Lean

The Role of the Product Owner

Agile

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“What is all this Agile stuff about, anyway?”

The Role Of the Product Owner

The traditional role

Why change?

What does the agile role look like?

Examples

The Traditional Role

- Multiple product owners and business stakeholders provide input and define requirements
- Sponsors often high in the organization – funding the project but not into the details
- Competing decision makers – i.e. IT and Business
- Mostly involved in the front end requirements and backend tests
- Receive status from program managers

The Traditional Role

- Detailed plans are put together up front
- Progress toward achieving desired product is based on compliance with a plan
- Management of tasks via status meetings
- Utilization of resources – especially people
- Command and control to tell the team what to work on and define due dates (often in conflict)

The Traditional Role – the Issue

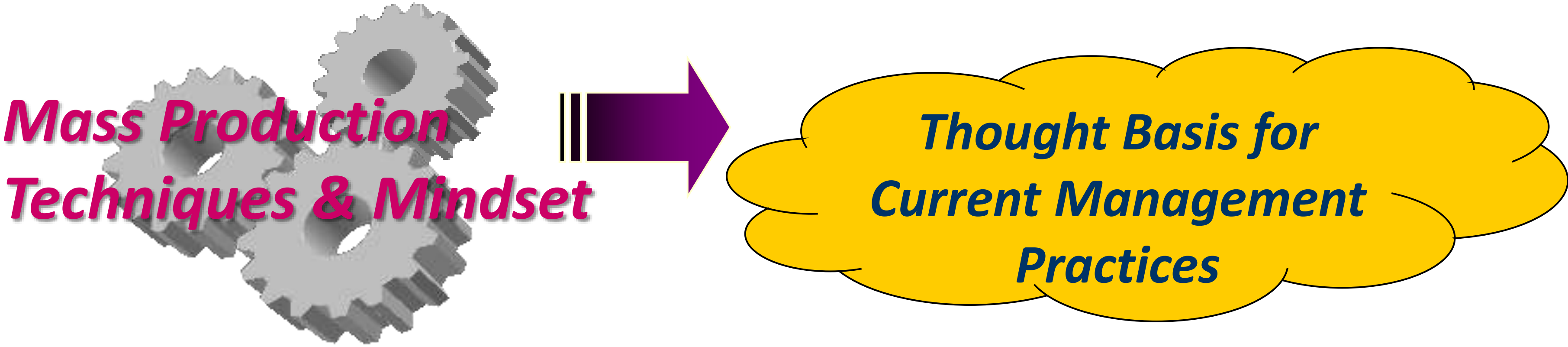
- Conflict between trying to define requirements *a priori* and time to market (or cycle time)
- Customer and market needs are brought in too late
- Product does not meet customer's needs (cost, schedule, functionality)
- Amplified within the DoD where the acquisition customer and the end customer are not the same

How Did We Get Into This Spot?

- Tremendous rise in the standard of living the past 100 years in all developed countries
- Rise was largely driven by productivity improvements
  - Agricultural up 3 to 5% a year since 1900
    - 50% of workforce in 1900, < 2% today, more production
  - Production up by 3% a year since Depression
    - 35% of workforce in 1940, < 15% today, 100x output rise

Basis has been the Invention and Widespread Adoption of Mass Production Techniques

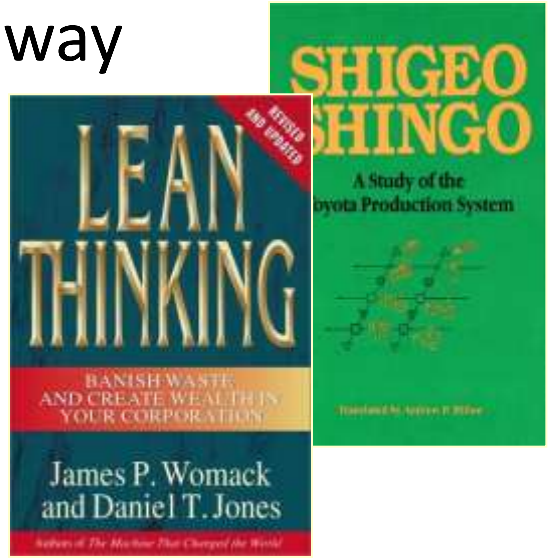
How Did We Get Into This Spot?



Mass Production Techniques & Mindset

Thought Basis for Current Management Practices

- Managing via hierarchy, command and control
- Scientific management – the one best way
- Economies of scale
- Batch production


REVISED AND UPDATED
LEAN THINKING
BANISH WASTE AND CREATE WEALTH IN YOUR CORPORATION
James P. Womack and Daniel T. Jones
Authors of The Machine That Changed the World
SHIGEO SHINGO
A Study of the Toyota Production System
Translated by Andrew P. Dillon

Lean Principles have generated Lean Practices

How Did We Get Into This Spot?

- Mass production management techniques in systems and software development have largely failed
  - Documentation = Understanding
  - The right tasks, correct pressure - force it to happen
  - “If they would freeze requirements, we would be fine”
  - “Heroes” called in when program is in real trouble
- A dissatisfied customer community has imposed more controls and rigidity
- Contractors countered with rigid contracts and change orders to batter the customer with cost and schedule
- Product owners were not involved until too late

we are always working with uncertainty

Requirements …

Decay and Lose Value

over time

Requirements

are not fully understood even after a formal sign-off

Requirements

change often
during long development cycles

Requirements

piled on
poorly prioritized
long delivery cycles

What does Agile demand from Process Standpoint?

What does Agile demand from the Product Owner?

Agility

Predictability

of Business Value

Realization

Agile

Agile is about

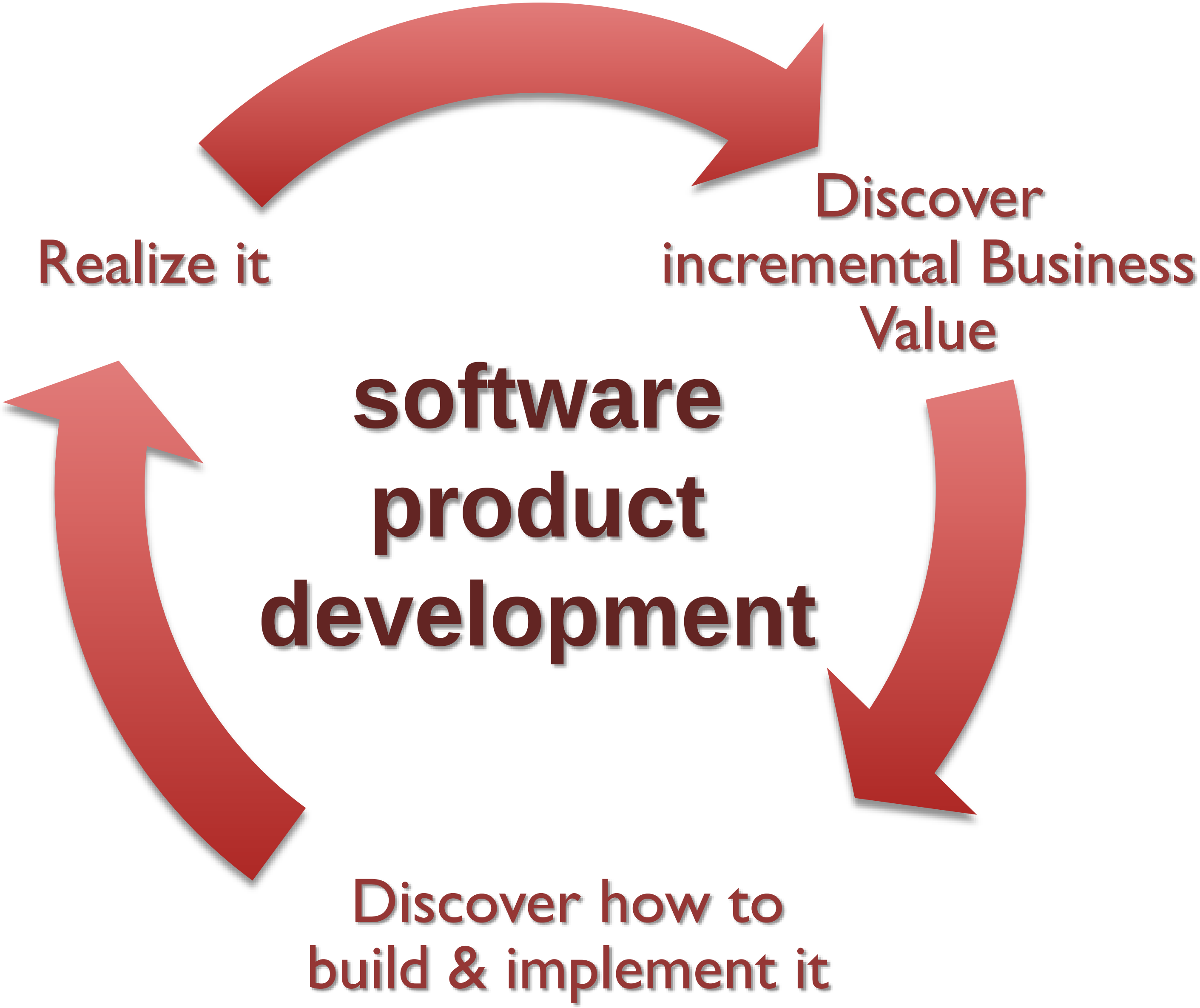
Business Iterations
not Development
Cycles

