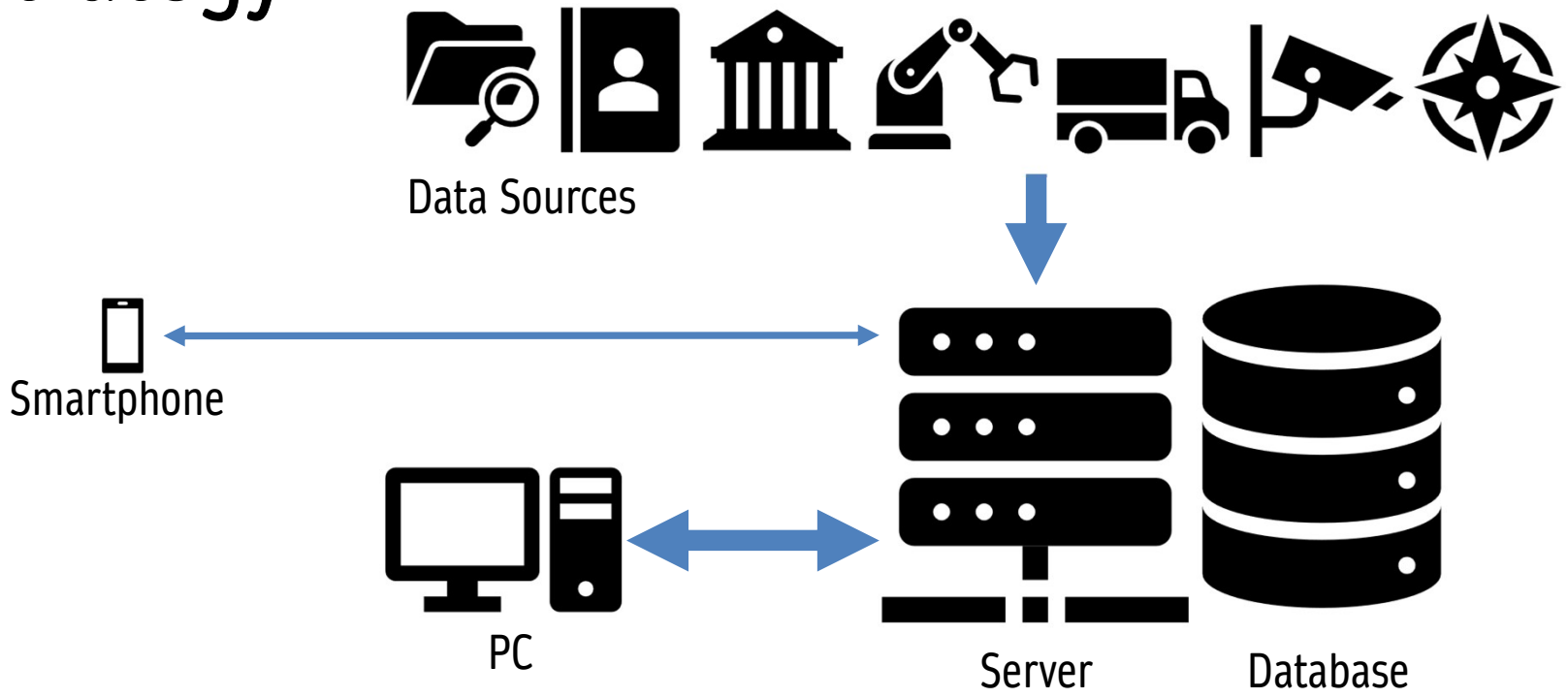
Hitching IT to TOC

Presented by: John Ricketts

Date: October 14, 2020

An adventure in constraint management, information technology, and technical strategy…



