



# *Driving the Innovation Pipeline for Impact:*

*Milliken's Journey in Striking the Balance Between Structure and Creativity*

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IRI 2026

**INNOVATORS  
SUMMIT**



MILLIKEN AT A GLANCE

we have **70+** locations and **8000+** associates across **15** countries creating **11,000+** products for use in...



agriculture



apparel



automotive and transportation



building, construction, and infrastructure



coatings, paints, and inks



commercial spaces



consumer goods



education



energy and utilities



government and defense



healthcare and life sciences



hospitality



manufacturing



packaging and print



residential spaces

**BEFORE: TYPICAL CONVERSATIONS**

*How much revenue can we expect from the R&D pipeline?*



*We have an awesome portfolio of projects!*



***That's good. So, when do you think they will launch?***



***Well, R&D is so hard to predict. You can't rush creativity.  
But the projects are really great, trust me!***





*Oh, and we need more resources!*



HARMONIZING THE PROCESS

The first step was to align on a harmonized process. We had three main goals:



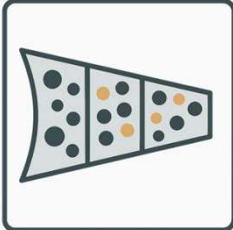
**Project Selection**

*Working on the right projects*



**Project Management**

*Working on projects the right way*

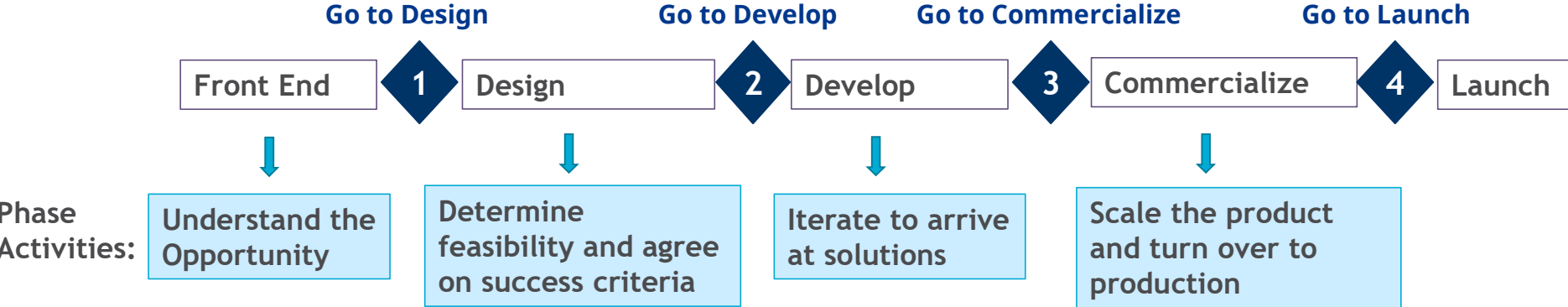


**Portfolio Analysis**

*Making the right portfolio decisions*

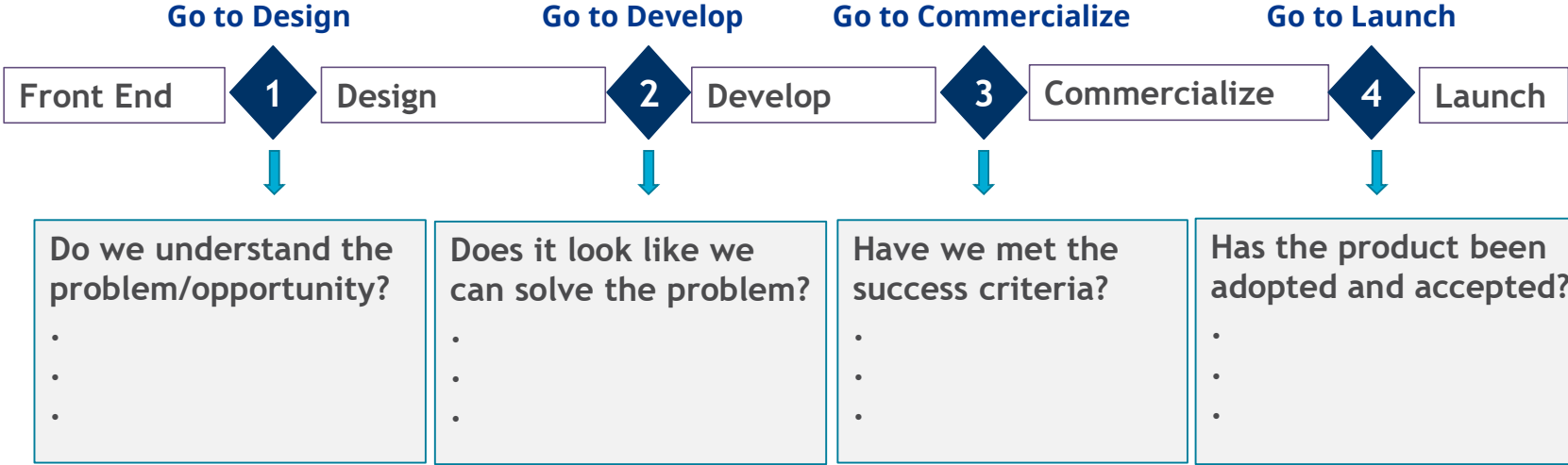
# HARMONIZING THE PROCESS

The basic phase activities and gate questions are consistent. The specific gate checklists and approval flows are customized to the project type.



HARMONIZING THE PROCESS

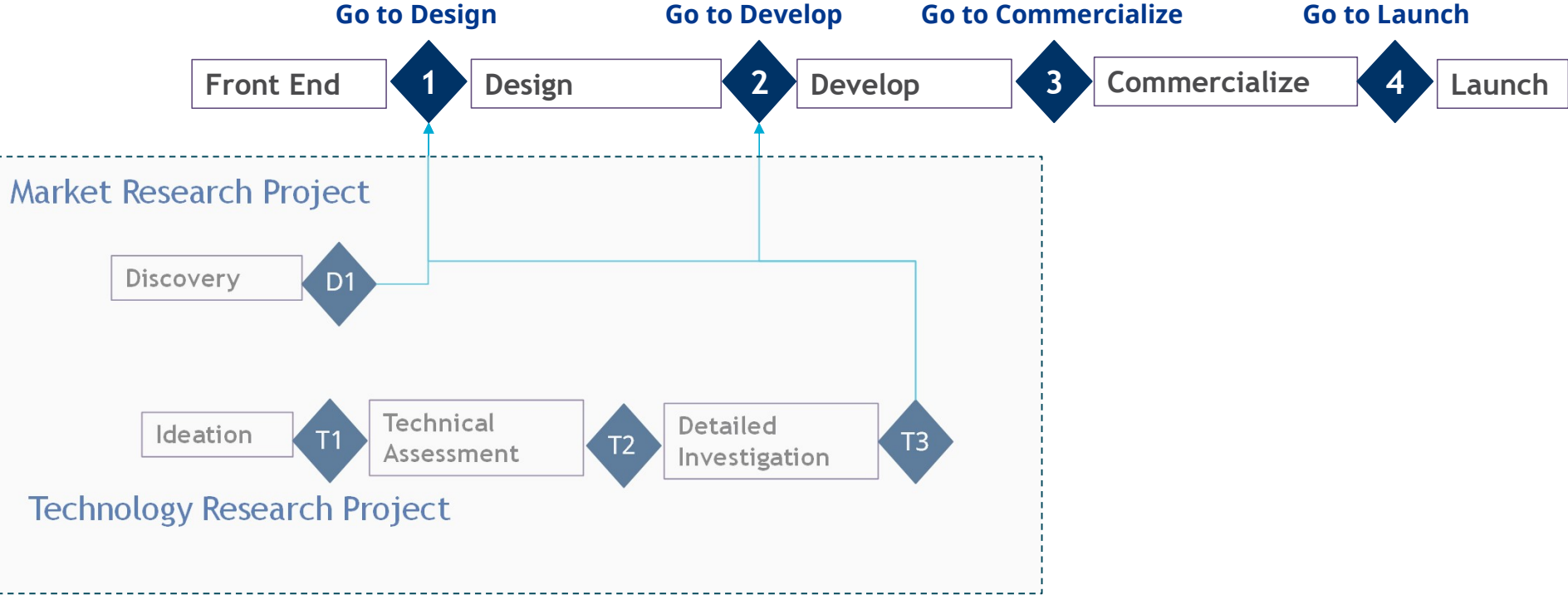
The basic phase activities and gate questions are consistent. The specific gate checklists and approval flows are customized to the project type.