Agile

Agile is a method that features rapid delivery of functional product iterations

Relies on immediate customer feedback

Allows for evolving understanding of system



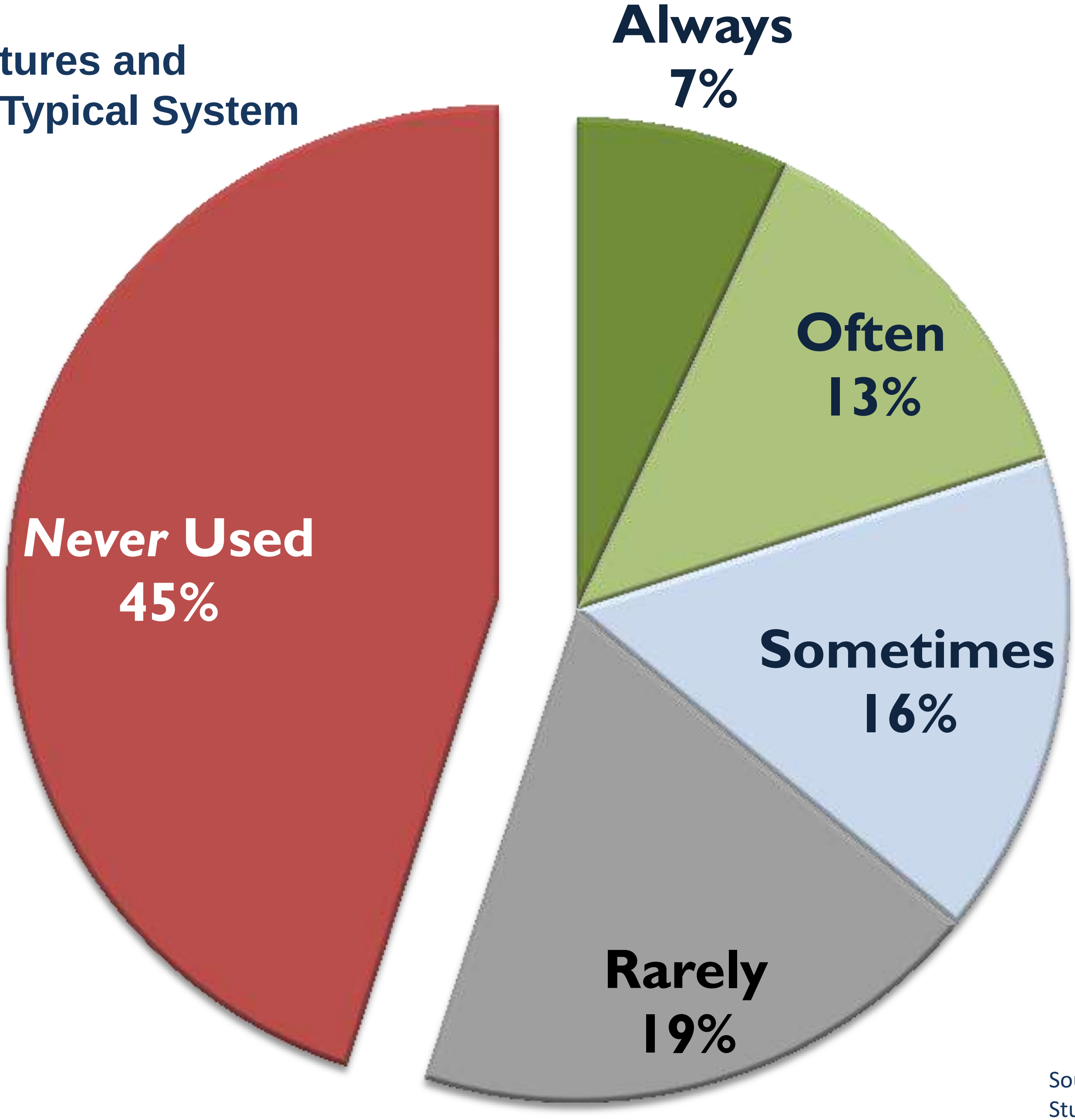
software product development

Discover incremental Business Value

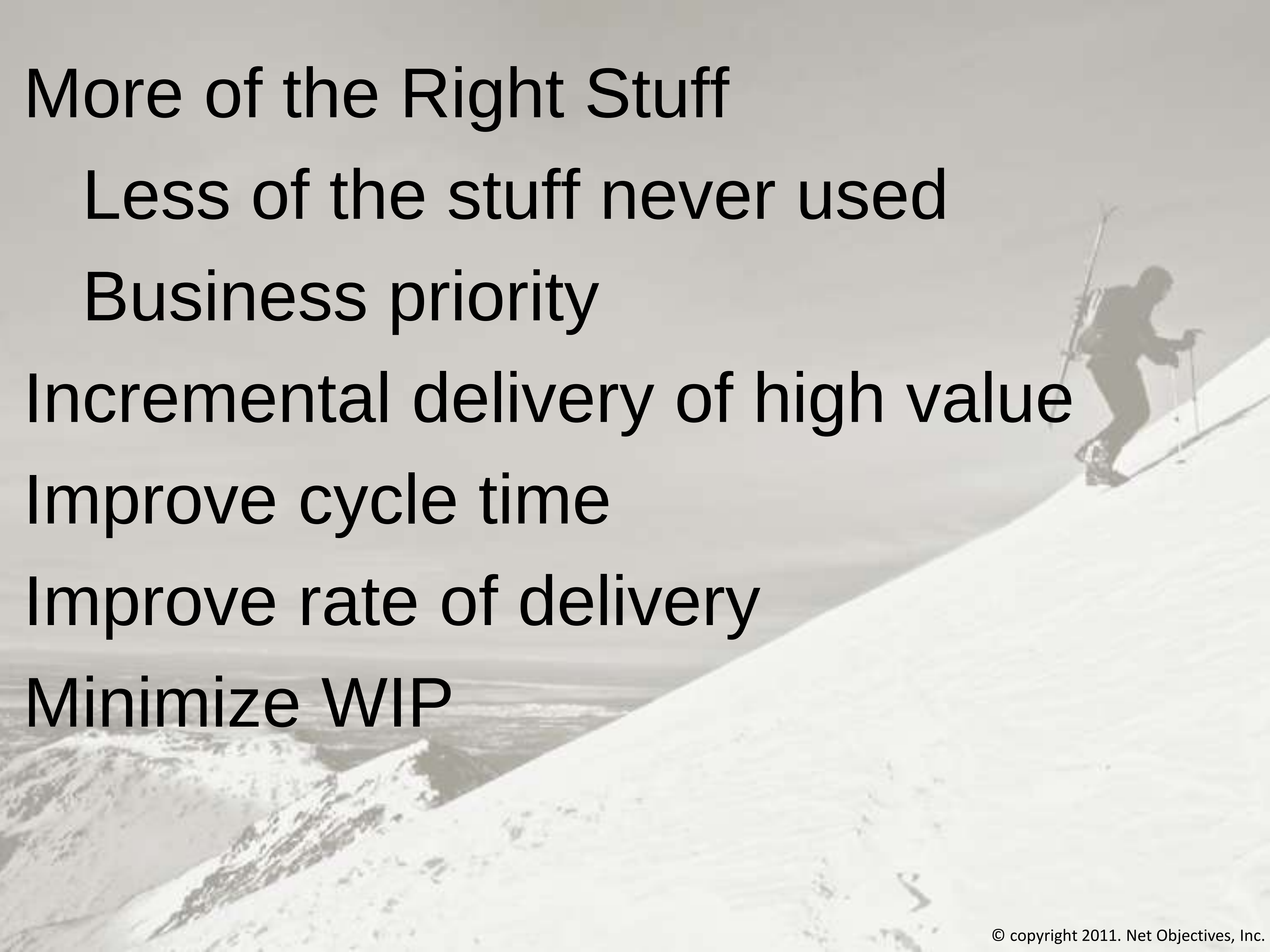
Discover how to build & implement it

Realize it

Usage of Features and Functions in Typical System



Source: Standish Group
Study of 2000 projects at
1000 companies



- More of the Right Stuff
  - Less of the stuff never used
  - Business priority
- Incremental delivery of high value
- Improve cycle time
- Improve rate of delivery
- Minimize WIP