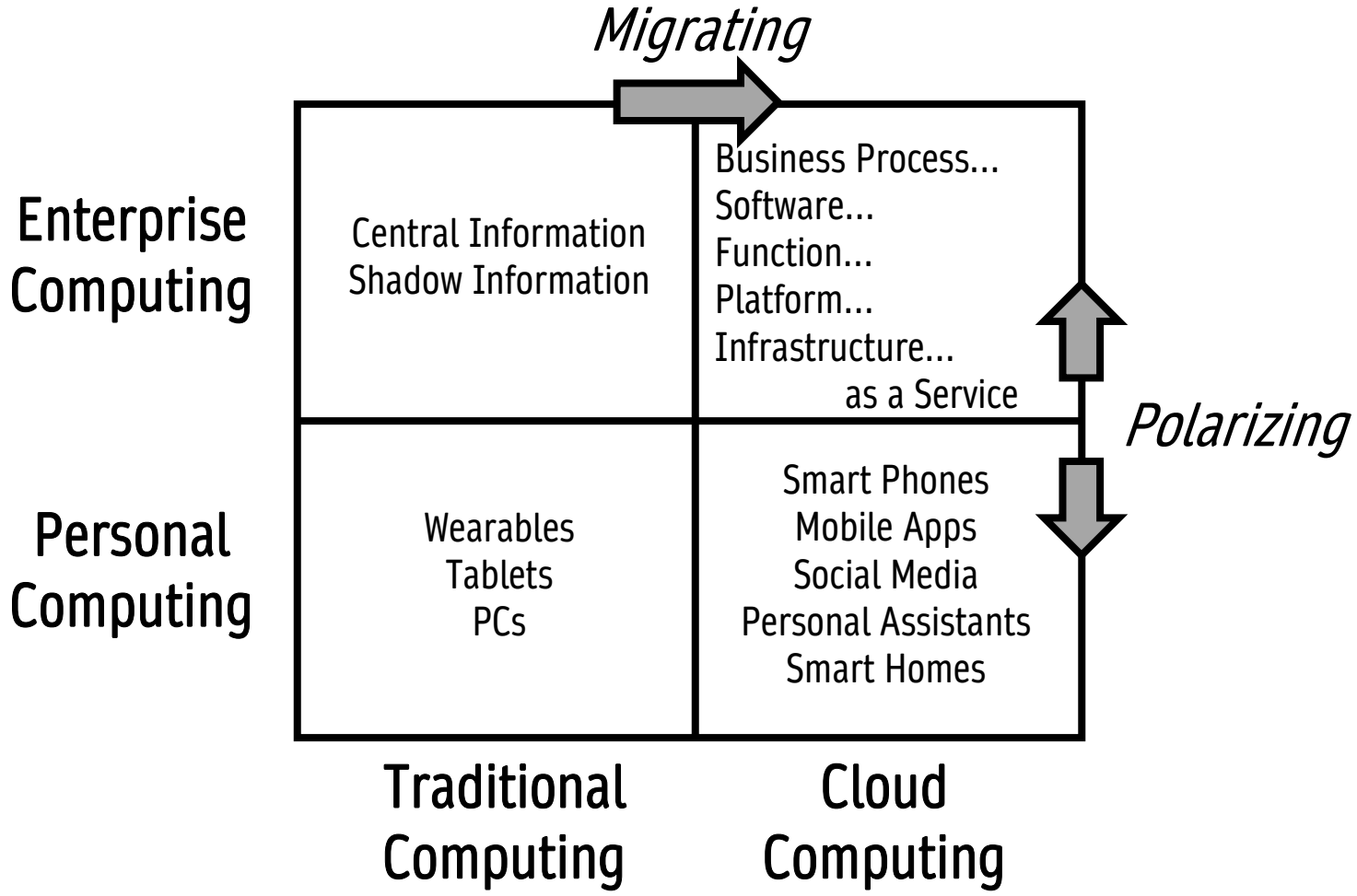
John Ricketts, *Exceeding the Goal*, "Adventure: Diving Catch," 2020, pp.38-9.

What is IT?

- Hardware – computers, storage, networks, etc.
- Software – programs & documentation
- Services – consulting, operations, repair, help, etc.

