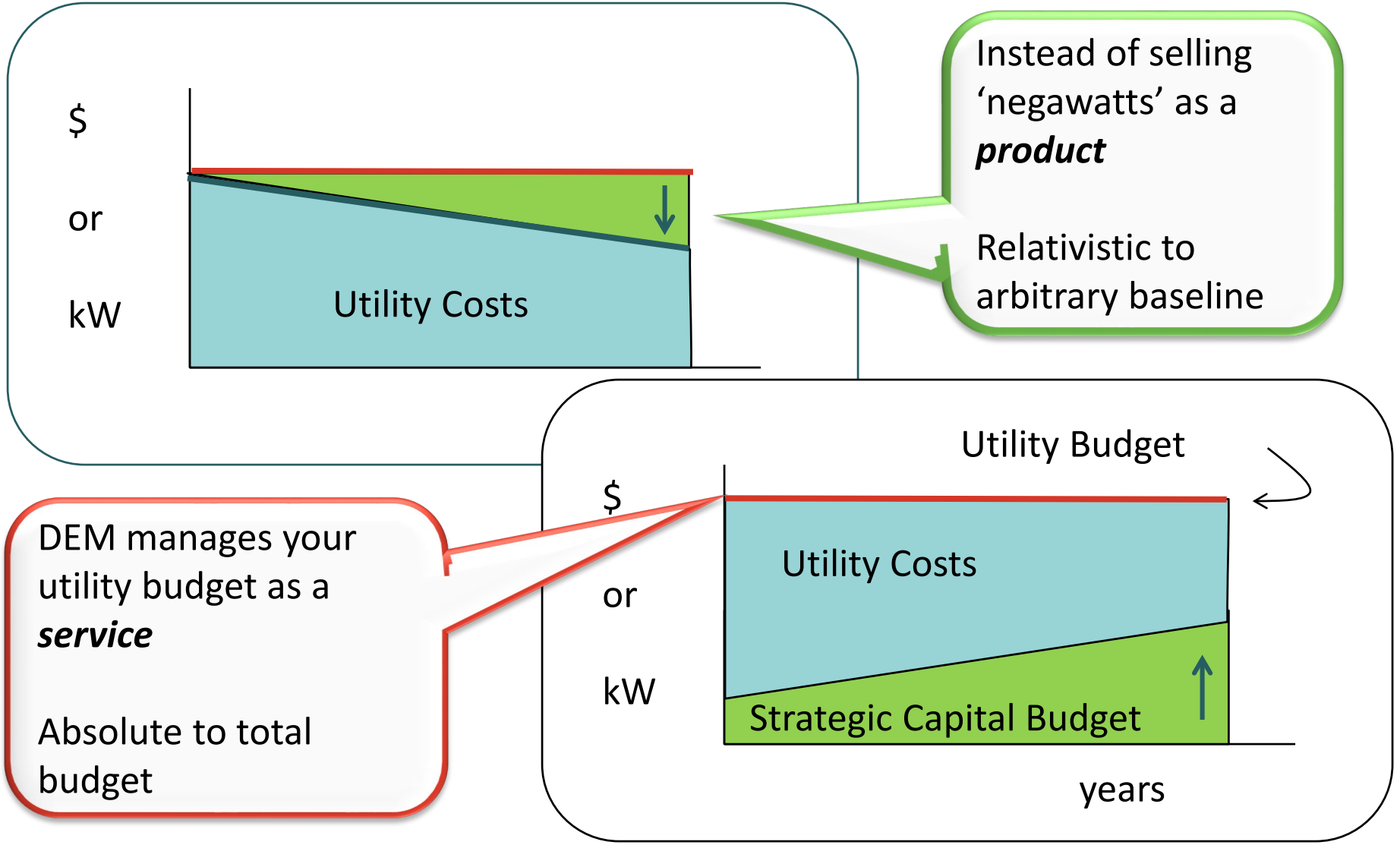
Money and energy flow in opposite directions!

Manage ***Energy*** to save ***Money***



Manage ***Money*** to save ***Energy***

Turning the model around



PROBLEM

Utility costs are more than just bills
and clients are busy running their business!

Operational Costs

- Electricity
- Trash
- Water
- Gas
- Maintenance

Capital Costs

- Retrofit
- Upgrade
- Mechanics
- Equipment

External Incentives

- Utility Rebates
- Grants
- Tax Incentives

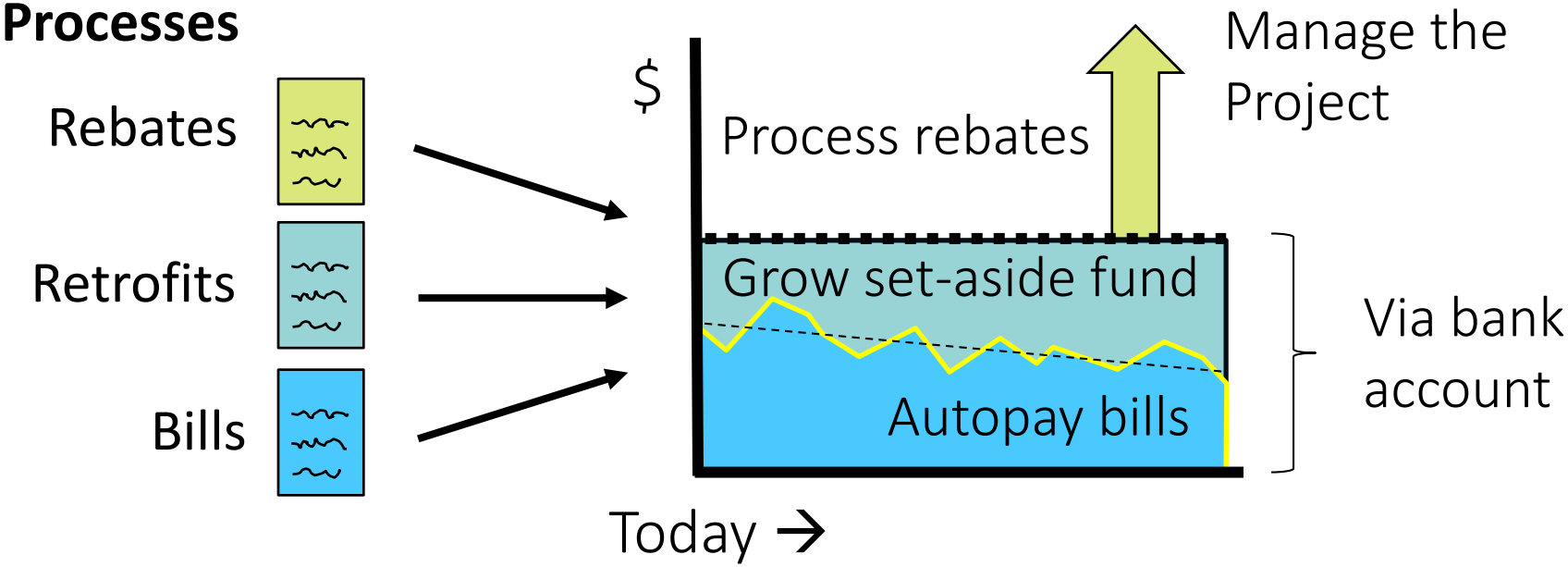
Scarce staff time and expertise to manage