“The greatest improvement in knowledge work will come from simply not doing what does not need to be done”

Peter F. Drucker

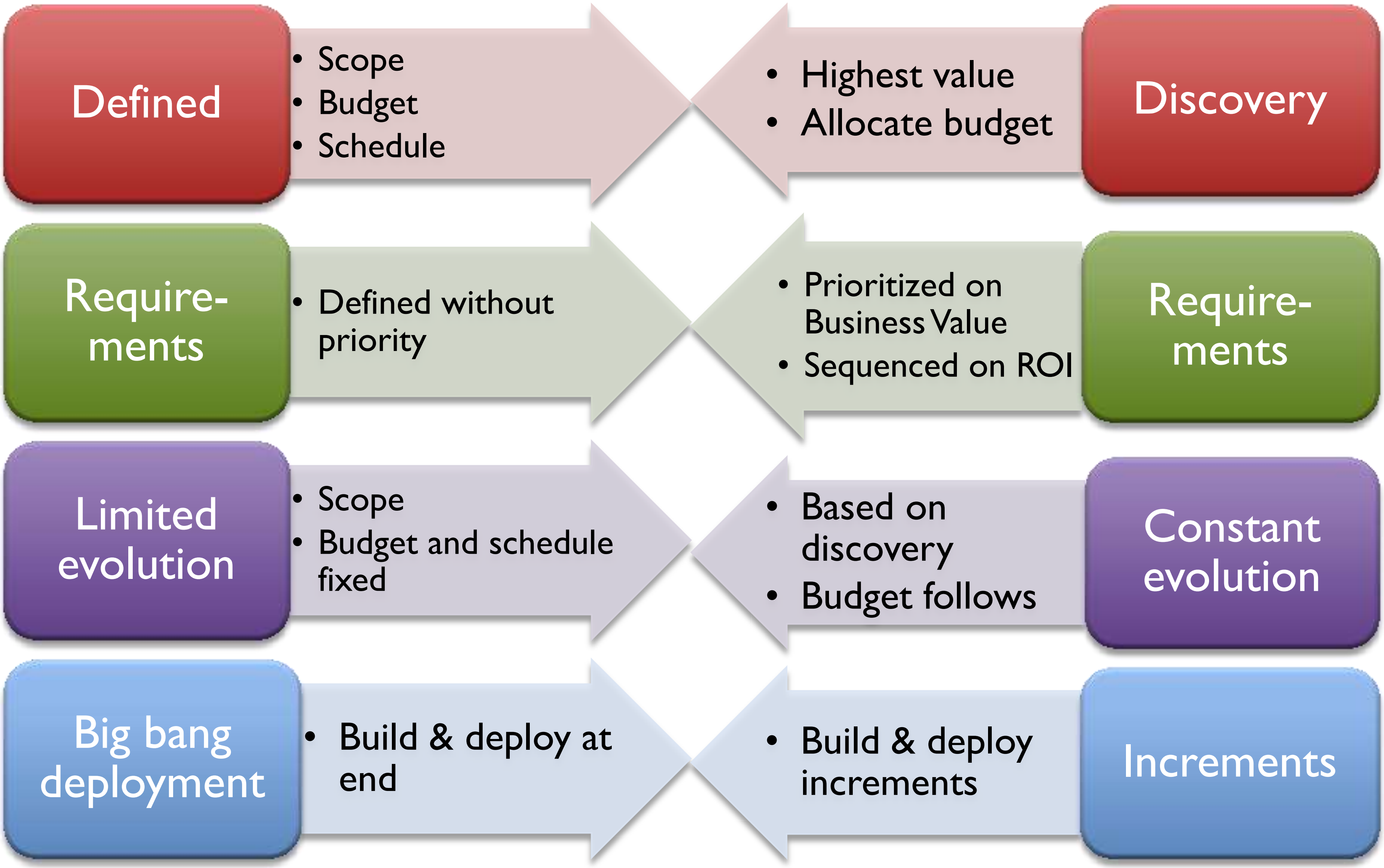
Harvard Business Review
“The New Productivity Challenge”
November/December 1991

“You cannot build the right thing if you have not discovered it first!”

This is the role of the product owner in agile development!