*Good judgement comes from experience; experience comes from bad judgement.  
-Will Rogers*

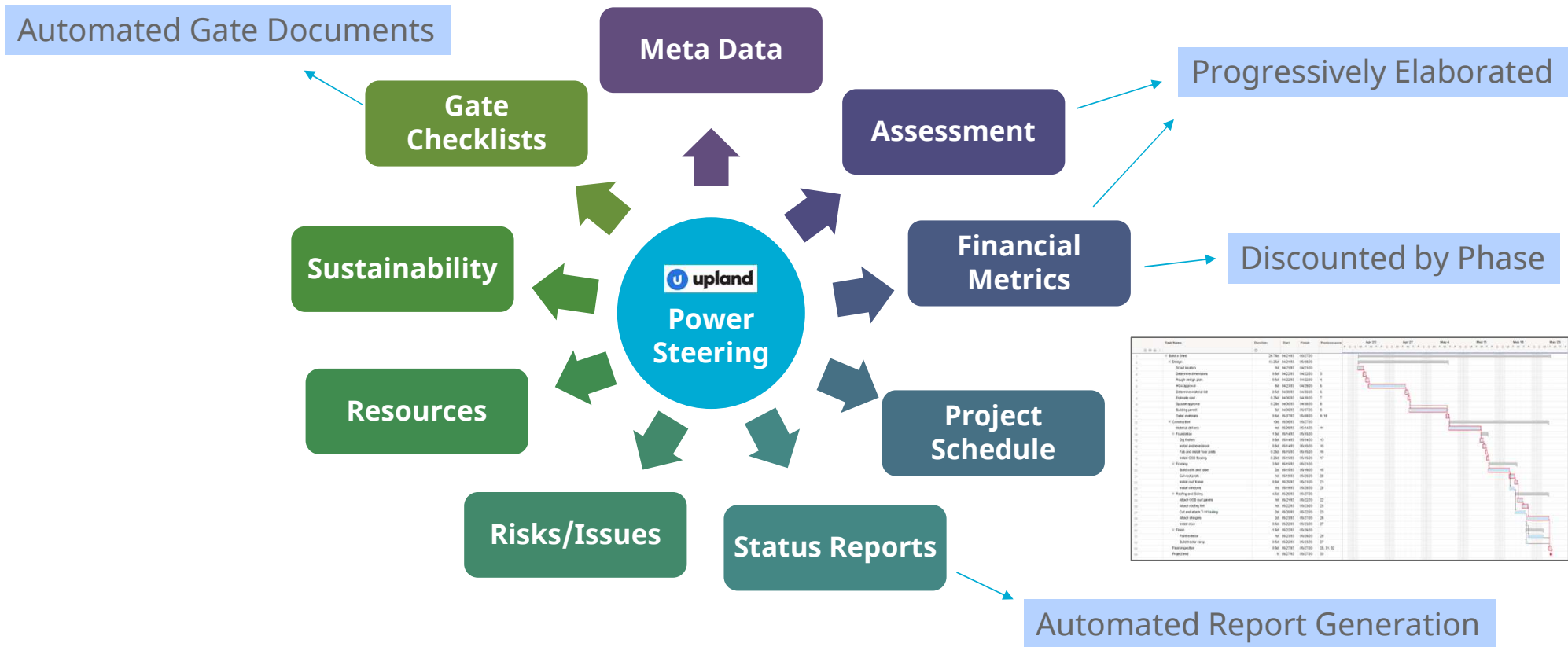
# HARMONIZING THE PROCESS

**Projects where the output is a new product use the 4-gate process. Feeder projects that result in information or new capabilities use other specialized processes.**



# HARMONIZING THE PROCESS

The central database system drives the project management process and data collection.



## HARMONIZING THE PROCESS - RESULTS

**The NPD process was improved, more visible, and harmonized, but issues persisted.**

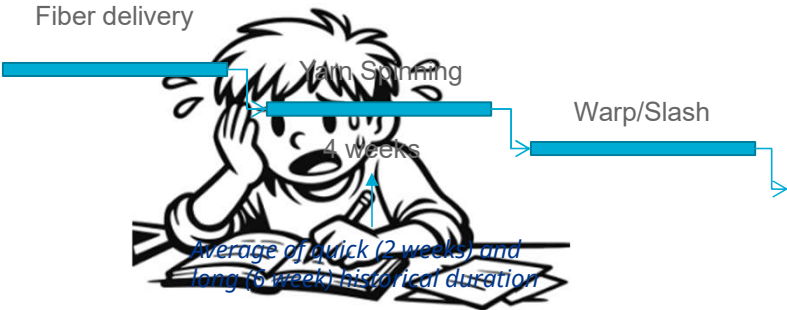
- Nearly all projects were late (especially large projects)
- Inaccurate timelines complicated financial and operations planning
- Most R&D associates considered the process a “non-value-added burden”
- Portfolios were still much larger than the available resource pool



# PROJECT PLANNING IN STAGE-GATE

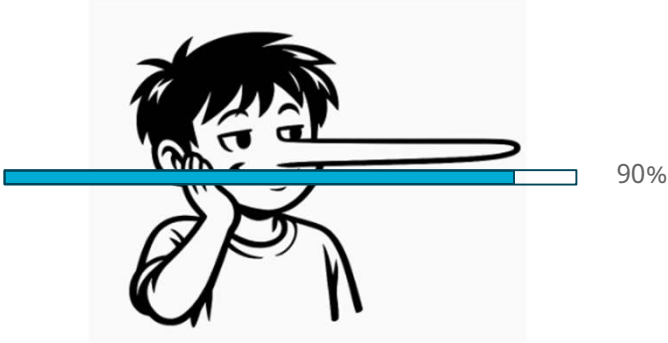
**A combination of planning errors and behaviors led to large project delays.**

## The Student Syndrome



*Tasks are started when there is just enough (or not quite enough) time*

## 90% Syndrome (the liar's club)



*Tasks progress is reported to be 90% complete, then stalls completely*

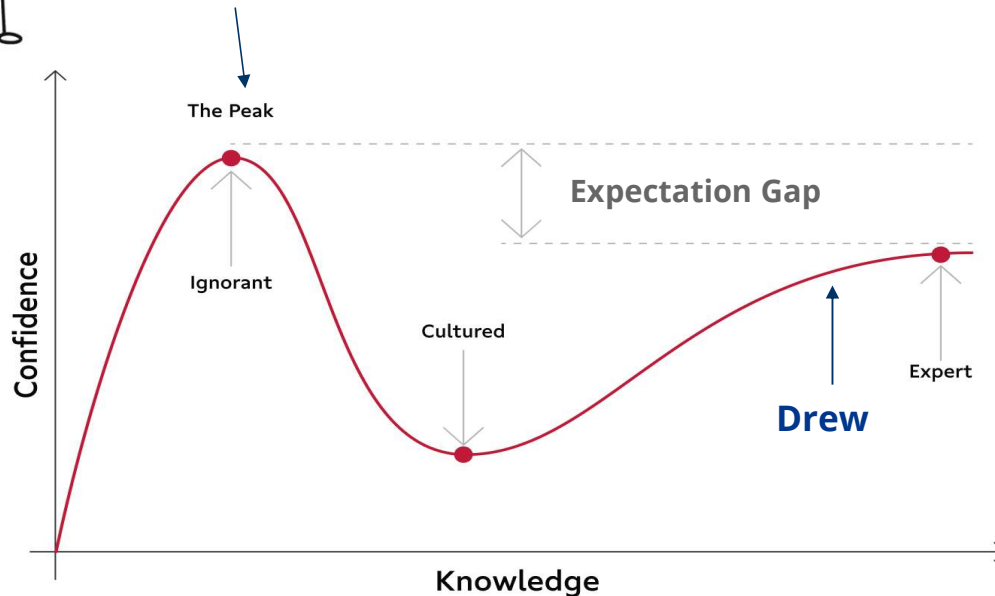
## PROJECT PLANNING IN STAGE-GATE

Systemic uncertainty contributed to large expectation gaps and unrealistic goals.



### Dunning-Kruger Effect

#### Business Leadership



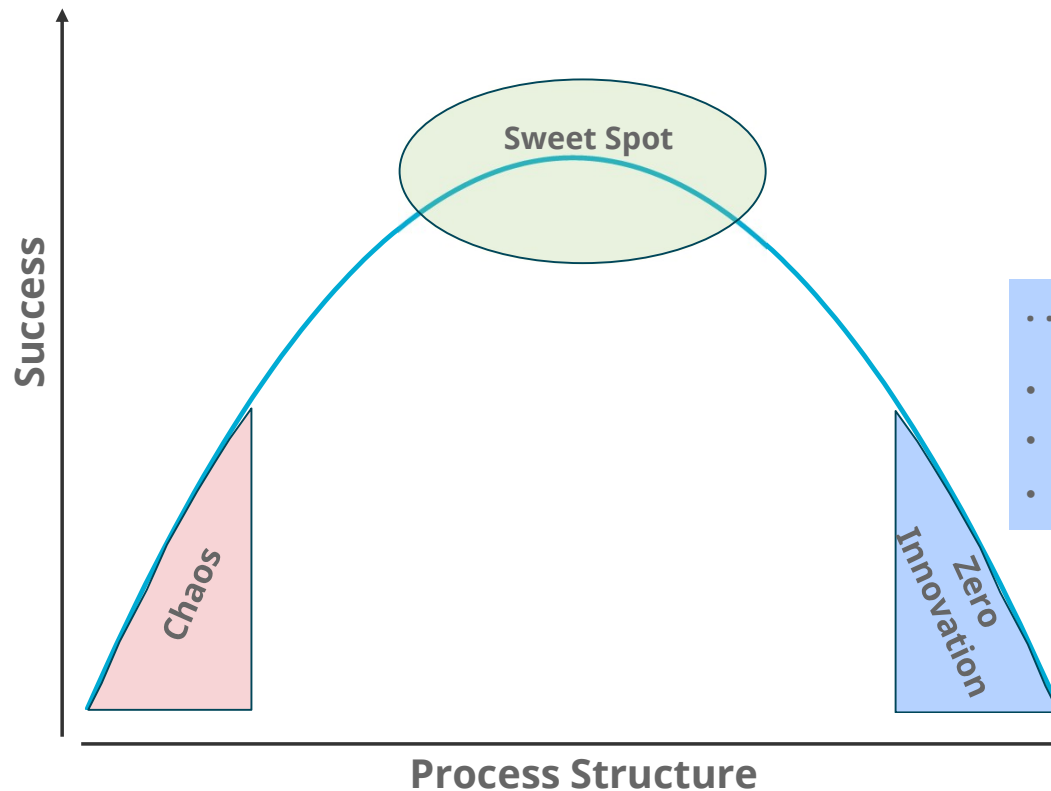
### Project Team Feedback

*"Project plans are difficult to construct, time-consuming, and rarely reflect reality"*

*"Accountability of the plan is to people who have no knowledge of how long the project will/should take."*

## PROJECT PLANNING IN STAGE-GATE

Empowering teams requires the correct amount of structure; between chaos and stifling innovation.