John Ricketts, *Exceeding the Goal*, "Information Technology, Computer Software, and Technical Services," 2020, pp.49-68.

IT Trends



John Ricketts, *Exceeding the Goal*, "Computing Quadrants," 2020, p.59.

IT consumes Investment and Operating Expense but may not generate Revenue.

Role of IT	Revenue
IT enables core business	None
IT is an adjunct business	Separate
IT is embedded in products & services	Indirect
IT is the business	Direct

"Information can be a differentiator, a barrier, or a commodity."

John Ricketts, *Exceeding the Goal*, "Role of Information," 2020, p.53.

Systems serve various business purposes.

Systems of …	Purpose
Record	Gather & maintain data
Insight	Create actionable information
Engagement	Social networking
Innovation	Reinvent processes, products, services

John Ricketts, *Exceeding the Goal*, "System Types," pp.53-4

Why is IT a perpetual bottleneck?

IT is a bottleneck only if you let it be.

Here are some ways to manage IT better…

John Ricketts, *Exceeding the Goal*, "Does Information Matter?," 2020, p.50.

#1 Recognize information constraints.

Embedded software problems can shut down manufacturing or trigger product failures in the field.

Legacy systems can harbor layers of arcane business rules that may no longer be appropriate.

Digital content, such as streaming video, can be the enterprise constraint.

Technology patents preserve freedom of action.

John Ricketts, *Exceeding the Goal*, "Information Constraints," 2020, pp.97-8.

#2 Manage IT capacity dynamically.

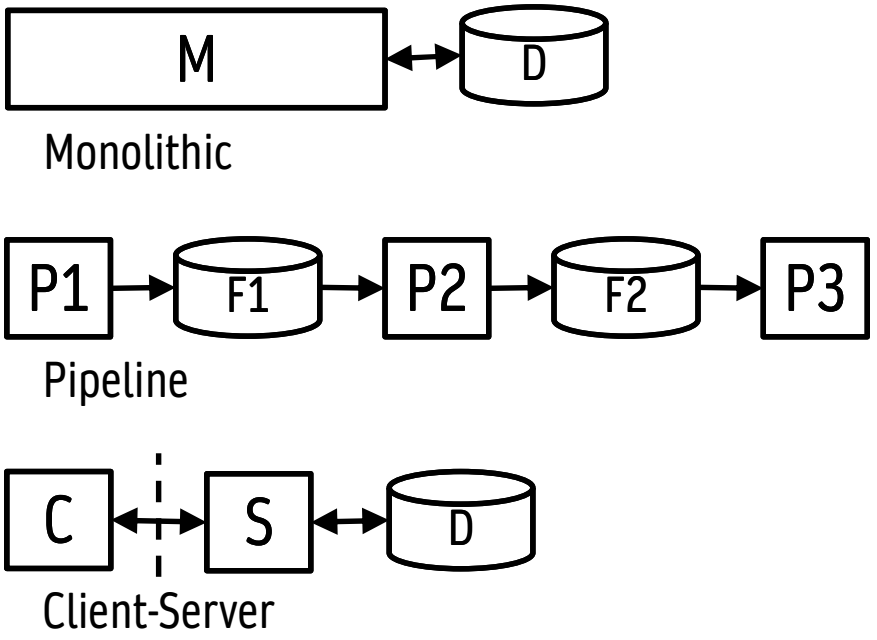
Cloud computing supports automatic scalability in real time for variable workloads.