SOLUTION

Use monthly utility cash flow as a unifying metric for the CFO to make decisions

Client's Disparate Processes

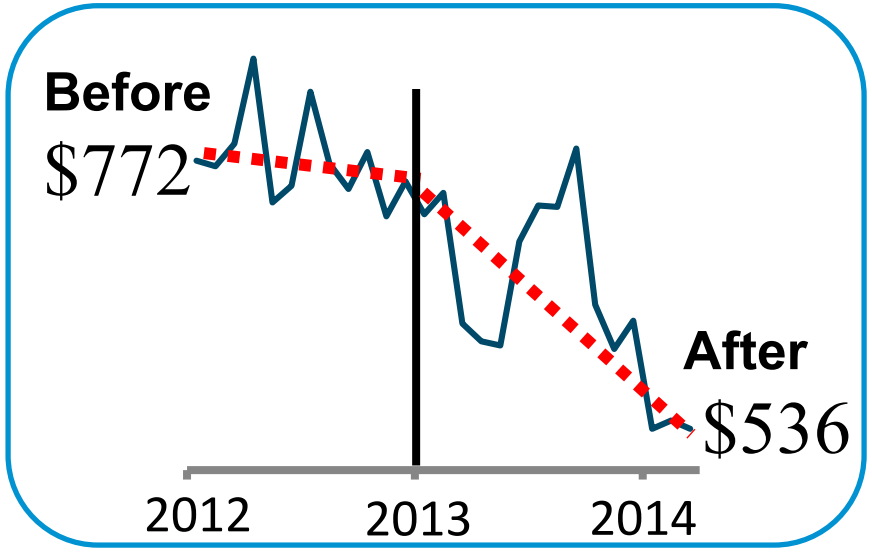
DEM streamlines cash flow



Bringing transparency and predictability to monthly utility cash flow

CLIENT OUTCOMES *Increasing utility **productivity***

Small restaurant



Monthly electric bills dropped by 30% while revenue increased by 30% during same period.

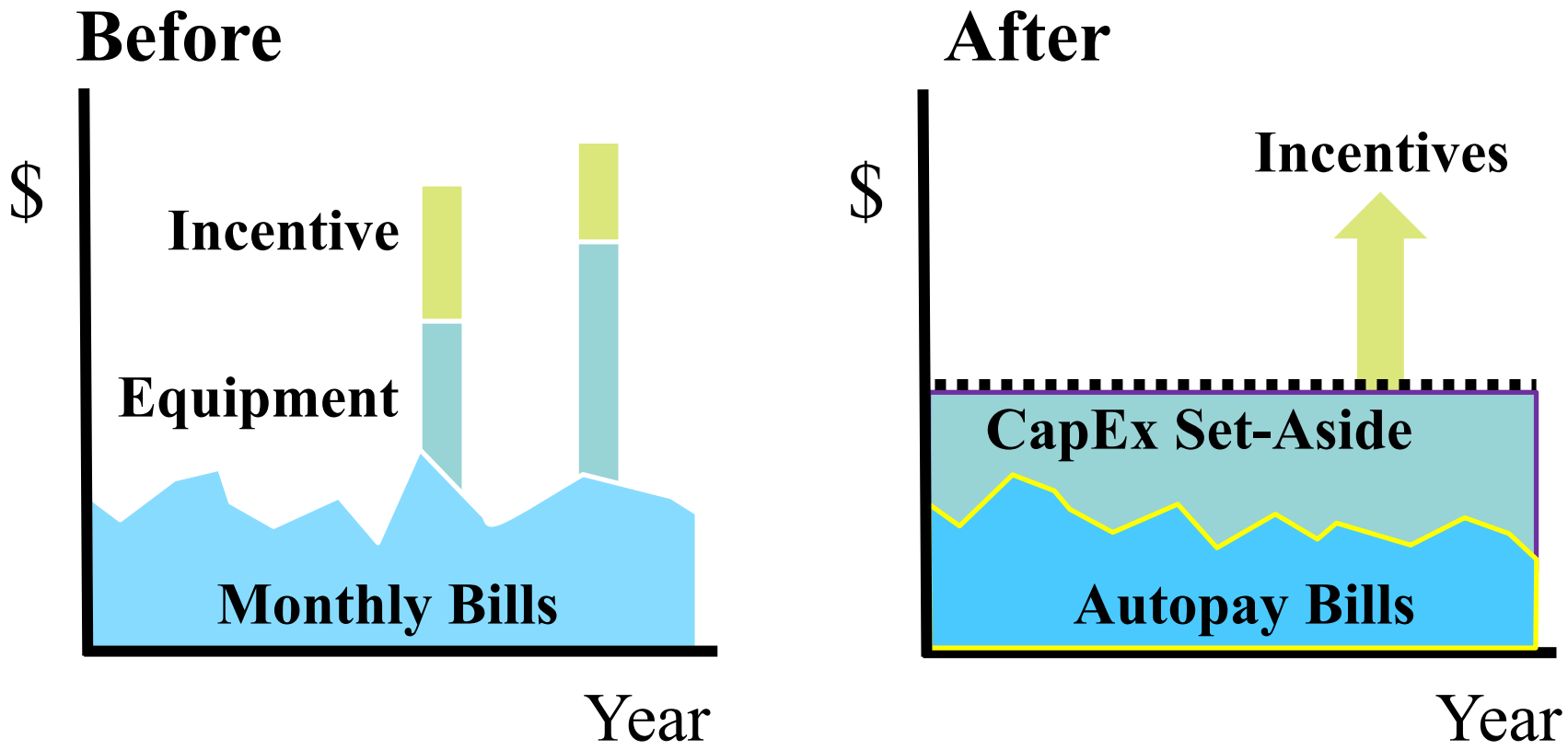
Other clients

- Retail sales grew by **9.8%** while utilities rose by only **1.8%**
- Brought over **$45,000** in utility incentives.
- Avoided monthly cost of **$1,980** by automating billing process.