### Structure is required for:

- Clear project end dates
- Project velocity
- Data for decision making

### ..but need to consider:

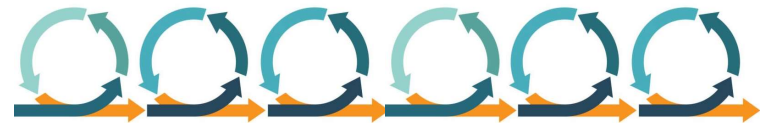
- Unknown path in R&D
- Scope changes common
- Planning takes time

## AGILE PROJECT PLANNING

**Agile has more fluid workflows but is not appropriate for projects with slow deliverable creation.**

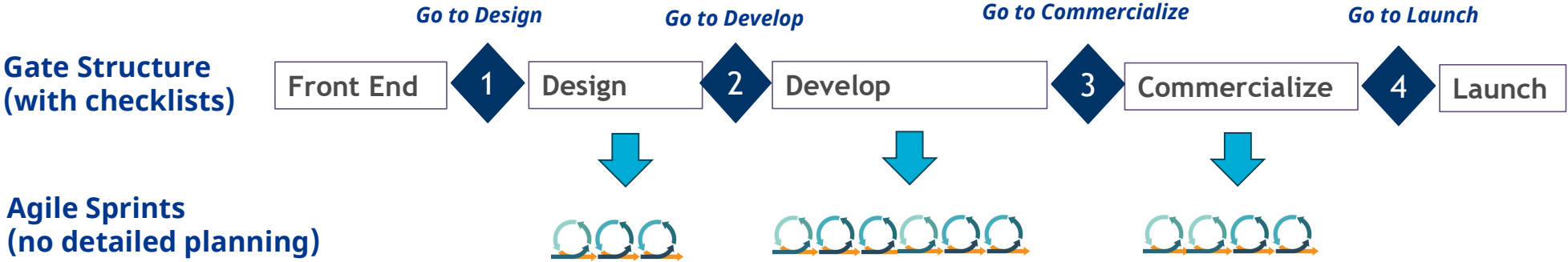
### Agile Principles:

- Work is divided into to small packets (sprints)
- Regular peer meetings to check on progress
- Tangible work is delivered at each sprint
- Decision making at the project level



# AGILE STAGE-GATE (IN THEORY)

**Agile Stage-Gate is a hybrid approach that layers agile principles onto Stage-Gate structure.**



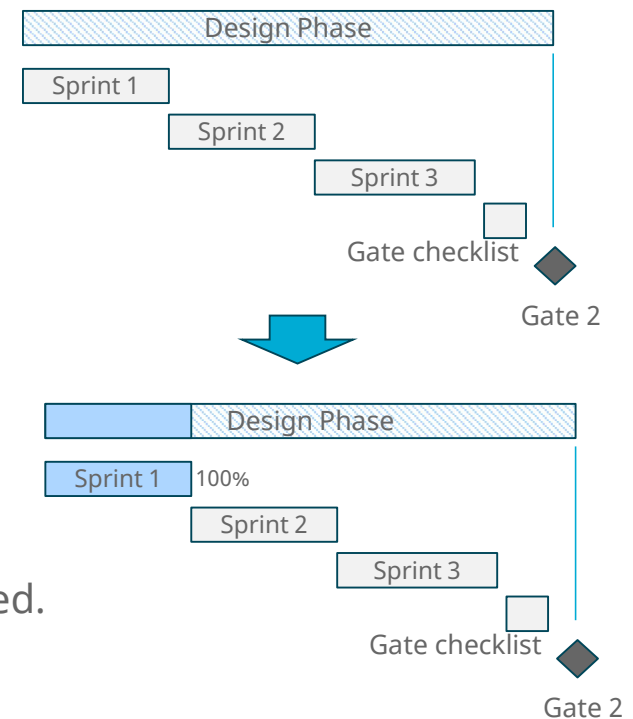
*R.G.Cooper and A.F.Sommer, "The Agile-Stage-Gate Hybrid Model: A Promising New Approach and a New Research Opportunity," Journal of Product Innovation Management 33, no.5 (Sept 2016): 513-526.*

## AGILE STAGE-GATE (IN PRACTICE)

**Agile Stage-Gate pushes approvals down to the project level but still requires schedule updates.**

### Agile Stage-Gate guidelines (at Milliken)

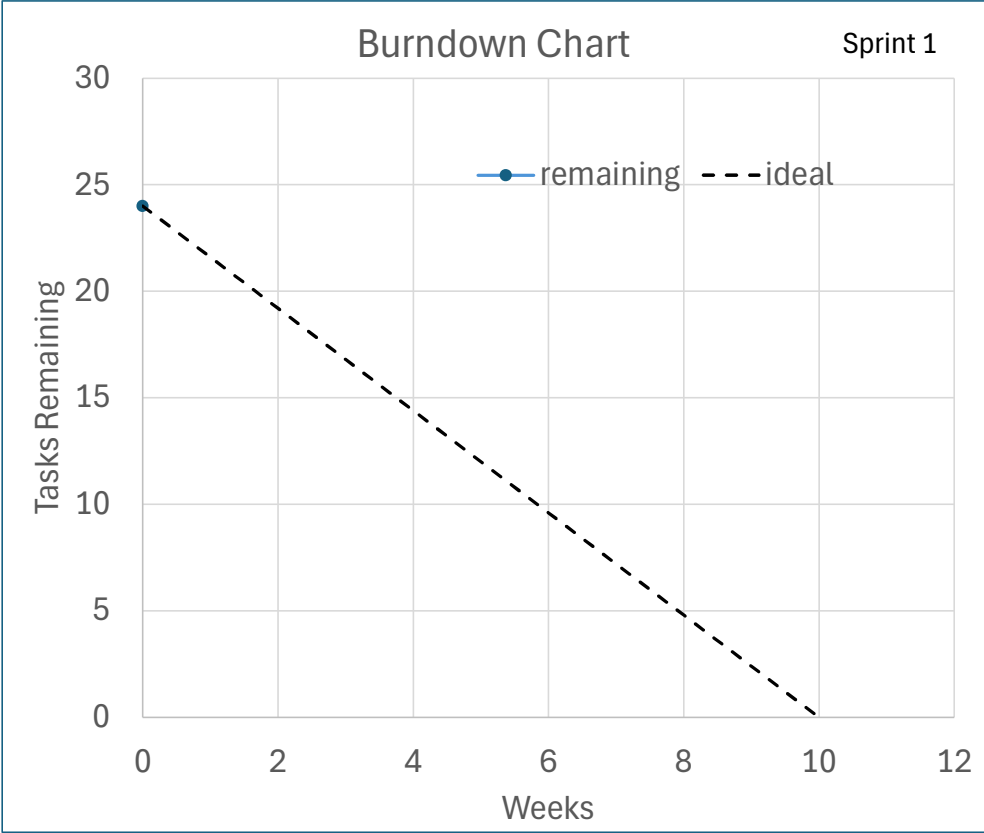
- A template is chosen with a generic plan and timeline
- Tasks are brainstormed to get to the next decision point
- The tasks are executed as soon as possible
- Team meetings weekly to update (complete, next, later)
- When the sprint is complete, the project plan is updated
- Gate meetings are held when the phase deliverables are achieved.