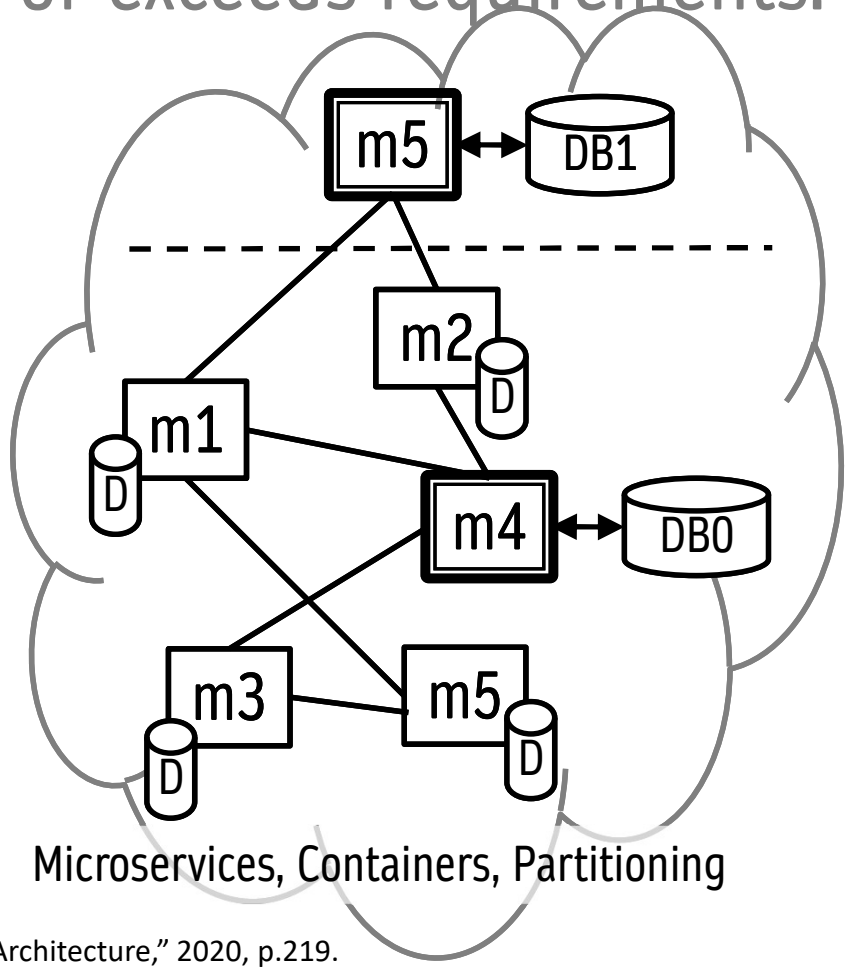
Not sizing IT capacity for peak demand reduces Investment and Operating Expense.

John Ricketts, *Exceeding the Goal*, "Information Constraints," 2020, pp.423-5.

Architecture for Born-on-Cloud is different.

High-level design that meets or exceeds requirements.

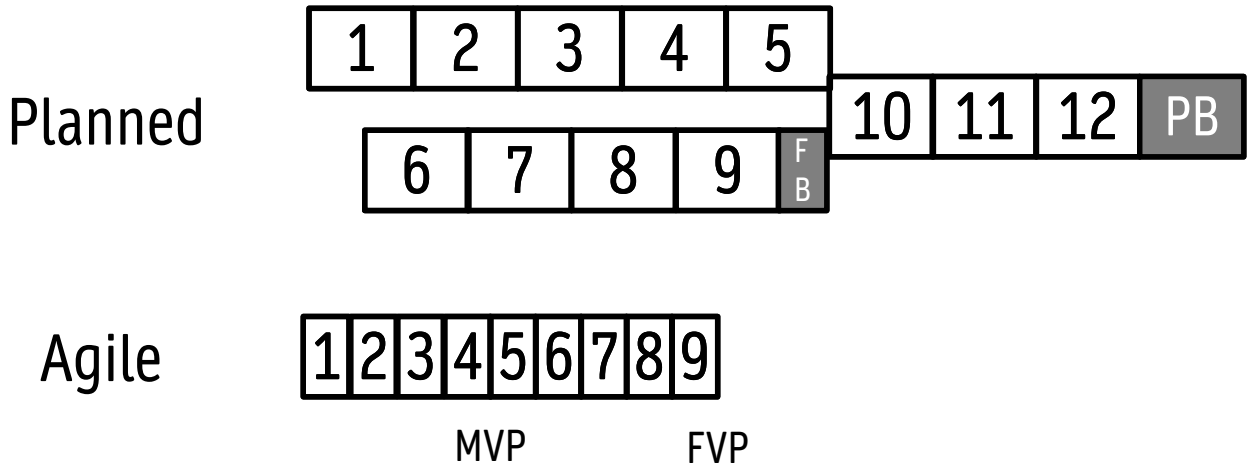




John Ricketts, *Exceeding the Goal*, "Architecture," 2020, p.219.