Enabling benefits beyond bills, demonstrating how cost transparency reduces expenses.

CLIENT OUTCOMES

***Cost certainty** of utility budget*



CLIENT OUTCOMES *Resilience to unexpected changes*

Removed duplicate water heater

Replaced broken AC unit

Monthly Reports

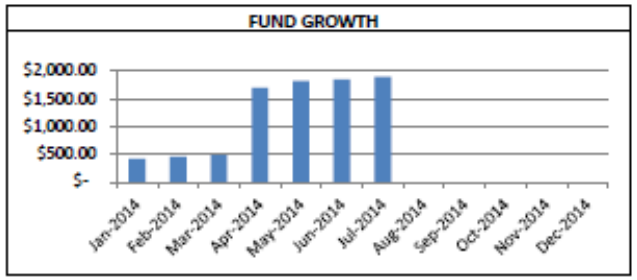
Transparency for confident decision making

Account Summary

Growth of Set-Aside Fund

ACCOUNT ACTIVITY SUMMARY

Beginning Value	$	1,840.85
Payment Received	$	1,000.09
Bills Processed	$	916.77
Withdrawls	$	-
Management Fees	$	30.00
Ending Value	$	1,894.17



Itemized Bills

UTILITY BILL PROCESSING DETAILS

Date Due	Vendor	Location Number	Utility	Account #		Cost
7/25/2014	Electricity PSE	Chocmo	Electricity		$	333.89
7/25/2014	Electricity PSE	Chocmo	Electricity		$	281.91
7/30/2014	Cascade Natural Gas	Chocmo	Gas		$	222.08
7/30/2014	Cascade Natural Gas	Chocmo	Gas		$	78.89
				Bill Payment Total:	$	916.77

Other Financial Information

Other similar ideas

- Internal Carbon Tax (Microsoft)
- Green Endowment
- Green Loans

- But our revolving fund solution didn’t scale because…

Dodd–Frank Wall Street Reform and Consumer Protection Act

If this is true, what else is true?

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Wasted Utilities: 30% of electric consumption

The ***Energy Efficiency*** industry is positioned to address this problem.

Addressed as a Marketing concern

How can I save money?

Productive Utilities: consumed for economic benefit.

Energy Strategy is designed to consume this wisely.

Why *do companies consume energy?*

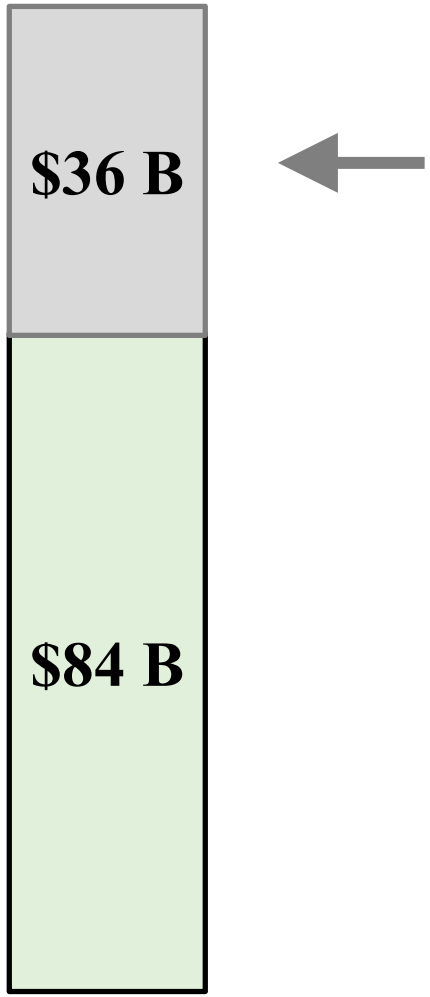
What if *outcomes can be achieved with zero energy?*

How *can companies right-size their resources?*

Source: EPA

The flow of ***energy***: *USA Commercial Electricity Consumption*

$120 Billion



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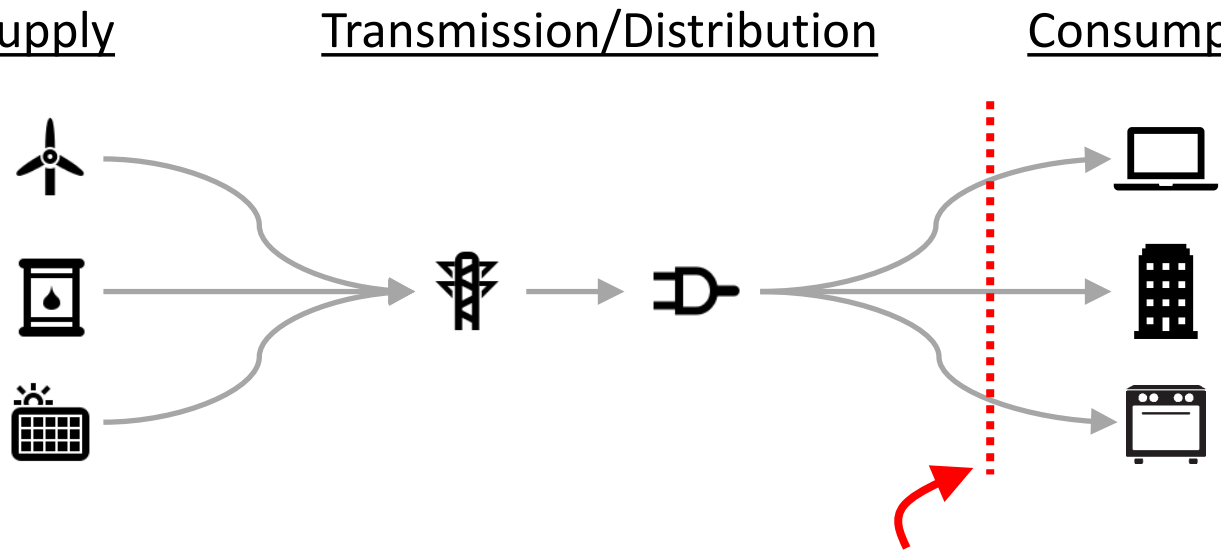