AGILE STAGE-GATE (IN PRACTICE)

**Sprints will have a specific goal or question. Tasks will be added to support that goal or answer.**

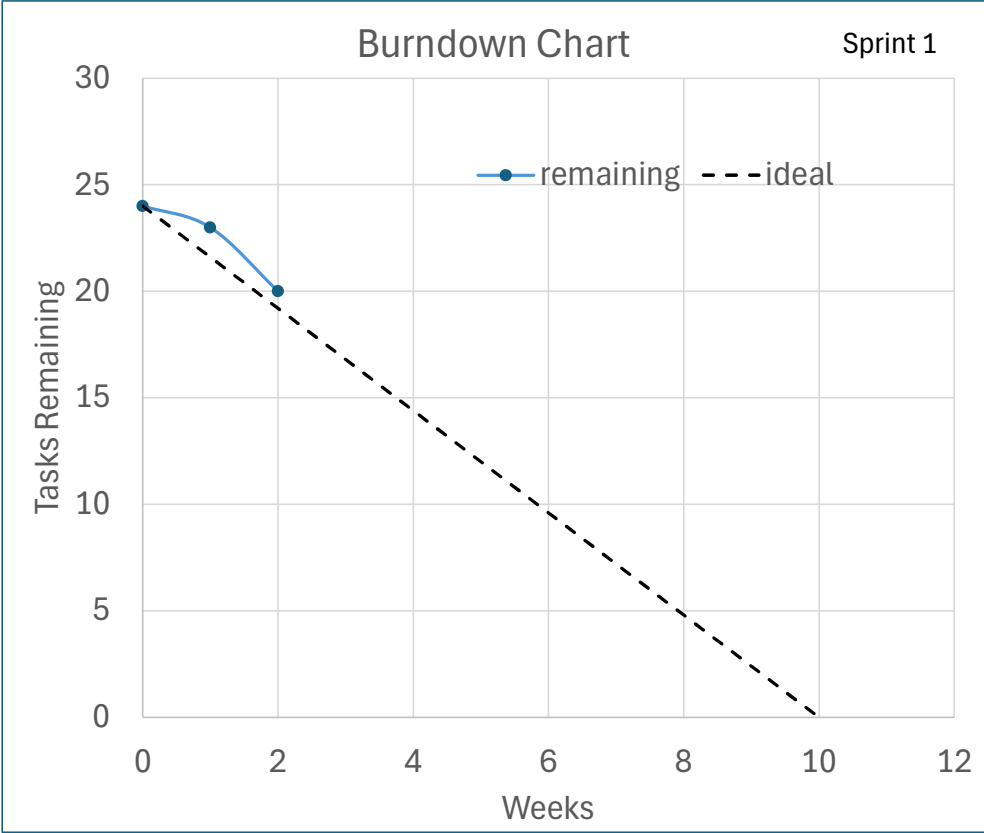
Completed	In Process	Backlog
	Task 1    Owner	Task 15    Owner
	Task 2    Owner	Task 16    Owner
	Task 3    Owner	Task 17    Owner
	Task 4    Owner	Task 18    Owner
	Task 5    Owner	Task 19    Owner
	Task 6    Owner	Task 20    Owner
	Task 7    Owner	Task 21    Owner
	Task 8    Owner	Task 22    Owner
	Task 9    Owner	Task 23    Owner
	Task 10    Owner	Task 24    Owner
	Task 11    Owner	
	Task 12    Owner	
	Task 13    Owner	
	Task 14    Owner	



AGILE STAGE-GATE (IN PRACTICE)

**Weekly meetings are concise. The Burndown chart is the primary communication tool.**

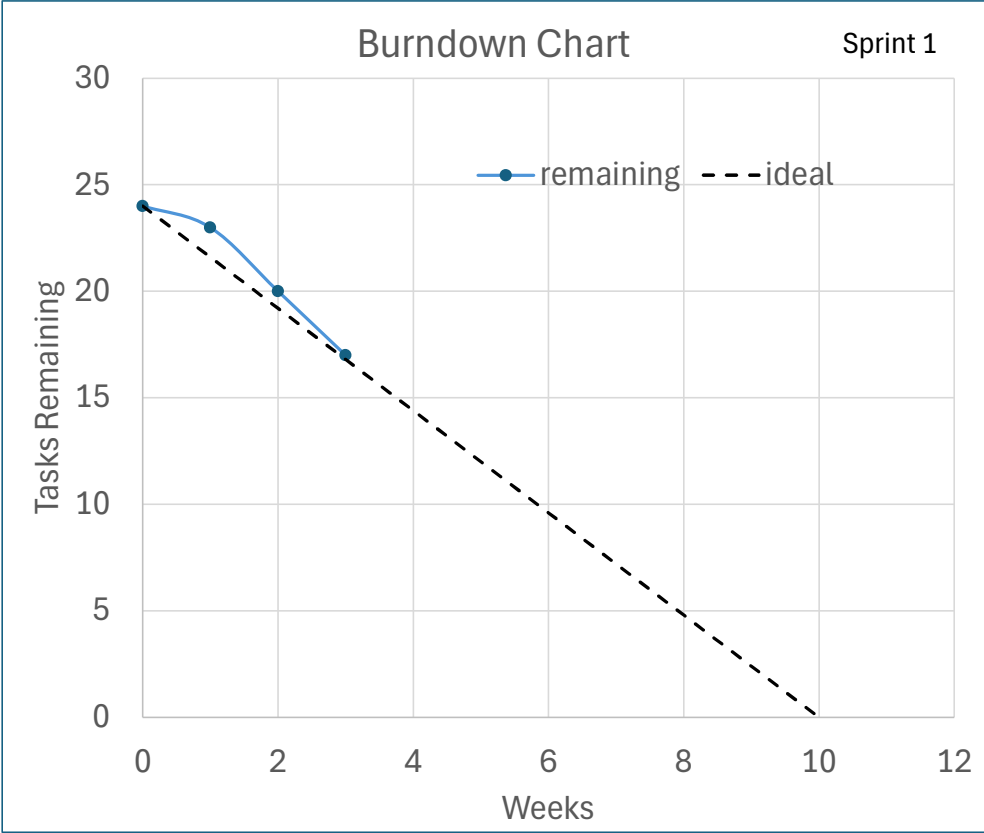
Completed	In Process	Backlog
Task 4	Task 1      Owner	Task 15      Owner
Task 5	Task 2      Owner	Task 16      Owner
Task 8	Task 3      Owner	Task 17      Owner
Task 9	Task 6      Owner	Task 18      Owner
	Task 7      Owner	Task 19      Owner
	Task 10      Owner	Task 20      Owner
	Task 11      Owner	Task 21      Owner
	Task 12      Owner	Task 24      Owner
	Task 13      Owner	
	Task 14      Owner	
	Task 22      Owner	
	Task 23      Owner	



AGILE STAGE-GATE (IN PRACTICE)

**Weekly meetings are concise. The Burndown chart is the primary communication tool.**

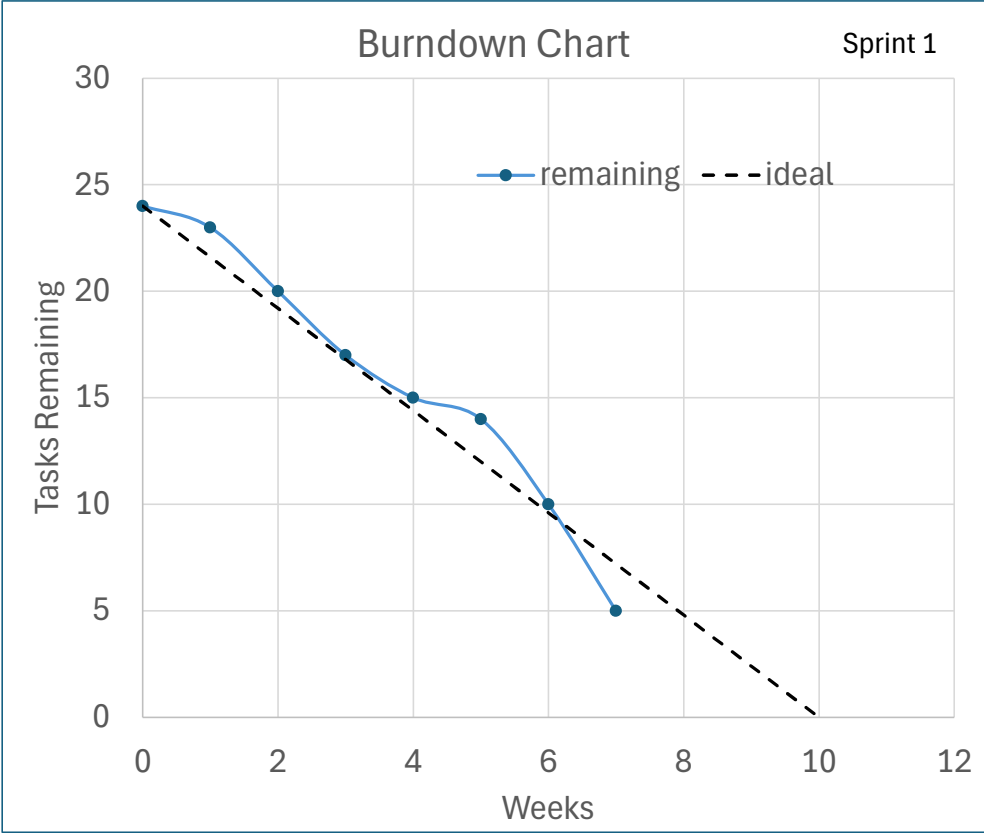
Completed	In Process	Backlog
Task 4	Task 1      Owner	Task 15    Owner
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Task 9	Task 7      Owner	Task 18    Owner
Task 6	Task 10     Owner	Task 19    Owner
Task 13	Task 11     Owner	
Task 14	Task 12     Owner	
	Task 22     Owner	
	Task 23     Owner	
	Task 20     Owner	
	Task 21     Owner	
	Task 24     Owner	