#3 Pick appropriate methodologies.

IT methodology – Principles, rules, and tasks for developing, operating, and maintaining a specific set of work products and deliverables.



John Ricketts, *Exceeding the Goal*, "Methodology," 2020, pp.261-87.

No methodology is suitable for all projects.

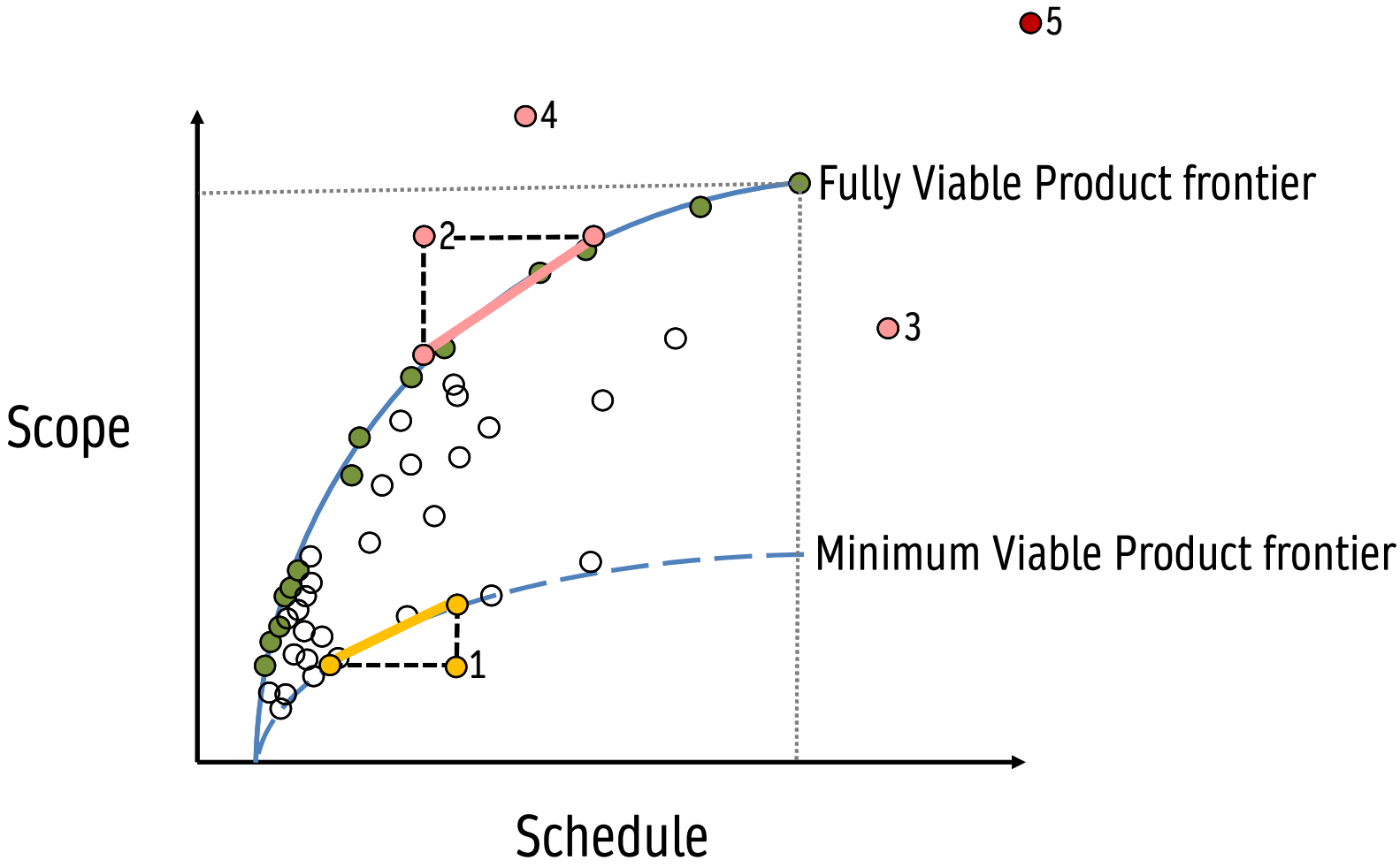
Consider many factors, including the goal, users, developers, platform, & tools.