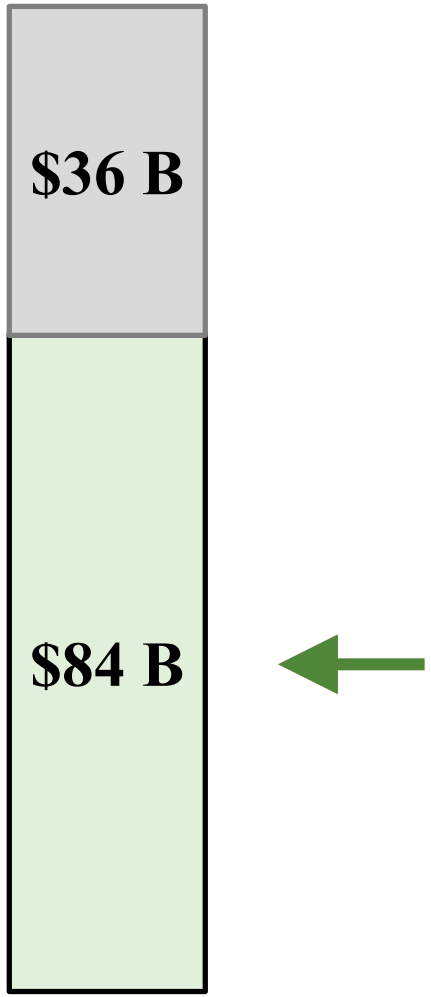
Energy Efficiency as the ***tactic*** to save money

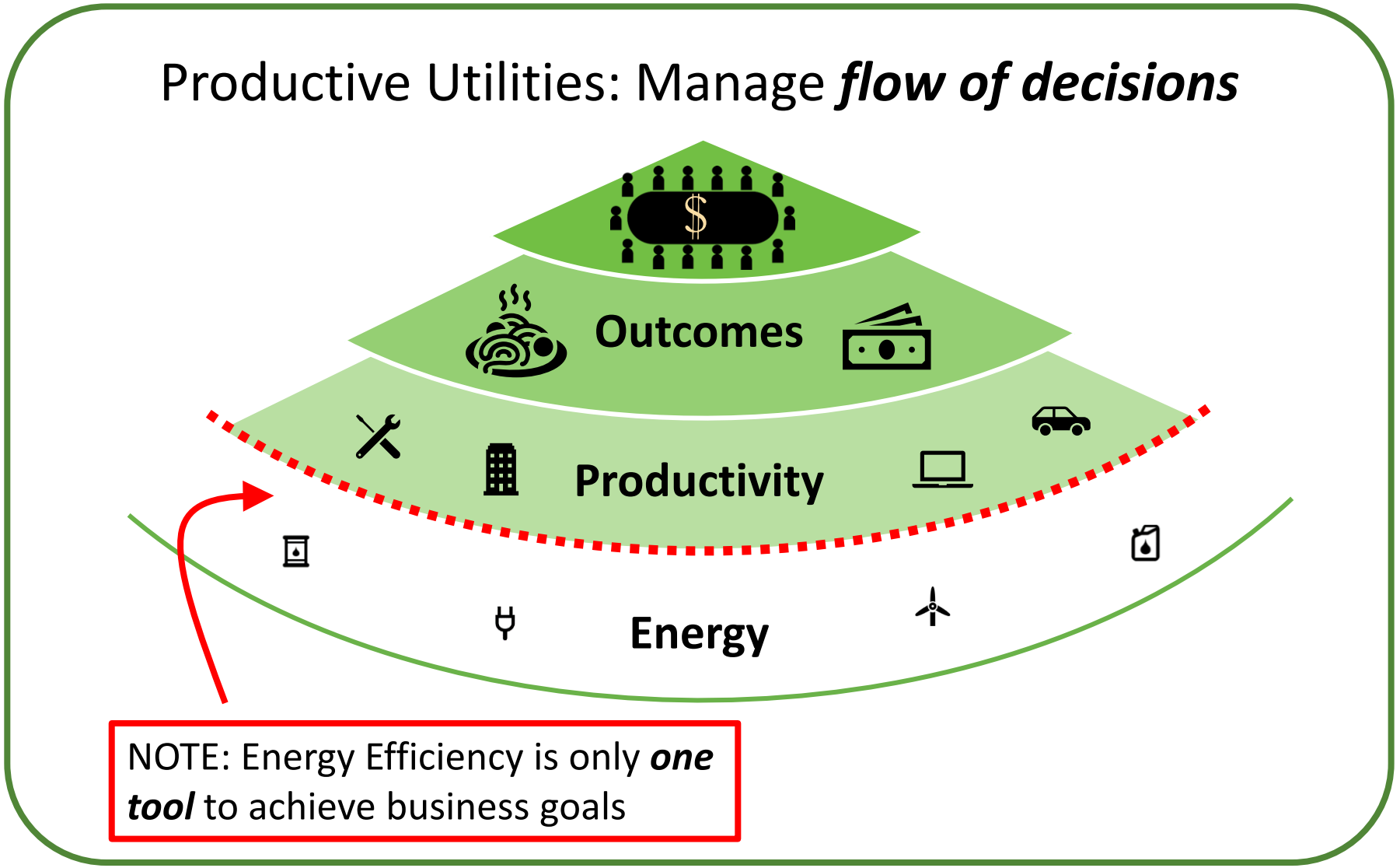
- Saves money (lower bills)
- Equipment resiliency (New equipment)
- Off balance sheet (performance contracting)