Project-based

Business Value-based



Defined

- Scope
- Budget
- Schedule

- Highest value
- Allocate budget

Discovery

Requirements

- Defined without priority

- Prioritized on Business Value
- Sequenced on ROI

Requirements

Limited evolution

- Scope
- Budget and schedule fixed

- Based on discovery
- Budget follows

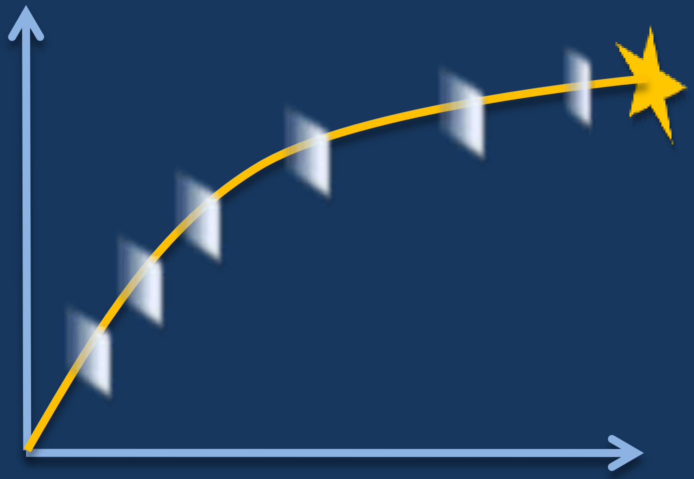
Constant evolution

Big bang deployment

- Build & deploy at end

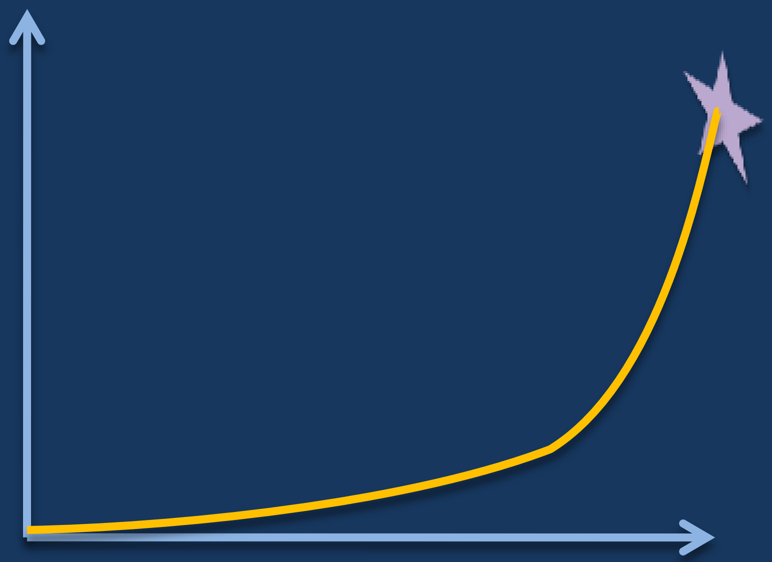
- Build & deploy increments

Increments

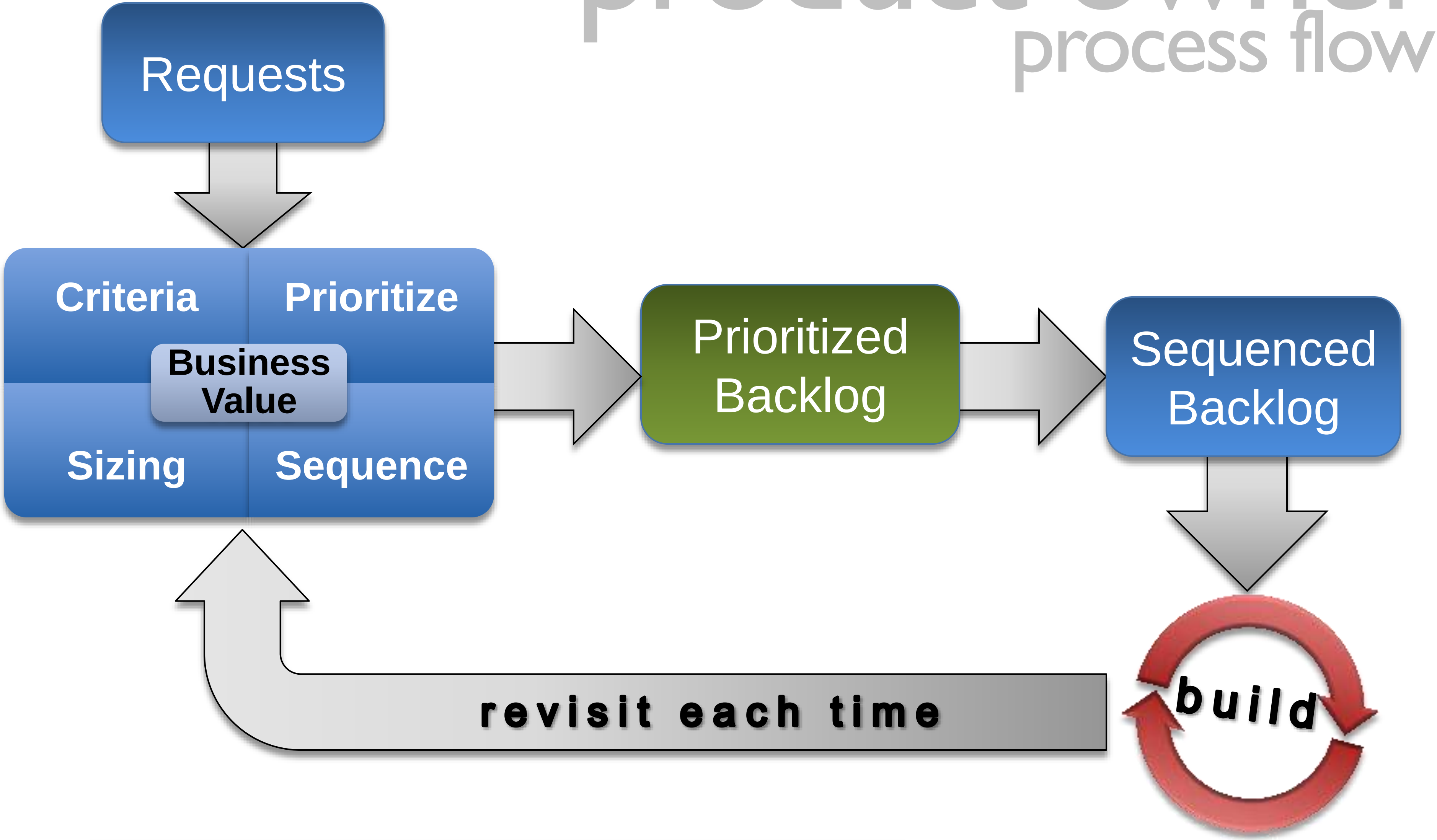


Incrementally Realizing Business Value

Evolving the System



product owner
process flow



Requests

Criteria

Prioritize

Business Value

Sizing

Sequence

Prioritized Backlog

Sequenced Backlog

build

revisit each time

Product Owner Must Drive the Process

Role of Business Product Owner

- Creates and maintains the Product Backlog
- Prioritizes and sequences the Backlog according to business value or ROI
- Assists with the breakdown of Features into user stories that are granular enough to build quickly
- Conveys the Vision and Goals at the beginning of every Release and Sprint

Role of Business Product Owner

- Represents the customer, interfaces and engages the customer
- Participates in the daily meetings of the team
- Responsible for buyoff of the incremental product progress
- Has responsibility to define when work is done and complete authority to accept or reject it

Role of Business Product Owner

- Ability to manage dependencies and risks
- Ability to prioritize and sequence business needs
- Deep understanding of what the customer needs
- Good intuition of the development team's capabilities
- Unafraid to set direction for the product without telling the team how to develop it

Product Owner – the Agile Reality

- Can no longer be hands off
- Can not simply write requirements and then take delivery
- Must continuously drive for incremental realization of valuable product
- Must remove impediments

Responsibilities of a Product Owner / Customer

- Determine what Stakeholders Want
- Decide what They Actually Get
- Drive the Team at a Sustainable Pace
- Write Stories Representing This
- Explain The Stories to the Team
- Approve the Functional Tests
- Validate That We Got What We Wanted
- Release the Product

The Product Owner

Must pay attention to all the ‘stories’ within a feature

- User Story (Business Functionality – value)
- Analysis (discover what to build / How to build it)
- Development Story (system capability)
- Enabling (ex. Training, tools, process)
- Change Mgmt (how the value will be launched & used)

And also at Release and Product Levels (and Portfolio)

…AND…

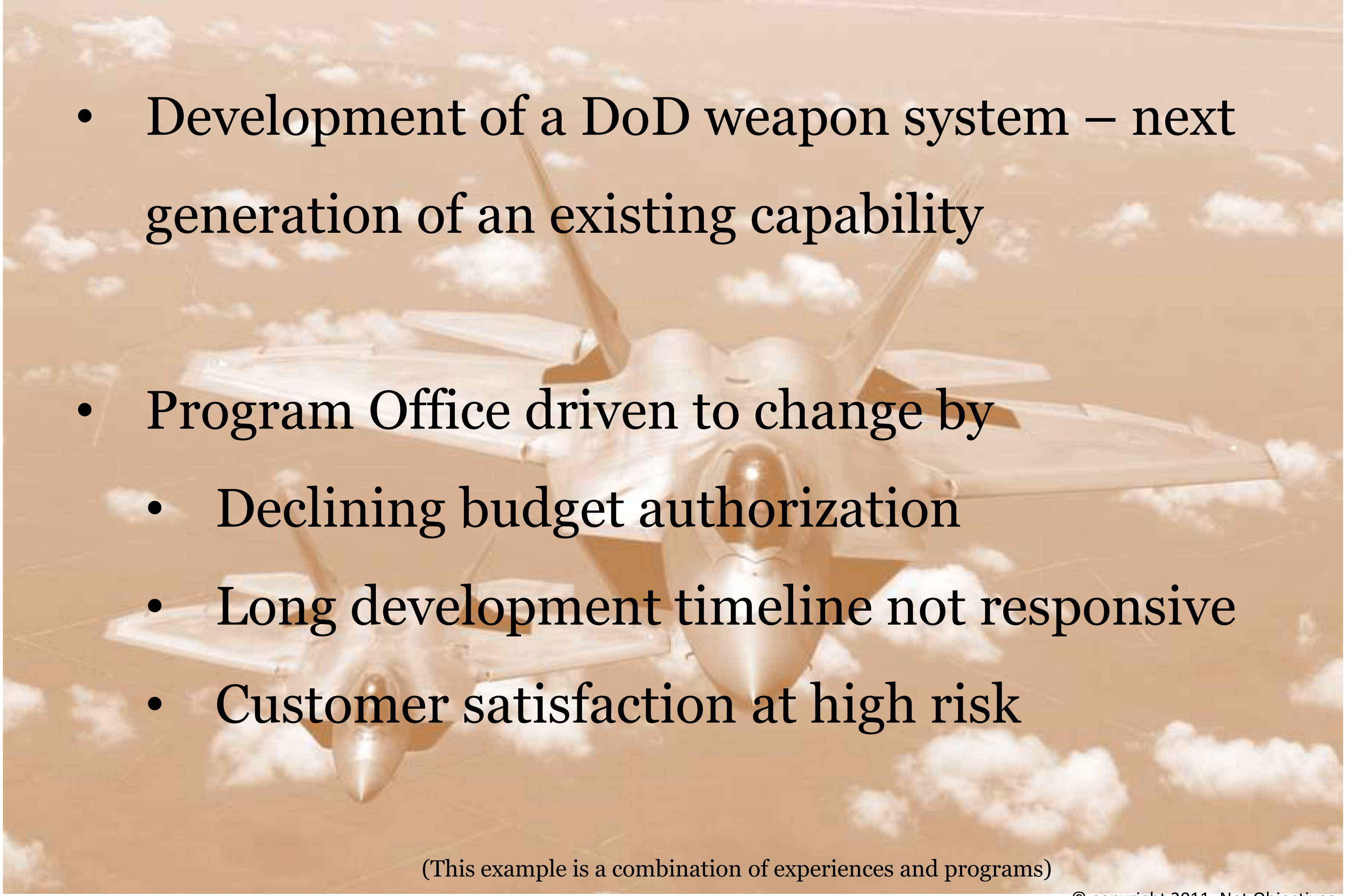
Only User Stories have “Business Value”! (sorry devs)