Agile was invented for software,
but not all IT projects fit Agile.

Two-speed IT is due to platform & tool capabilities, plus the sheer size of Legacy Systems.

John Ricketts, *Exceeding the Goal*, "Choosing a Methodology," 2020, p.267.

#4 Know where your frontiers are



John Ricketts, *Exceeding the Goal*, "Portfolio Management," 2020, pp.327-48.

The envelope informs technical decisions.

The iron triangle of project management is real.

Users ask for speed when they want predictability.

Guesstimates lead to overcommitments.

Back-scheduling from due dates is malpractice.

Metrics distinguish engineering from craft work.

Stretch and Fantasy projects are easier to spot.

Technical strategy to shift the envelope has business benefits.

John Ricketts, *Exceeding the Goal*, "Iron Triangle," 2020, p.266.

#5 Modernize Legacy Systems.

Legacy System:
1) any previous generation of technology
2) anything running in production.

Technical Debt is the price paid later for something done today.

Modernization can fix Technical Debt, adopt a better toolset, and reduce the backlog of change requests.

John Ricketts, *Exceeding the Goal*, "Legacy Systems," 2020, p.65.
John Ricketts, *Exceeding the Goal*, "Technical Debt," 2020, pp.143-4.

#6 Requirements should move the needle.

It's not users' responsibility to keep IT busy.

Low-value requirements are more for convenience than for constraint management.

Complexity is the enemy of productivity, compatibility, performance, reliability, security, etc.

Ninety percent of software is seldom/never used.

Enterprises are a system of systems: Executives and managers see constraints within their local systems that aren't the enterprise constraint.

John Ricketts, *Exceeding the Goal*, "Functional, Developmental, & Operational Requirements," 2020, pp.123-5.

#7 Skills are the default IT constraint.

Commodity skills are available on short notice.

Core skills are available with significant lead time.

Critical skills are chronically in short supply.

10X productivity is myth. 3X productivity is real.

The IT profession is tribal.

John Ricketts, *Exceeding the Goal*, "Skill Groups," 2020, p.257.
John Ricketts, *Exceeding the Goal*, "Productivity versus Anti-productivity," 2020, p.254.

#8 Manage IT projects as a portfolio.

Perform Delta Analysis.

Consider strategic horizons.

Focus on the enterprise constraint.

