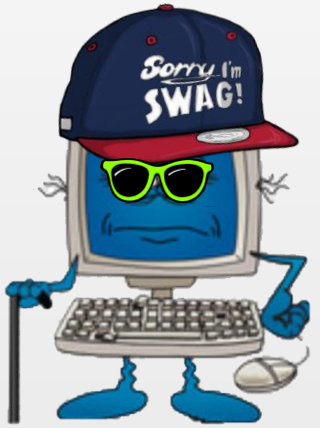
WASHINGTON STATE UNIVERSITY

Legacy Systems Management and Security

Julia Stachofsky

PhD Candidate — Information Systems



Carson College of Business

WASHINGTON STATE UNIVERSITY

Workshop Date:
Monday May 22, 2023
10:45 – 11:45 AM

VICEROY

CySER

How are we defining legacy systems?

Formerly adequate now obsolete technology still in use

Julia why are you making us learn about old computers?

I thought this workshop was about cutting-edge research. I hate you. I think you are cringe. I want to go to lunch!!!

Many of the systems you will support in an organization are legacy systems or will at some point become legacy systems!

- Systems don't go away just because they are old!
  - Systems are not bad just because they are old either
- Legacy systems are critical for day-to-day business operations
  - Our job is to secure and maintain them!
- **You** will make the next generation of legacy systems despite your best efforts

Management/Organizational Issues

- Cost (Maintenance is expensive!)
- Market Competition
- Documentation
- Staffing
- Vendor Support
- Compliance/Regulation
- User Satisfaction
- Business Process Change

Technical Issues

- Integration Interfaces
- Security
  - Authentication, Encryption, Patches
- Fragility
- Data Integrity
- Testing/Tooling
- Scalability
- Complexity
- Failing Hardware

Group Activity 1: Identifying Issues

Me if Julia would pipe down so I could go to lunch

Case:

You are a software developer for ABC Inc. tasked with maintaining one of their legacy accounting systems. Your software vendor stopped providing security patches after going bankrupt in 2015. This system however remains critical to company operations, it would collapse if the system failed. The system is hosted on a physical Windows Server 2003 install. Users find the system clunky and hard to use. The system does not have an API, making it hard to integrate with other systems, although it is built with a SQL database backend. The system architecture is fragile, making code changes very costly to the organization.

Most of the business logic was written in a proprietary language by Gerald (retired) in 1992. Gerald believes that “good code is self-documenting” but was unfortunately not good at writing code. In his free time Gerald watches the first 30 minutes of Cars 2 without sound. His wife left him in 2006 for an underemployed magician who insists he knows how to play backgammon but when challenged refuses to play. This isn't relevant to the case, but I hope it makes Gerald seem more relatable.

Your Task:

- Identify the Organizational **and** Technical issues this system poses for ABC Inc.

Stop listing bad things please what can we do about this?

- Short Term
  - Updates/Patches (if vendor support available)
  - Middleware systems
  - Network Segmentation
  - Virtual Machines
  - Intrusion Detection and Firewalls
  - Training
  - New Front-end Interface
  - Wrappers

Stop listing bad things please what can we do about this?

- Long Term
  - System Replacement
  - System Modernization

This is not an easy process!!!
Requires years of planning and iterative development