Transition Thinking: Big batch to smaller continuous incremental batches:

PO: highest business value, right size *at the right time* (just in time)

Requires continuous planning

Case Study – DoD Acquisition

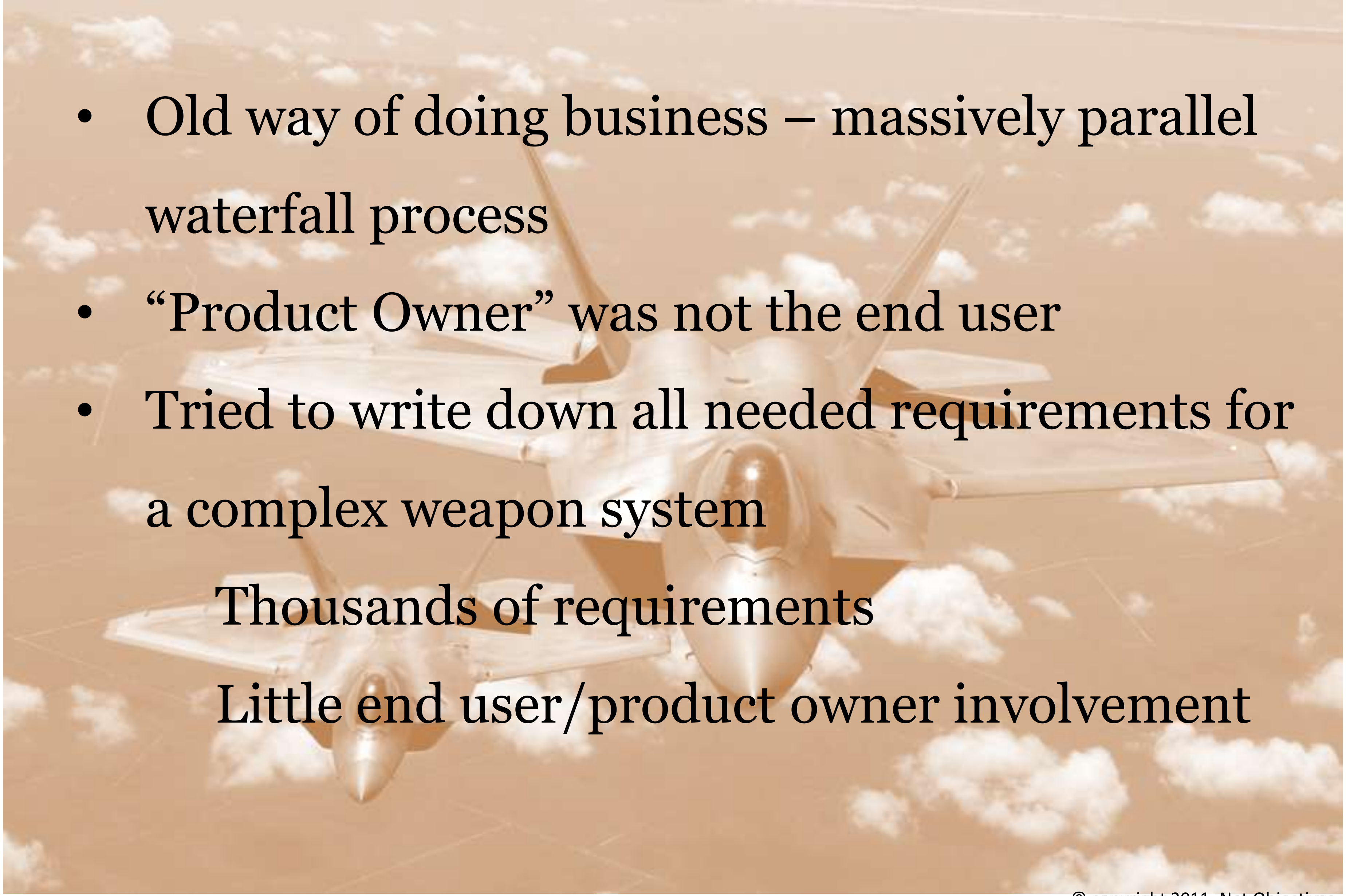


- Development of a DoD weapon system – next generation of an existing capability

- Program Office driven to change by
  - Declining budget authorization
  - Long development timeline not responsive
  - Customer satisfaction at high risk

(This example is a combination of experiences and programs)

How did the Product Owner Act?



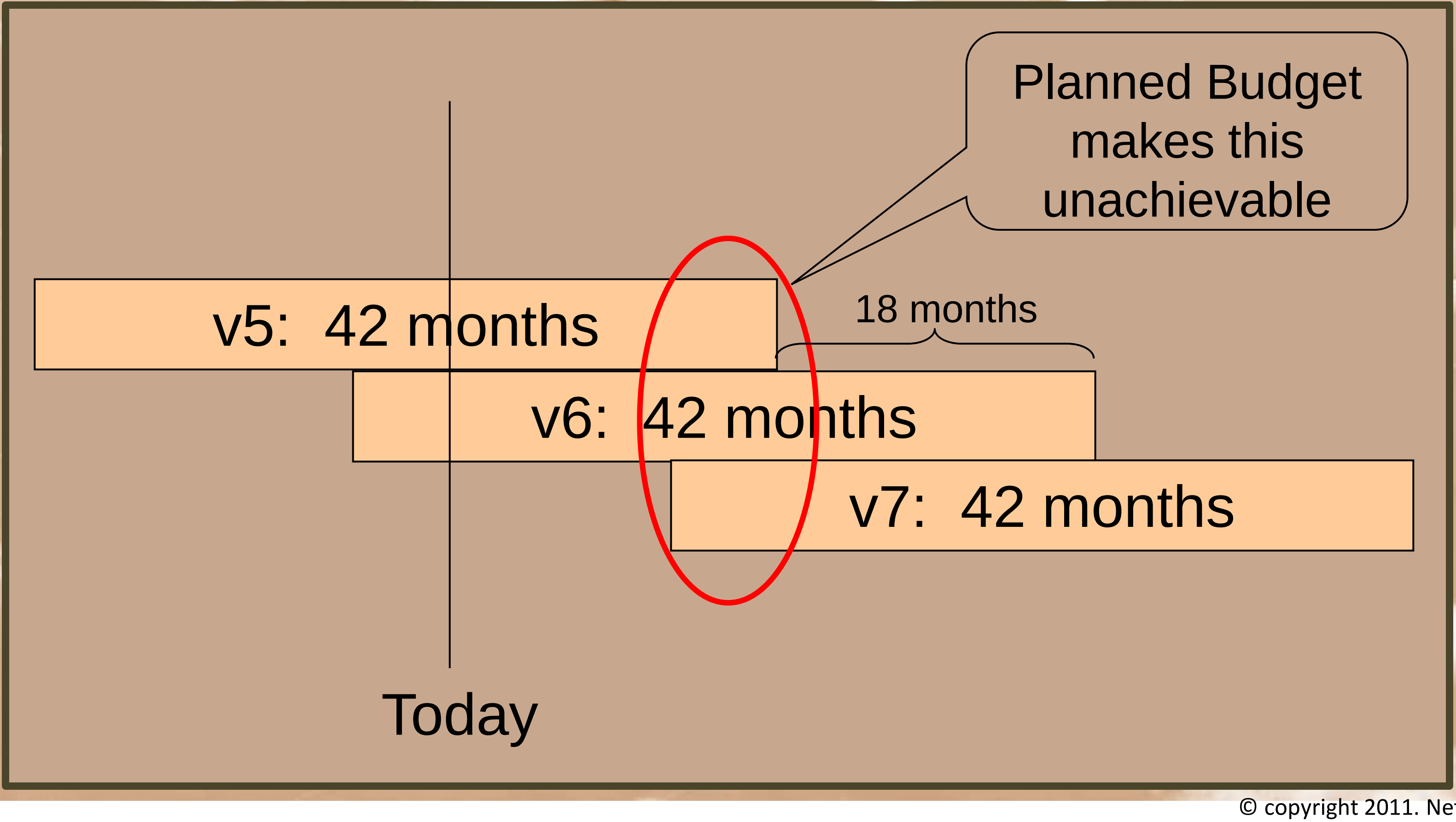
- Old way of doing business – massively parallel waterfall process
- “Product Owner” was not the end user
- Tried to write down all needed requirements for a complex weapon system

Thousands of requirements

Little end user/product owner involvement

How did the Product Owner Act?