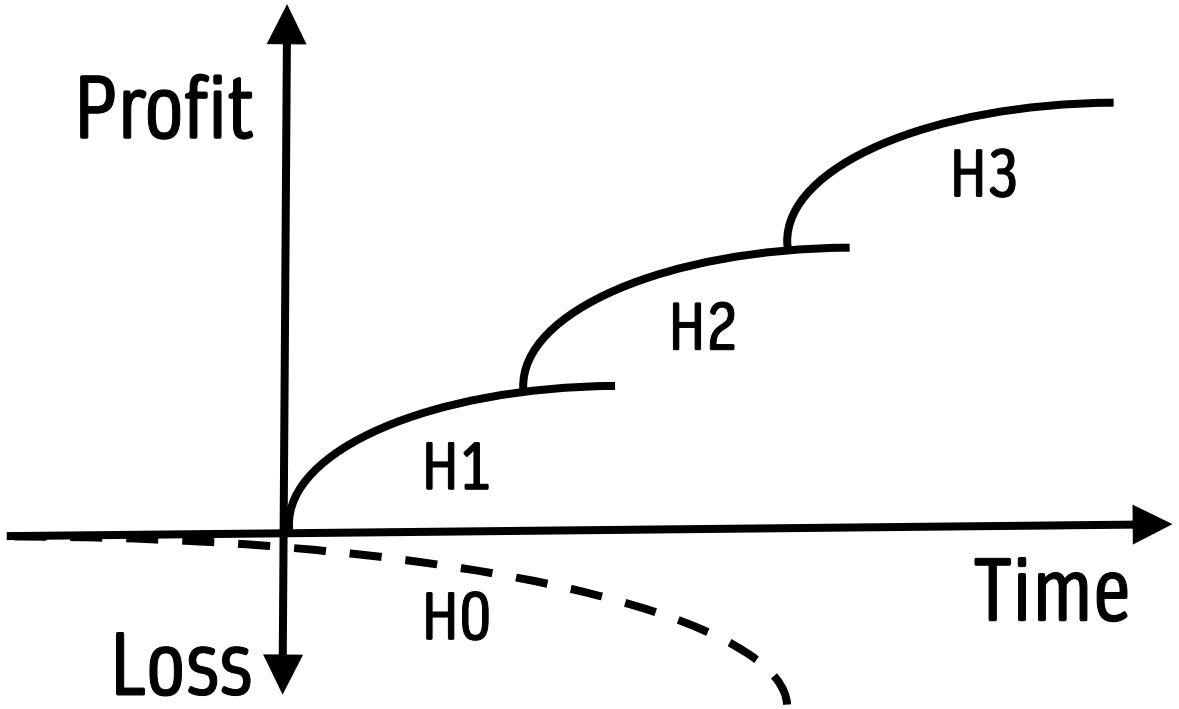
Don't optimize non-constraints.

Set priorities and let low priorities expire.

Manage work in process.

John Ricketts, *Exceeding the Goal*, "Portfolio Management," 2020, pp.328-30.

Strategic Horizons



John Ricketts, *Exceeding the Goal*, "Horizons Model," 2020, p.40.

Portfolio Management considers…

Horizon	Platform	System Type	Life Cycle	Status
H0	Traditional	Record	Research	Proposed
H1	Cloud	Insight	Development	Approved
H2	Hybrid	Engagement	Announcement	Throttled
H3	AI/ML	Innovation	Available	Active
			Maintenance	Frozen
			Migration	Expedited
			End of Life	Terminated
			End of Service	Completed

Method	Priority	Risk	ROI
Planned	H	H	H
Agile	M	M	M
Hybrid	L	L	L

*High priority includes mandatory projects & strategic initiatives.

John Ricketts, *Exceeding the Goal*, "Portfolio Management," 2020, pp.491-6.

ID	Life Cycle Stage	System of…	Method	Platform	Horizon
Ops1	Maintenance	Record	Planned	Traditional	H1
Ops2	Maintenance	Record	Planned	Traditional	H1
Dis1	Development	Record	Planned	Traditional	H1
Fin1	Maintenance	Engagement	Agile	Cloud	H1
Mkt1	Reengineering	Engagement	DevOps	Hybrid	H1
CIO1	Maintenance	Record	Planned	IoT	H1
CIO2	Maintenance	Record	Planned	Hybrid	H1
CIO3	Development	Engagement	Agile	Cloud	H2
CIO4	End of Life	Record	Planned	Traditional	H0
CTO1	Concept	Insight	Agile	AI/ML	H2
CTO2	Concept	Insight	Agile	Cloud	H3
CTO3	Research	Innovation	Agile	AI/ML	H3

John Ricketts, *Exceeding the Goal*, "Portfolio Management," 2020, p.492.