AGILE STAGE-GATE (IN PRACTICE)

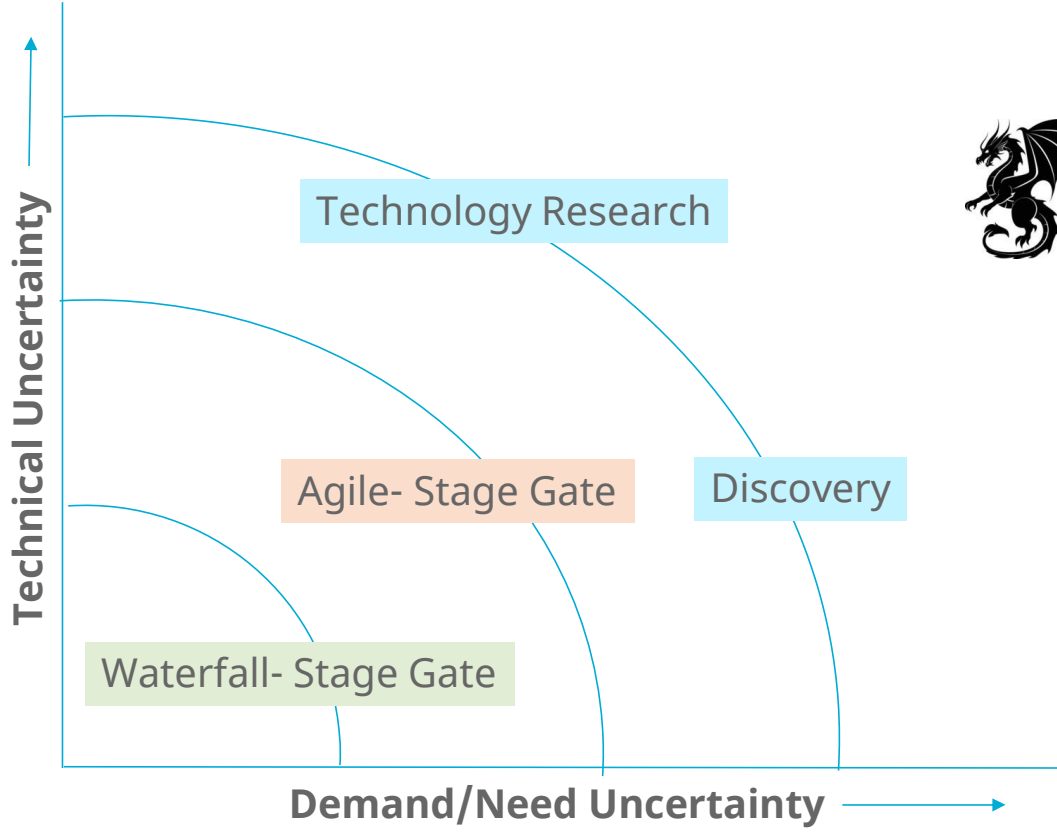
**When the sprint is nearly complete, the goal for the next sprint is determined and tasks added to the new burndown chart.**

Completed	In Process	Backlog
Task 4	Task 7      Owner	
Task 5	Task 10     Owner	
Task 8	Task 15     Owner	
Task 9	Task 18     Owner	
Task 6	Task 19     Owner	
Task 13		
Task 14		
Task 1		
Task 2		
Task 3		
Task 22		
Task 23		
Task 20		
Task 11		
Task 12		
Task 24		
Task 16		
Task 17		
Task 21		



NPD PROCESS SELECTION

The project management technique is driven by the project uncertainty.



Here be Dragons!

AGILE STAGE-GATE (IN PRACTICE)

The new process eliminates the main causes of project schedule delays.

The Student Syndrome



90% Syndrome (the star's club)



## PORTFOLIO MANAGEMENT

Portfolio management starts with initial project selection and culling at gates.

### Assessment Tool



### Stage-Gate Process

*Kill ugly projects at gates*

#### Attractiveness

- Market size/Growth rate
- Revenue/Margin Potential
- Defensibility
- Ramp Rate

#### Capability

- Difficulty of Solution
- Cost/Time to Develop
- Capability of Resources
- Capability of Assets

# PORTFOLIO MANAGEMENT

The project assessment is the primary tool used for justification.

Snapshots captured at gates to track changes



Current Thinking Gate 1 Gate 2 Gate 3

EDIT MODE Copy From Project Start - End : 08/07/2023 - 03/10/2027

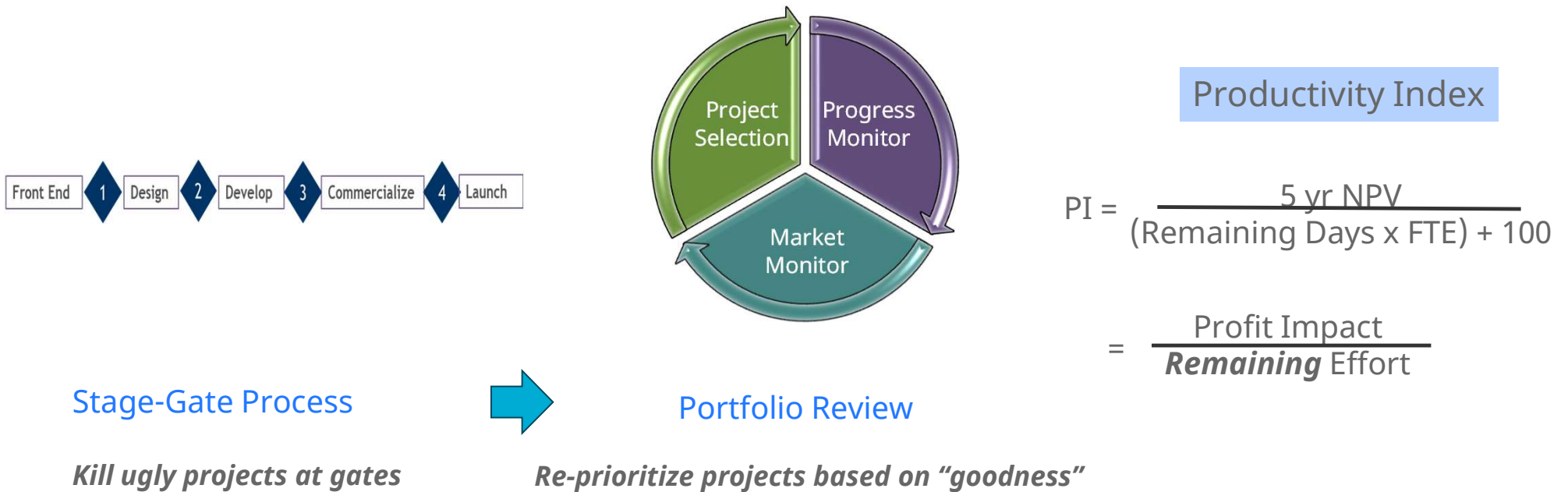
Name	Assessment Comment	Project Total
<b>ATTRACTIVENESS</b>		
Market Attractiveness	Proposed value proposition is not compelling compared to current alternatives.	segment growth = GDP
Customer Engagement	Product will be perceived as equivalent to current alternatives.	risks with customer base
Product Uniqueness	Product will be perceived as advantaged, but unknown value to market.	valued by the customer
Revenue Potential	Product will represent a marketable advantage in areas that will be valued by the customer.	Greater than \$20M
Margin Contribution	Value proposition is far superior to current solutions in aspects that have importance to customers.	33%-40%
Ramp Rate (Time to Maturity)		and full potential in 4
Defensibility		of high switching costs
Attractiveness Score		3.4
<b>CAPABILITY</b>		
Cost (net sample expense) to develop	Long development cycle due to FR and WRB requirements.	budget of \$100,000
Time to develop (FTE, time to launch)	2 years. Size of Prize will dictate resources needed.	High uncertainty, large FTE commitment (Multiple years of 1+ FTE)
Difficulty of Solution	Core FR platform but no immediate line of sight to solution. Will take multiple iterations.	Moderately low probability, no relevant data to predict probability of technical success
Design Criteria Understanding	Technical solutions are well scoped. Product scopes to be defined.	Moderately probability. Good understanding of customer needs/design criteria
Resource Fit	Multiple FR solutions but applications in this market are to be developed.	General idea of technology area, but significant gaps in expertise
Asset Availability	Width requirements don't align with current assets.	New assets will be required. Moderately high capital cost
Capability Score		2.1
Total Score		2.8