Source: EIA 2012

The flow of energy ***decisions***

$120 Billion





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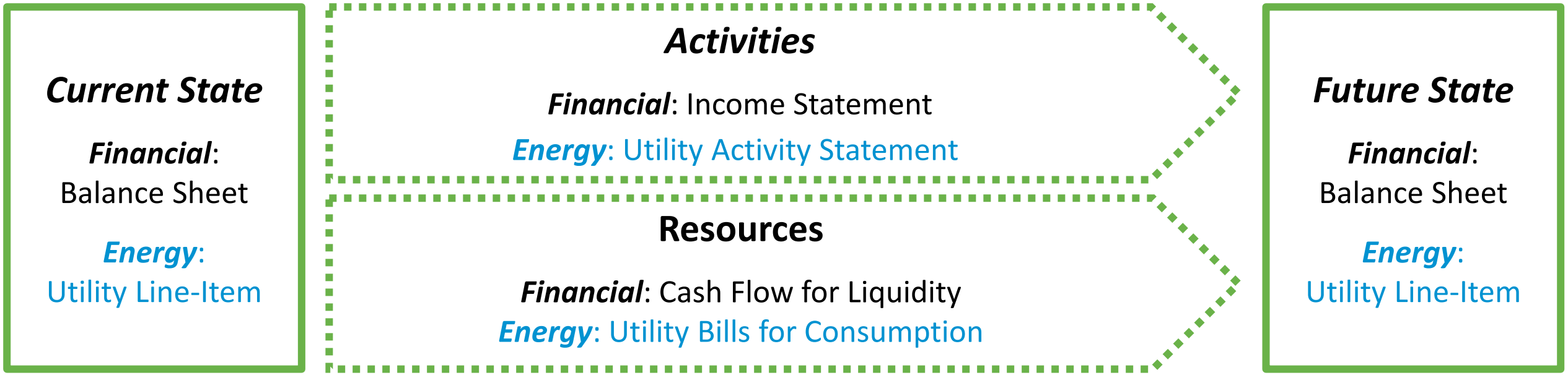
Modify financial tools to incorporate energy as strategy

- If energy management focuses exclusively on ***bill management***, companies are leaving many opportunities unexploited.

Modify financial tools to incorporate energy as strategy

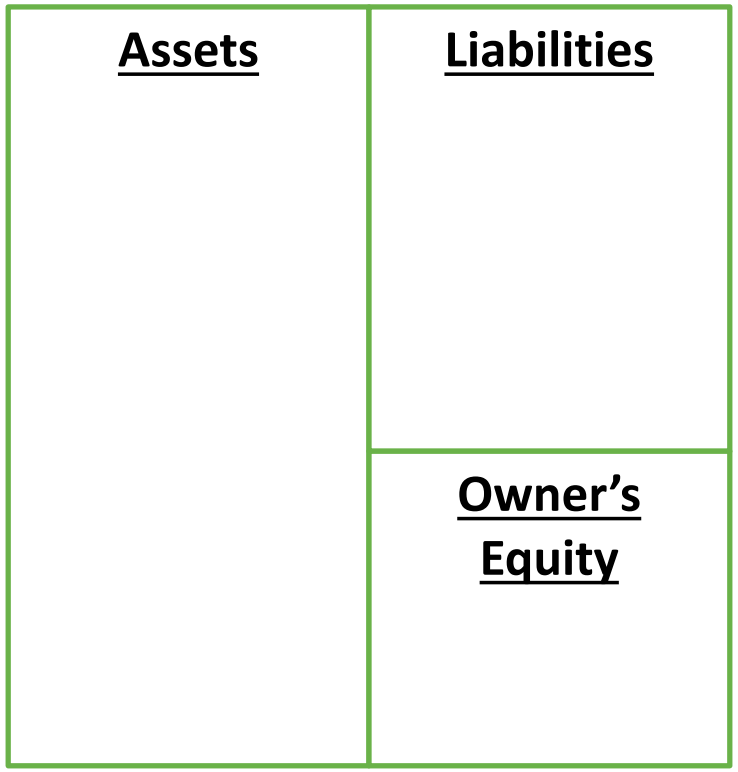


- If energy management focuses exclusively on ***bill management***, companies are leaving many opportunities unexploited.
- Changes in the bills is an indicator that company strategy is going according to plan.
- A comprehensive energy strategy needs to be aligned with the organization's goals.
- These tools give a new insights into an organization, revealing previously unrecognized inefficiencies.

What is the ***Utility Line-Item***?

Let us use the Balance Sheet as an analogy for its energy equivalent.

A **Balance Sheet** has



Conceptually, the **Utility Line-Item** has the following components

Energy Assets
- Equipment
- Facilities Team
- Maintenance Contract
- Reserve Fund
- Asset Management Software

Risks
- Staff Turnover
- Lost productivity
- Rate Increases
- Downtime
- Pollution/Waste

Productivity
- Revenue/Margins
- Incentives
- New Products

What are ***Utility Activities***?

Let us use the Income Statement as an analogy for its energy equivalent.

An **Income Statement** is read "top down"

- **Gross Revenue**
- Cost of Goods Sold
- **Gross Profit**
- Operating Expenses
- **EBITDA**
- Financing and Non-Operating Expenses
- **Net Earnings**

Utility Activities are read "bottom-up"

- **Total Energy Footprint**
- Variable Energy Consumption
- **Facility Consumption**
- Fixed Energy Consumption
- **Passive Consumption**
- Infrastructure and Embedded Energy
- **Zero Consumption**

Decisions cycles < 1 year
- Hours of Production
- Employee behaviors
- Automated light switches

Decision Cycles > 1 year
- Maintenance contracts
- Equipment retrofits
- Performance contracting

Decision Cycles > 5 years
- Thermal envelope
- Physical location of offices

What are ***Utility Flows***?

A **cash flow Statement** has

- **Beginning Cash**
- Cash flow from operating activities
- Cash flow from non-operating activities
- **Ending Cash**

A **Utility Flow Statement** has

- **Total Consumed**
- Electricity / Gas
  Water / Sewage
  Trash / Recycling
  and other ***Bills***.
- Purchases of ***offsets*** or ***renewable credits***
- **Net consumption**