ID	Life Cycle Stage	System of…	Method	Platform	Horizon	Risk	Priority	Status
Ops1	Maintenance	Record	Planned	Traditional	H1	H	VH	Active
Ops2	Maintenance	Record	Planned	Traditional	H1	M	M	Active
Dis1	Development	Record	Planned	Traditional	H1	H	L	Freeze
Fin1	Maintenance	Engagement	Agile	Cloud	H1	M	NA	Appro
Mkt1	Reengineering	Engagement	DevOps	Hybrid	H1	L	H	Exped
CIO1	Maintenance	Record	Planned	IoT	H1	VL	L	Active
CIO2	Maintenance	Record	Planned	Hybrid	H1	L	NA	Active
CIO3	Development	Engagement	Agile	Cloud	H2	L	H	Throt
CIO4	End of Life	Record	Planned	Traditional	H0	VL	VL	Termi
CTO1	Concept	Insight	Agile	AI/ML	H2	L	VL	Active
CTO2	Concept	Insight	Agile	Cloud	H3	M	M	Appro
CTO3	Research	Innovation	Agile	AI/ML	H3	M	H	Throt

	Technology			Enterprise					
ID	T'	I'	OE'	T	I	OE	NP	NP	ROI
Ops1		$100,000	$50,000	$6,000,000	$3,000,000	$5,280,000	$670,000	11%	22%
Ops2		$30,000	$100,000	$1,000,000	$500,000	$880,000	$20,000	2%	4%
Dis1		$1,000,000		$1,250,000	$625,000	$1,100,000	$150,000	12%	9%
Fin1		$100,000	$50,000				-$50,000		-50%
Mkt1		$200,000	$150,000				-$150,000		-75%
CIO1		$25,000	$10,000				-$10,000		-40%
CIO2		$75,000	$25,000				-$25,000		-33%
CIO3		$800,000					$0		0%
CIO4			$30,000				-$30,000		
CTO1	$300,000	$150,000					$300,000	100%	200%
CTO2	$100,000	$100,000					$100,000	100%	100%
CTO3		$80,000					$0		0%
	---	---	---	---	---	---	---	---	---
	$400,000	$2,660,000	$415,000	$8,250,000	$4,125,000	$7,260,000	$975,000	11%	14%

John Ricketts, *Exceeding the Goal*, "Portfolio Management," 2020, p.492.

In conclusion…

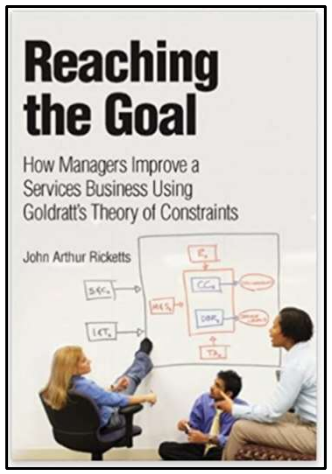
How can you exceed the goal?

Combine
constraint management,
information technology,
and technical strategy.

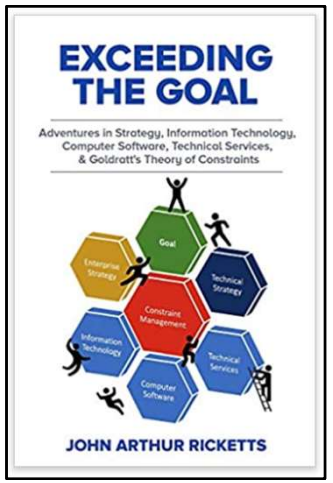
John Ricketts, *Exceeding the Goal*, "Conclusion: Exceeding the Goal," 2020, pp.444-5.

Dr. Ricketts' career spans manufacturing, academia, and information technology.

His job roles include distinguished engineer, consulting partner, chief technology officer, and corporate strategist.



Reaching the Goal
adapts TOC for **service operations.**



Exceeding the Goal
applies TOC to **technical strategy.**

linkedin.com/in/johnricketts jaricke@gmail.com