## Stage-Gate Process

*Kill ugly projects at gates*

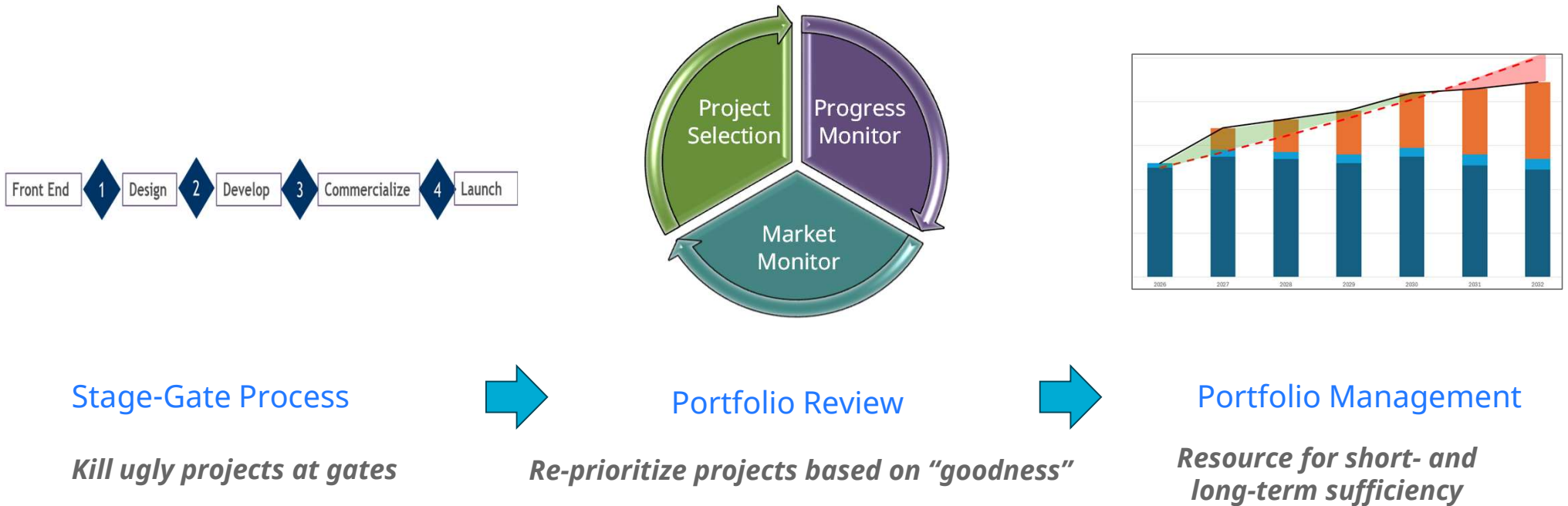
## PORTFOLIO MANAGEMENT

A dedicated, intentional portfolio management activity was needed to re-prioritized projects.



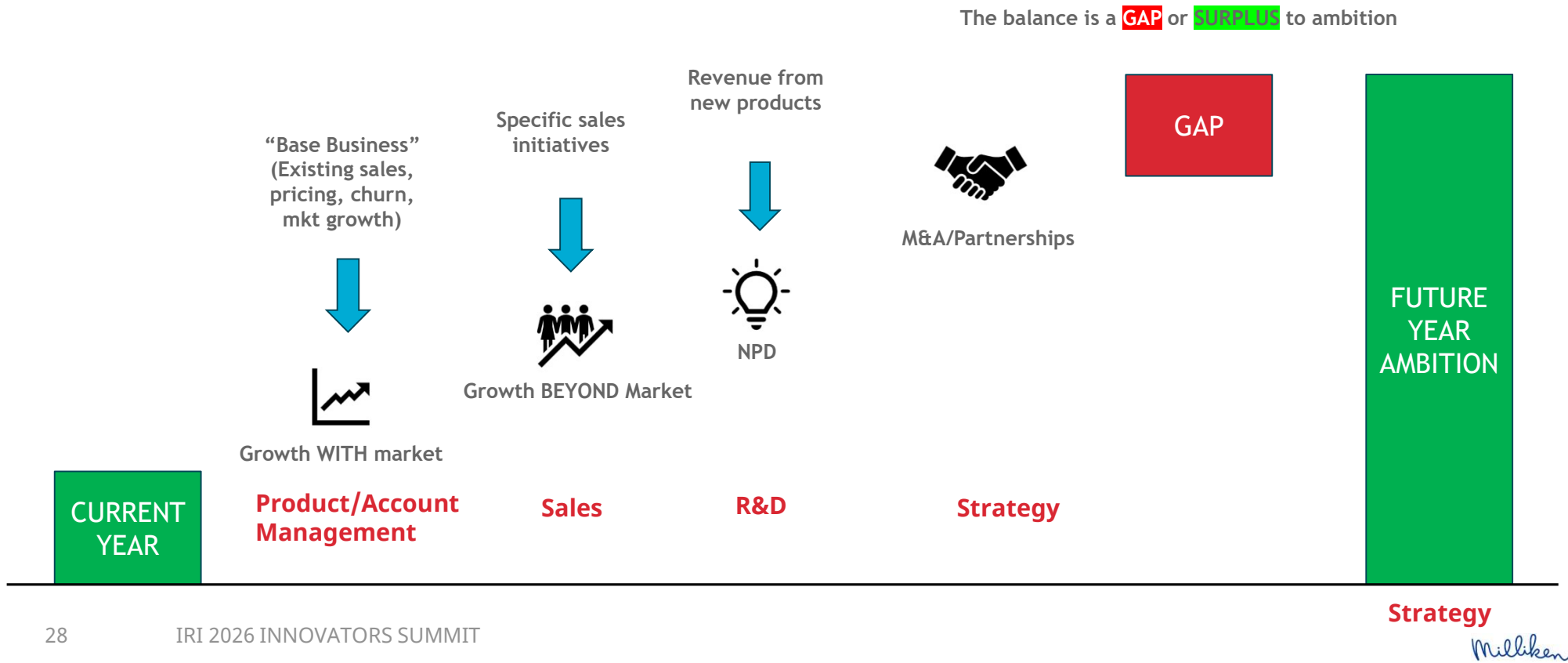
# PORTFOLIO MANAGEMENT

**We have moved from portfolio review to a strategy-linked portfolio management process.**



## PORTFOLIO MANAGEMENT

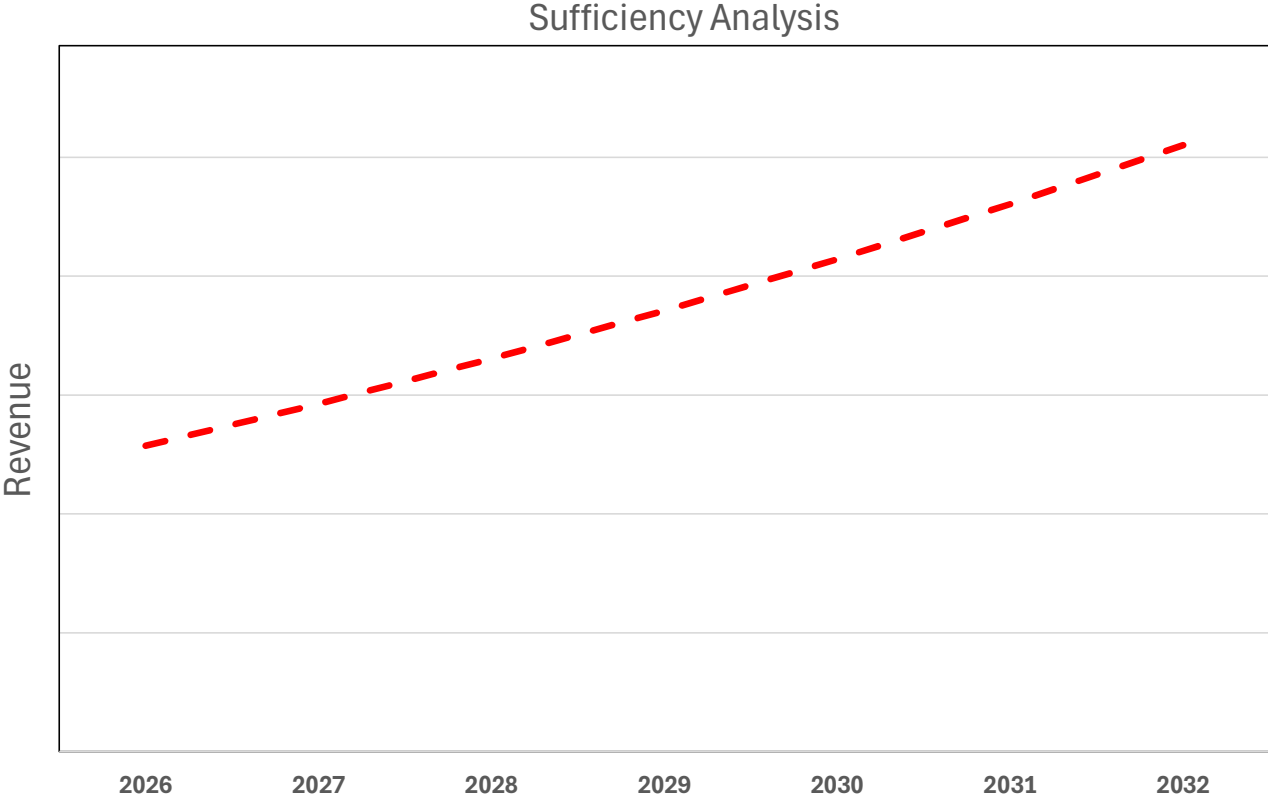
Sufficiency is a concept that ties together the levers of growth and compares against an ambition.



The strategic growth plan is the basis for sufficiency analysis.