NOTE: Dollars, Energy, and Carbon are inter-convertible

Budget Decision Makers
$

Energy Decision Makers
kWh

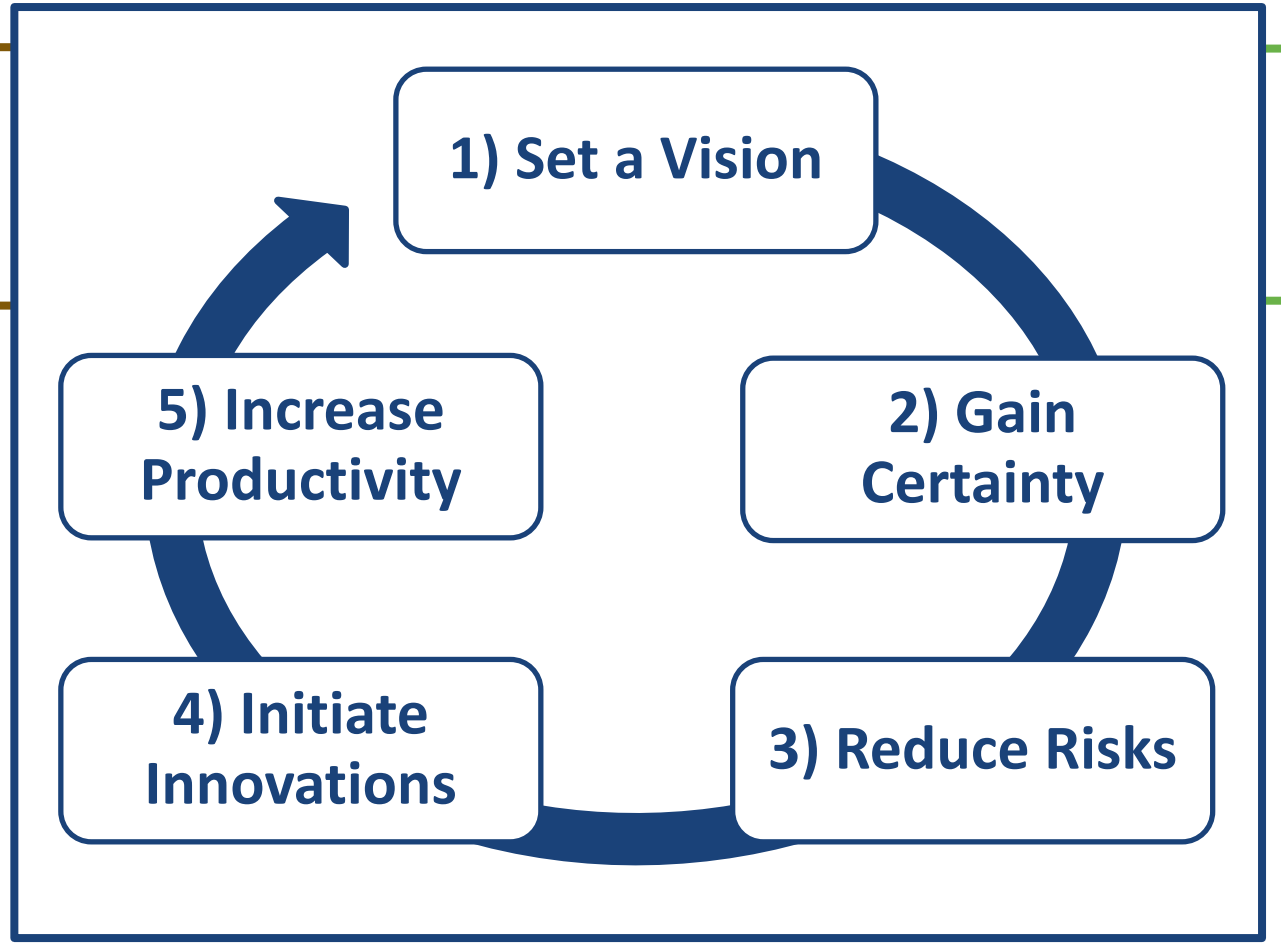
Environmental Decision Makers
MCO_2E

Energy enables competitive advantage

Energy Strategy Maturity Curve™

Random Acts Of Greenness

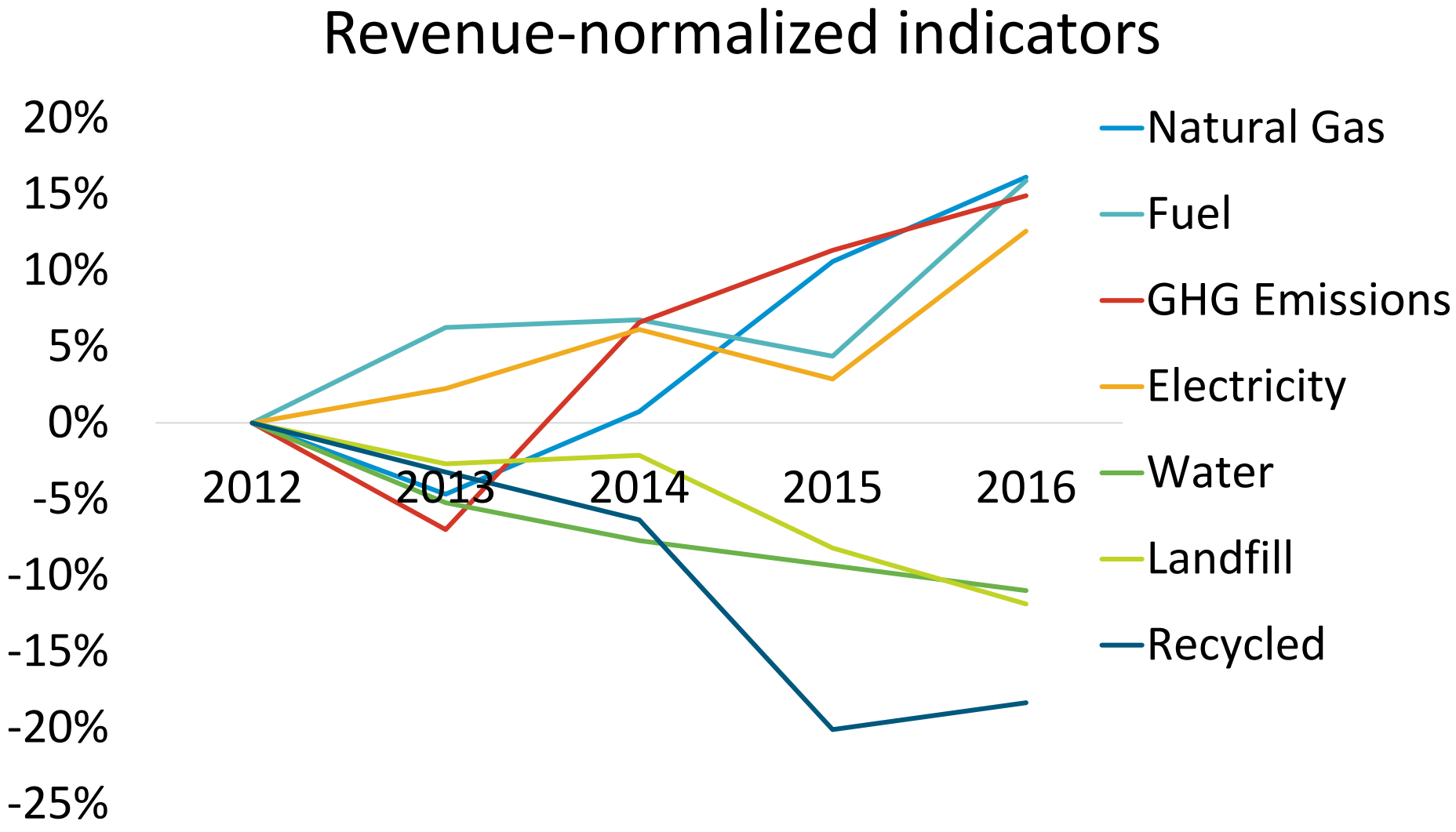
- Recycling initiative
- Bike-to-work day
- Automated switches
- Solar panels
- Energy dashboard
- Water conservation
- Etc.