- Old way of doing business – massively parallel waterfall process



Case Study – the Old Way

- Long Cycle time forced parallelism to meet deliveries
- Only 14% of the process steps were value added
- Time from idea (value from product owner) to start of coding 1 year
- Time from code start to first demo to product owner 1 year

Write CR in CLEARQUEST	CRB (M,W,F) 2 Hrs	CRB Assigns to SE as future candidate	Queue Waiting for SE Monthly Mtg -	SE assigns to candidate bucket	Scoping requirements for software	SW/SE meeting Can we deliver on schedule	SW Coordination Meeting	SW provides hours estimate
SW update in CLEARQUEST to set scoping	Rap Sheet in XL, CR Coordination	Fleet Review	Triage #2 (E+5 weeks) Chair SSA, explore	Hours within CAIV? Rap Sheet,	SE creates PowerPoint	Triage #3 Dry Run TS EWG	TS EWG Monthly Wed	Triage #4 Pre CCB
Update SE Decision, Create new Excel SS	Excel SS to CRB M/W/F	Update CLEARQUEST	SW WG Lead Need SSS? Yes => Procede	SE Update Workflows	CRB Review	SE & SW TEM	Write new "clone" CR, draft DOORs number	Inspect workflow
SRWG 282 Chairs Writing of SSS	Dry run	SRWG 282 Chairs Approval of XL	Capt review workflow	TSEWG 282 copy info brief XL SS to	Pre-CCB Formal approval, IPT sign-off	Implement changes in DOORS	SRR Kickoff, 282, Tech Assessment	Internal dry run, External dry run
SRR 100+ people, 1 per VX	Actions and closeout	Create Level 1 diagrams and requirements	Stakeholders TEM Level 1, Inspect Level 1	ERB Level 1, if yes=>post	TRMR, write and ERB	Update Gold Baseline, IDD, traceability,	SDR Kickoff	Create Level 2 SW requirements,
Internal dry run, External dry run	Inspect	SDR	Start ITEP	Actions and closeout	Document SDD	Start some code	TEM ERB	Inspect
IDR Kickoff dry run meeting closeout,	Send CR to CRB for clone (Admin in CQ)	Hardware ECP	RBS Model	All CR's onto Build Definition with refined	Procure test hardware	SCCB, (1/wk) Approval build definition for	HW start, SW test planning, physical &	Receive COE interface
Exchange CSCI interface	Write code	Debug/informal test	Formal inspection	Unit test	Module unit test procedures	Integration and capability test	ERB test plan RVTM	FQT PCO
Update test procedures	FQT TRR	Inspect FQT procedures	CSCI FQT Support Layer	Dry run IRR	Support Layer IRR	Create test plan	HWCI DVT Start	Support layer integration, SW and IAA
ERB Test Plan	SCCB	Create integration plan	Application layer IRR - 30-40 people, chaired	ITEP Approval	Integrate and install	Product install instructions	Hardware install procedure	IA Test on 4 platforms
Find and fix loop	TRR Dry Runs x3	CM build and install	System Test Plan Approval	Inspect Test Procedures	Security Test Plan	TRR 40+ people, chaired by 2822	Hardware evaluation	ILS Crew training
Execute test	Certifications, -NSTI, -???, -???	ILS MRT Cert	Find & fix loop	First HW retrofit platform	Generate test report	Fix Build #1	Plan TRR etc., go back	TRR dry run, TRR 50+ people
ILS TMT qualification	Operational Test Dry Run (ship)	Fix Build #2	Test report	Approve DT/OT Test Plan	Prep for OTRR			

Case Study – the Old Way

- The delivered system was not acceptable to the end user

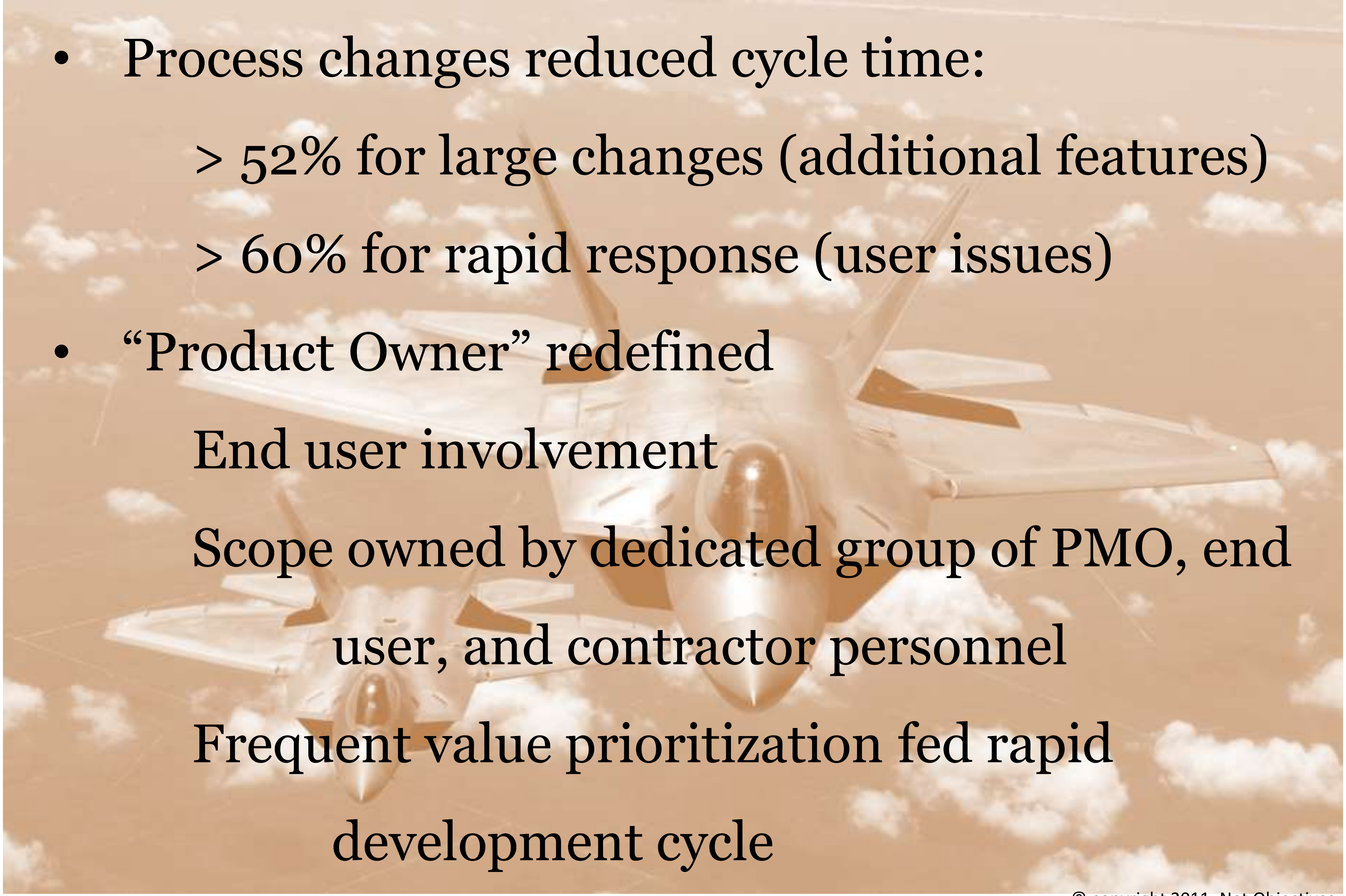
- New requirements – evolved after contract award – could not be met at all

- Real product owner involvement was lacking in the process – and it showed in the result!