Data sources:

Strategic plan (Growth aspiration)



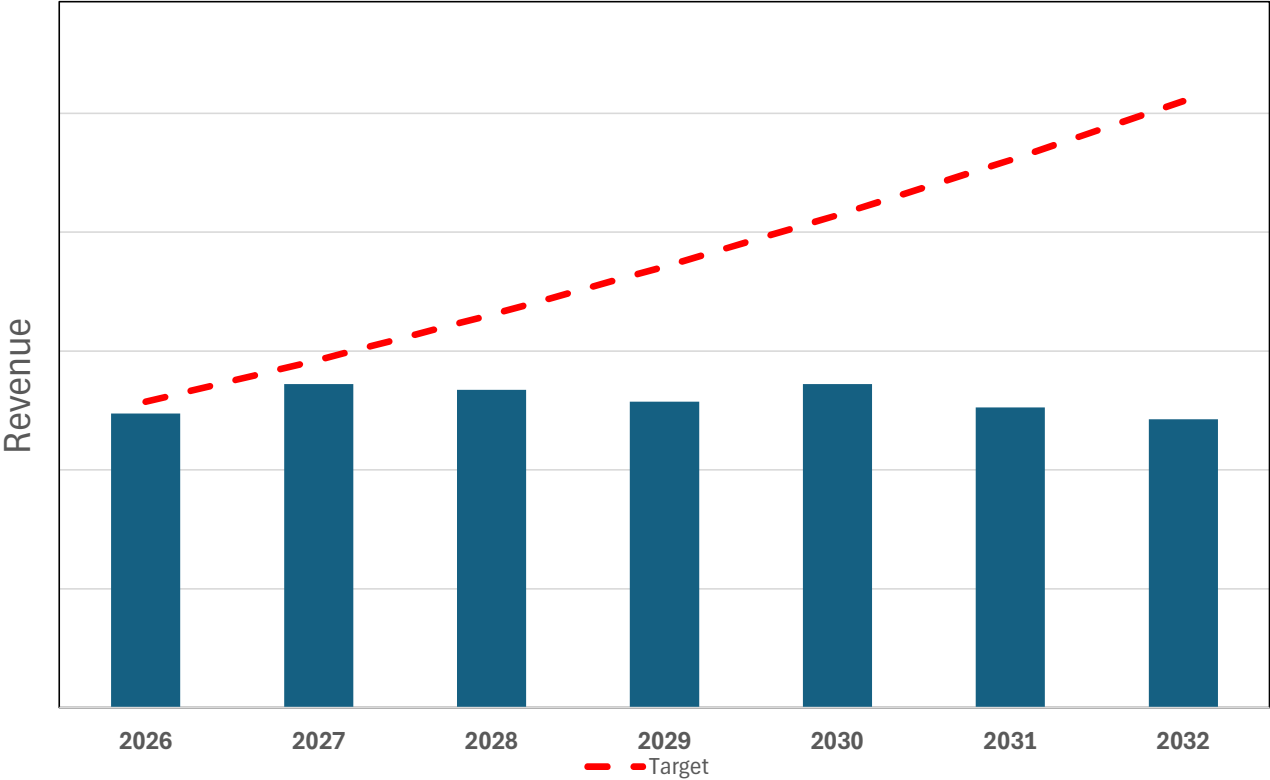
PORTFOLIO MANAGEMENT FOR GROWTH

The annual revenue of current products, based on market factors, form the base.

Data sources:

- Strategic plan (Growth aspiration)
- Sales Plan (existing products/existing markets)
  - Market growth
  - Share loss/churn/obsolescence
  - Recently launched product growth
  - Cannibalization

Sufficiency Analysis



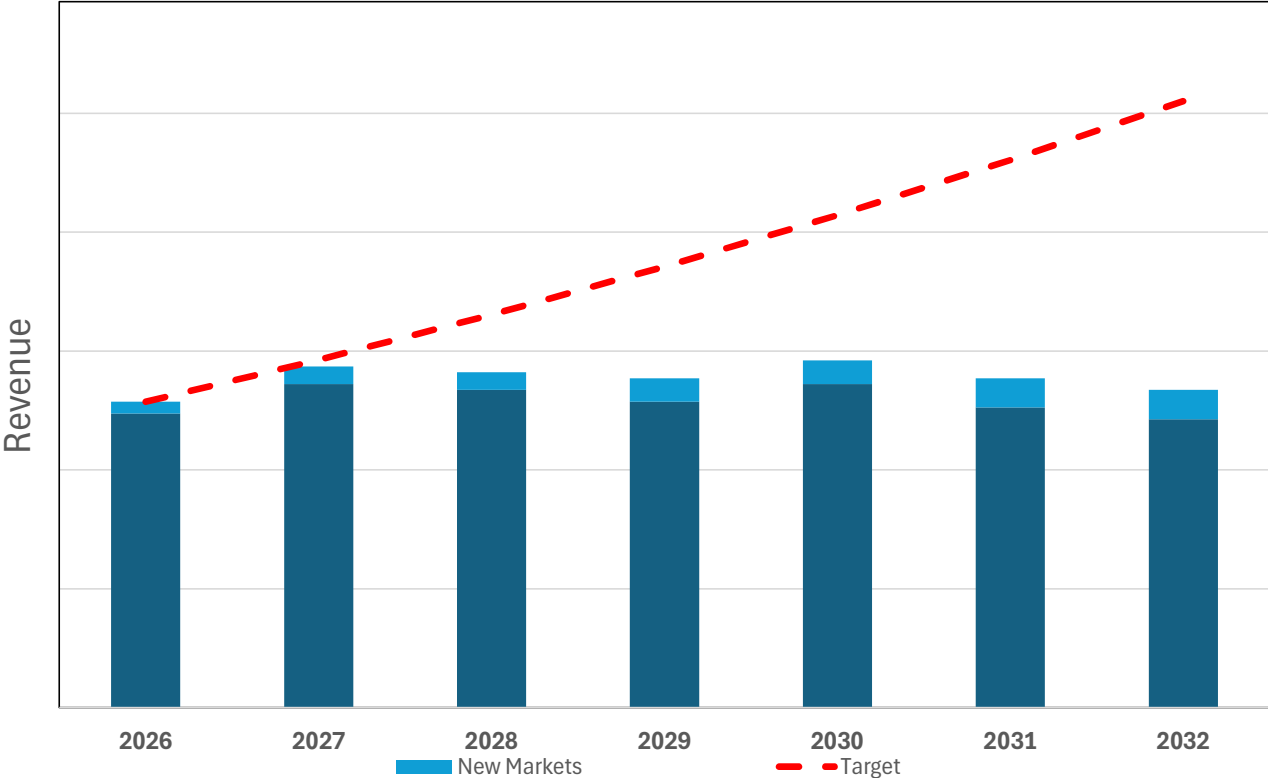
# PORTFOLIO MANAGEMENT FOR GROWTH

**Growth from new sales activity is layered on the base.**

## Data sources:

- Strategic plan (Growth aspiration)**
- Sales Plan (existing products/existing markets)**
  - Market growth
  - Share loss/churn/obsolescence
  - Recently launched product growth
  - Cannibalization
- Sales Funnel (existing products/new markets)**
  - Phase-weighted CRM data

Sufficiency Analysis



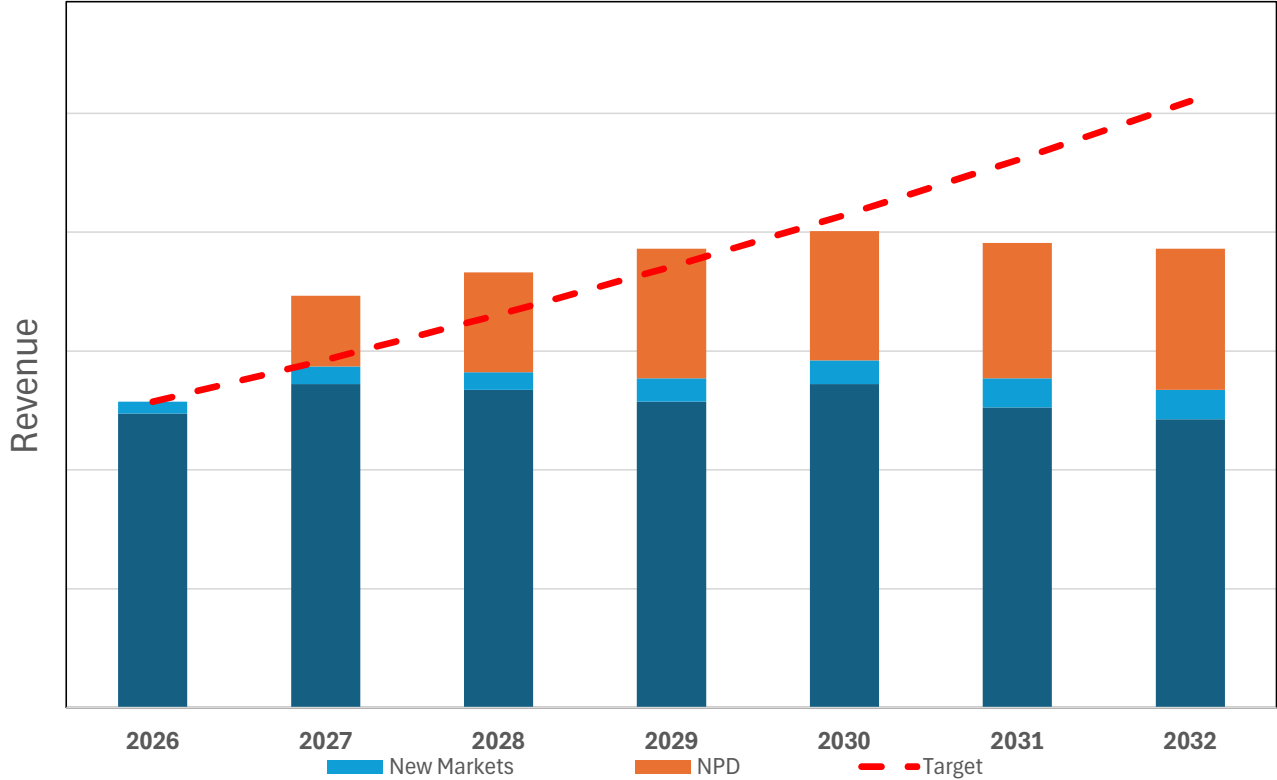
PORTFOLIO MANAGEMENT FOR GROWTH

Growth from new products is pulled from the NPD database.