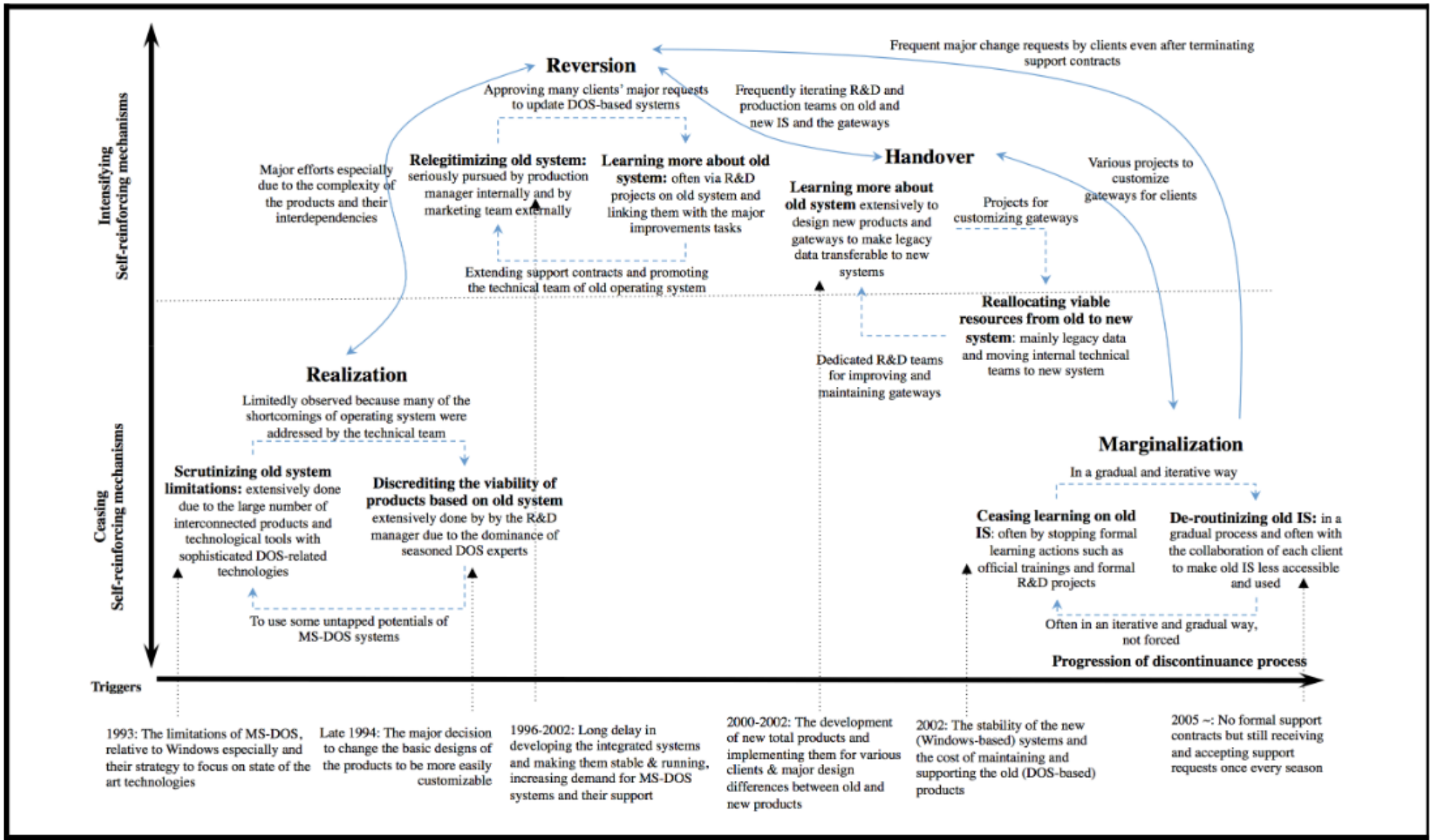


Figure 4. Discontinuing an Integrated Legacy IS with Extensive Commitments (LargLenient)

Group Activity 2: Risk Mitigation Plan

Me at lunch soon when Julia stops making me do group discussion activities

Case:

You are a software developer for ABC Inc. tasked with maintaining one of their legacy accounting systems. Your software vendor stopped providing security patches after going bankrupt in 2015. This system however remains critical to company operations, it would collapse if the system failed. The system is hosted on a physical Windows Server 2003 install. Users find the system clunky and hard to use. The system does not have an API, making it hard to integrate with other systems, although it is built with a SQL database backend. The system architecture is fragile, making code changes very costly to the organization.

Most of the business logic was written in a proprietary language by Gerald (retired) in 1992. Gerald believes that “good code is self-documenting” but was unfortunately not good at writing code. In his free time Gerald watches the first 30 minutes of Cars 2 without sound. His wife left him in 2006 for an underemployed magician who insists he knows how to play backgammon but when challenged refuses to play. This isn't relevant to the case, but I hope it makes Gerald seem more relatable.

Your Task:

- What is your short-term plan for addressing the issues identified in the case?
- What is your long-term plan?
- For your plans, justify to management why they are necessary.

Closing Thoughts

Key Takeaways:

- Legacy systems are in use so you **MUST** have immediate plans for supporting their operation and securing business assets
  - Legacy systems run our organizations, most of us work for organizations
- No risk mitigation method is perfect
  - You must consider cost and labor tradeoffs
- Have respect for the systems that came before you
  - A legacy system only persists long enough to become legacy because it was successful!
  - You will create your own legacy systems people complain about in due time ☺

Thank You! ☺