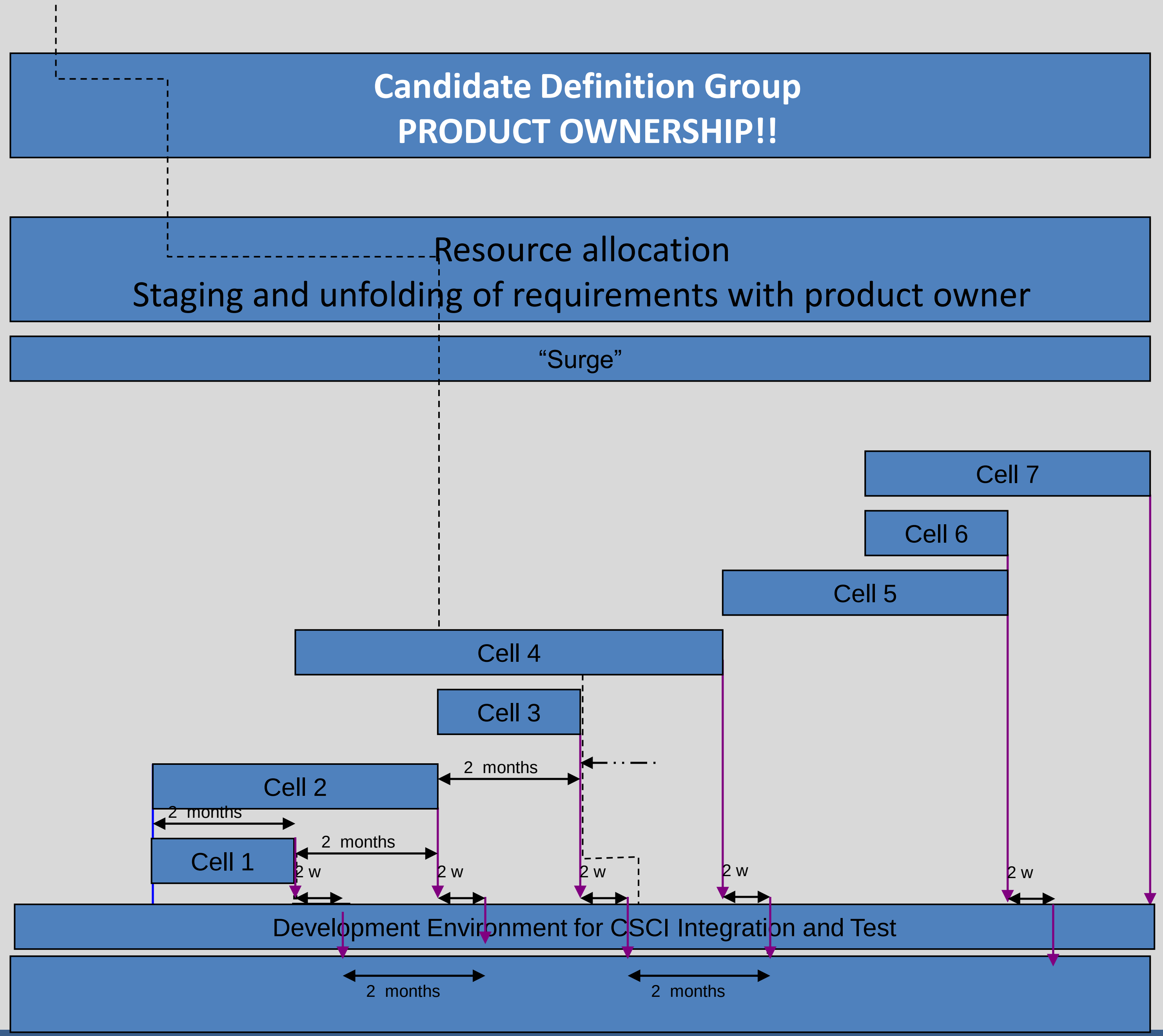
Agile Development

The process was changed by applying lean/agile to the system development – required a new definition and role for the product owner!

Case Study - Results



- Process changes reduced cycle time:
  - > 52% for large changes (additional features)
  - > 60% for rapid response (user issues)
- “Product Owner” redefined
  - End user involvement
  - Scope owned by dedicated group of PMO, end user, and contractor personnel
  - Frequent value prioritization fed rapid development cycle



Candidate Definition Group
PRODUCT OWNERSHIP!!

Resource allocation
Staging and unfolding of requirements with product owner

“Surge”