Metrics-Driven Energy Strategy

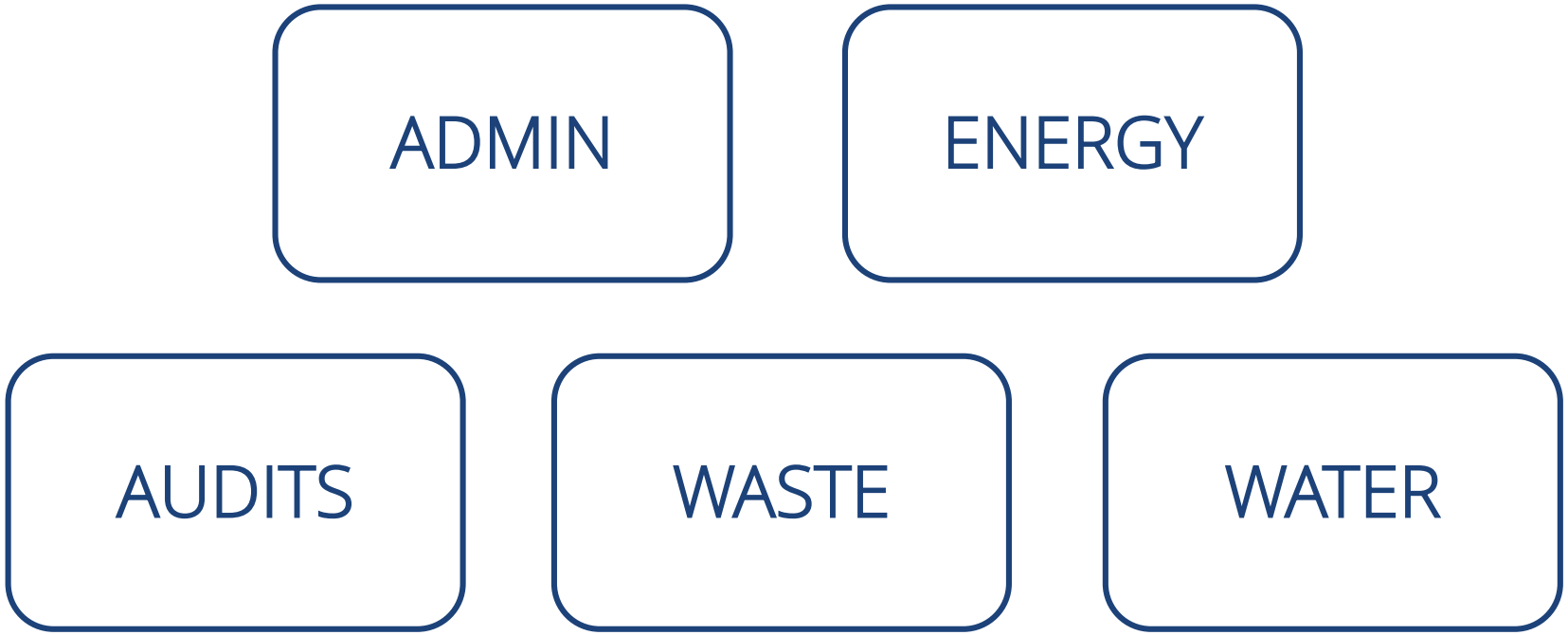
- Develop carbon-neutral products
- De-couple carbon consumption from revenue stream

Energy-as-Strategy



What can I do to improve productivity? (holistic approach)

Step 1: Identify categories for improvement



What can I do to improve productivity? (holistic approach)