Data sources:

- Strategic plan (Growth aspiration)
- Sales Plan (existing products/existing markets)
  - Market growth
  - Share loss/churn/obsolescence
  - Recently launched product growth
  - Cannibalization
- Sales Funnel (existing products/new markets)
  - Phase-weighted CRM data
- Revenue from new products
  - Phase-weight NPD (Power Steering) data

Sufficiency Analysis



## PORTFOLIO MANAGEMENT FOR GROWTH

The difference between the predicted revenue and aspiration can be visualized by year.

### Data sources:

#### Strategic plan (Growth aspiration)

Sales Plan (existing products/existing markets)

Market growth

Share loss/churn/obsolescence

Recently launched product growth

Cannibalization

Sales Funnel (existing products/new markets)

Phase-weighted CRM data

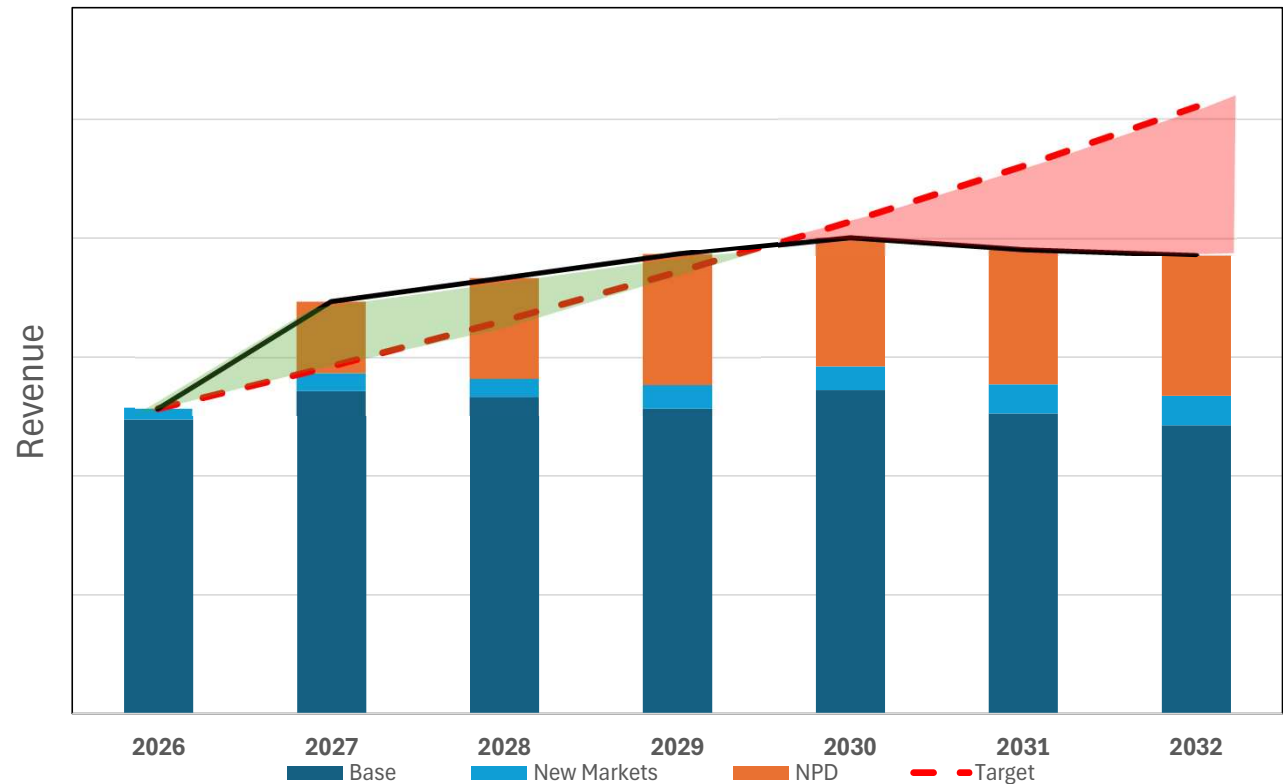
Revenue from new products

Phase-weight NPD (Power Steering) data

Surplus

Gap

Sufficiency Analysis



## PORTFOLIO MANAGEMENT FOR GROWTH

Moving resources from short- to long-term projects can change the time-based sufficiency.

### Data sources:

#### Strategic plan (Growth aspiration)

Sales Plan (existing products/existing markets)

Market growth

Share loss/churn/obsolescence

Recently launched product growth

Cannibalization

Sales Funnel (existing products/new markets)

Phase-weighted CRM data

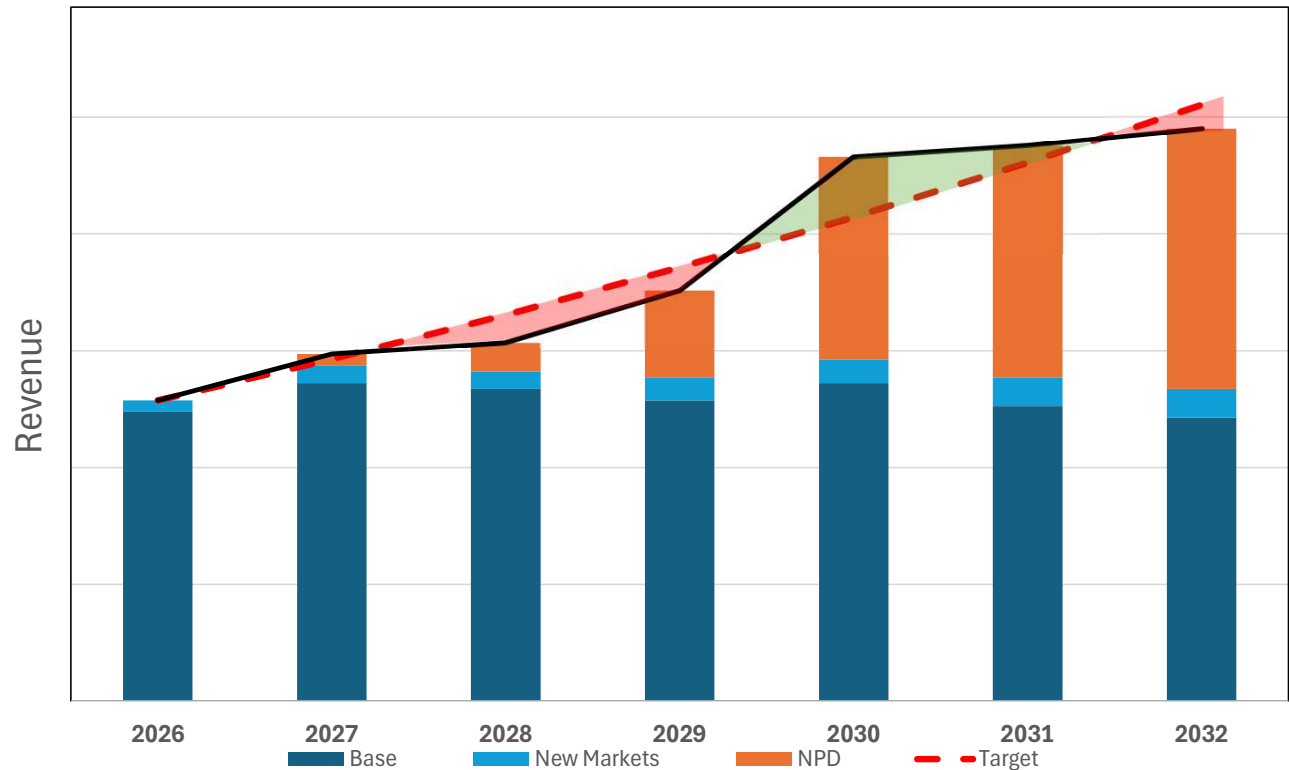
Revenue from new products

Phase-weight NPD (Power Steering) data

Surplus

Gap

Sufficiency Analysis



## SUMMARY AND CONCLUSIONS

**The journey continues, and we learned some key lessons along the way.**

**The process must be driven by management.**

**There must be something in it for the project owners/scientists.**

**Standardize only what needs to be standardized.**

**Reward system must be matched to strategic goals.**

**Optimizing a process is a journey, not a destination.**



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