Cell 7

Cell 6

Cell 5

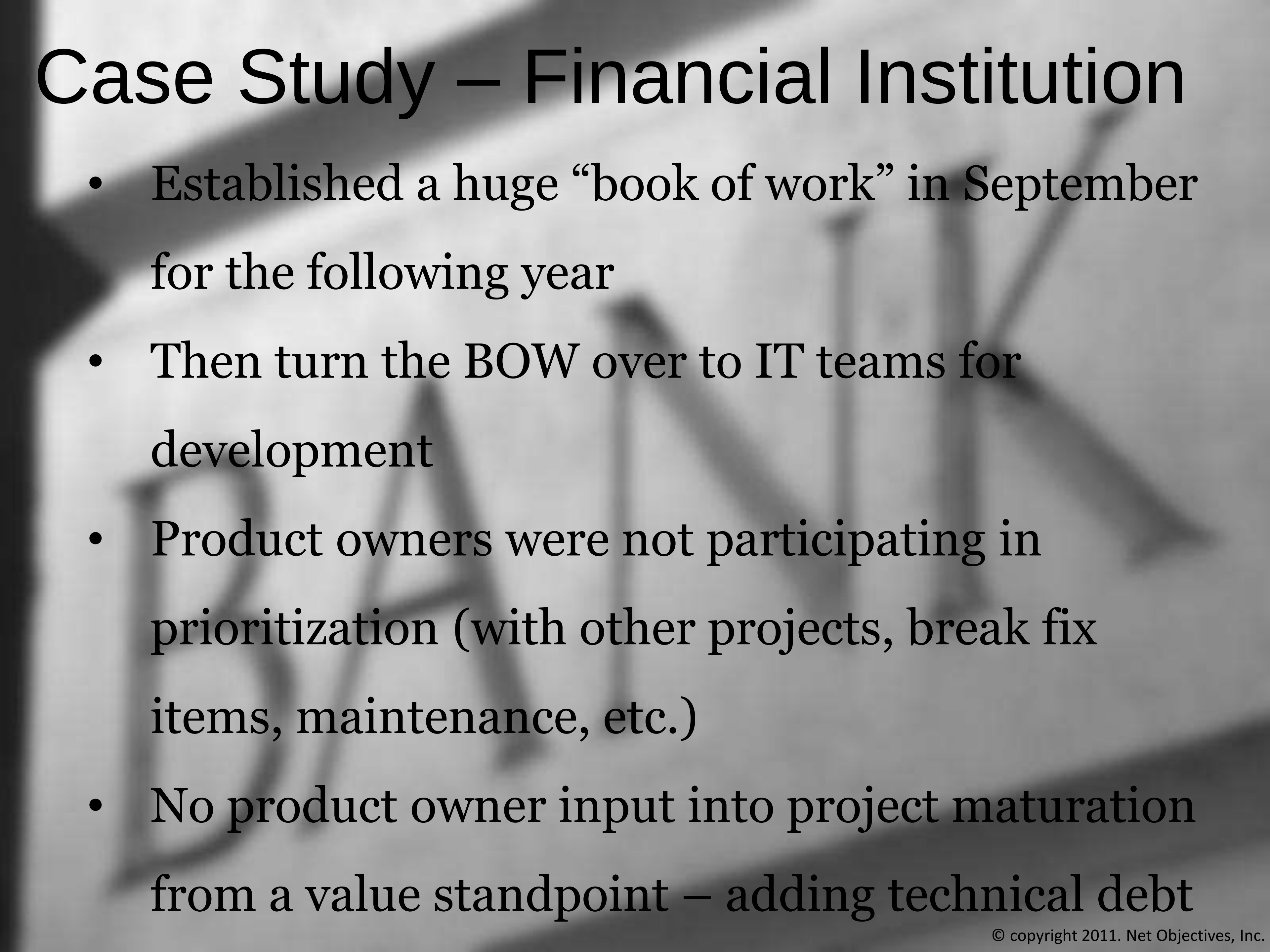
Cell 4

Cell 3

Cell 2

Cell 1

Development Environment for CSCI Integration and Test



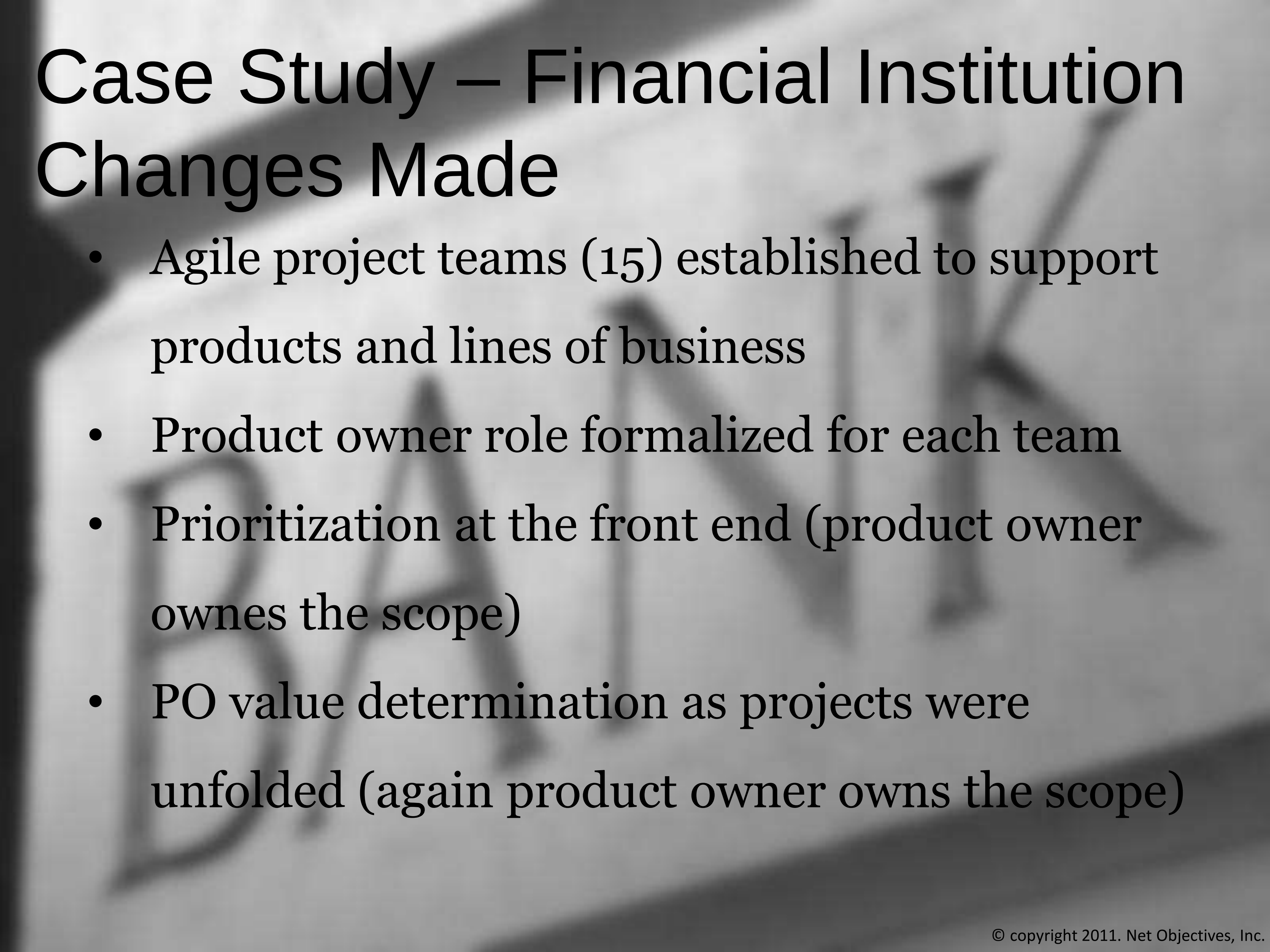
Case Study – Financial Institution

- Established a huge “book of work” in September for the following year
- Then turn the BOW over to IT teams for development
- Product owners were not participating in prioritization (with other projects, break fix items, maintenance, etc.)
- No product owner input into project maturation from a value standpoint – adding technical debt

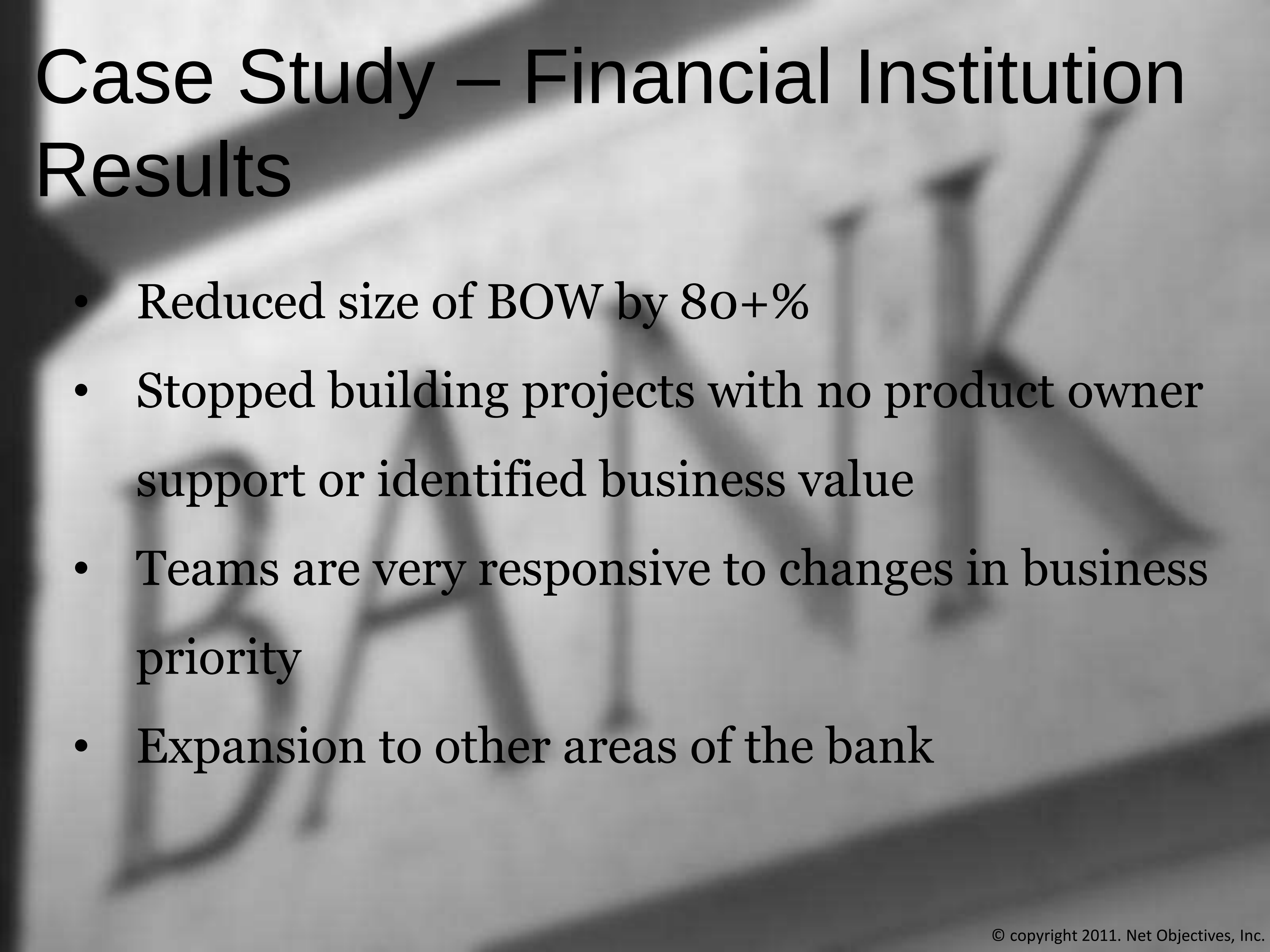
“You cannot build the right thing
if you have not discovered it first!”

This is the role of the product owner in agile development!

Case Study – Financial Institution Changes Made



- Agile project teams (15) established to support products and lines of business
- Product owner role formalized for each team
- Prioritization at the front end (product owner ownes the scope)
- PO value determination as projects were unfolded (again product owner owns the scope)



Case Study – Financial Institution Results

- Reduced size of BOW by 80+%
- Stopped building projects with no product owner support or identified business value
- Teams are very responsive to changes in business priority
- Expansion to other areas of the bank

Questions

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