Step 2: List and organize all possible actions with their priorities

ADMIN

⑤ Vacation set-points
- Auto billpay
- Employee Engagement

ENERGY

- Appliances
- Gas Boiler

① Lighting
- Heating / Cooling
- Thermostat set points

AUDITS

② Plug loads

④ Maintenance schedules
- Set points
- Window
- Recurring work orders

WASTE

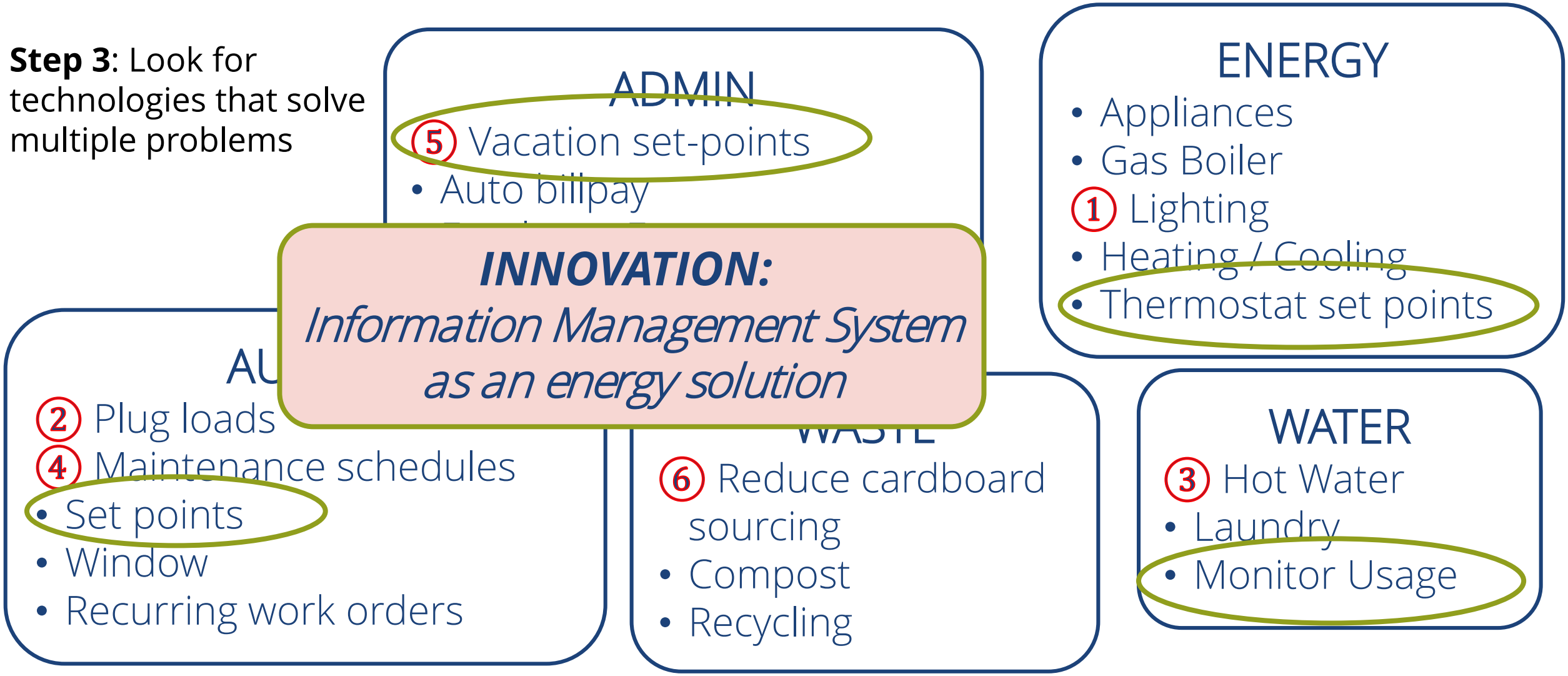
⑥ Reduce cardboard sourcing
- Compost
- Recycling

WATER

③ Hot Water
- Laundry
- Monitor Usage

What can I do to improve productivity? (holistic approach)

Step 3: Look for technologies that solve multiple problems



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- Recycling

INNOVATION:
Fault Detection Software to proactively identify failures before they happen

Emergent Properties of Innovation

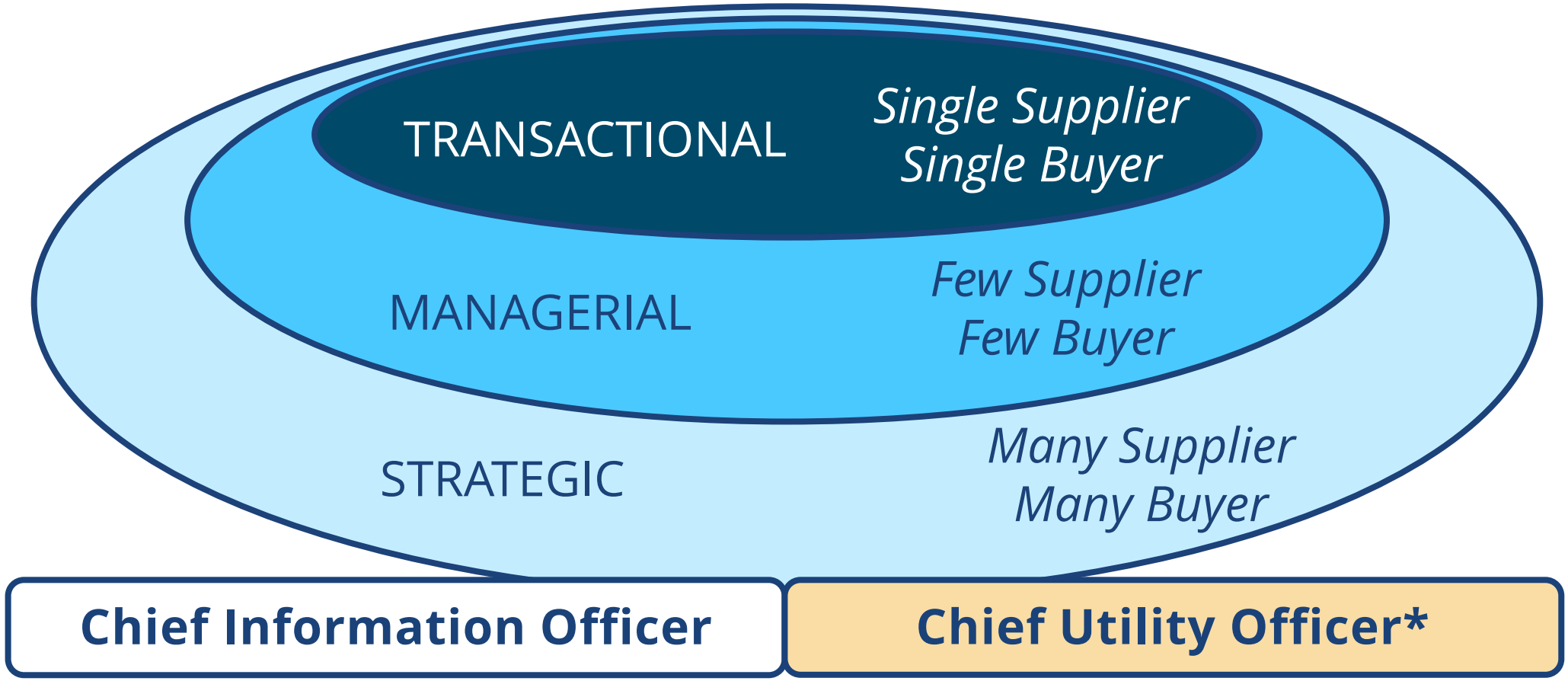
INNOVATION:
Information Management System as an energy solution

INNOVATION:
Fault Detection Software to proactively identify failures before they happen

Advantage: Most rewarding to implement. Can achieve multiple benefits in cost savings, reduced risks, productivity, etc.

Disadvantage: The hardest to *identify* and hardest to *quantify*

An emerging leader: The Energy Strategist



* Published in HBR 2016

Where is this going?

Explaining energy in the language of strategy gets C-suite involved.

Formalize the relationship between financial flows and energy flows

Create “Utility Strategy Offices” in corporations to implement these methodologies in large organizations.

Questions?