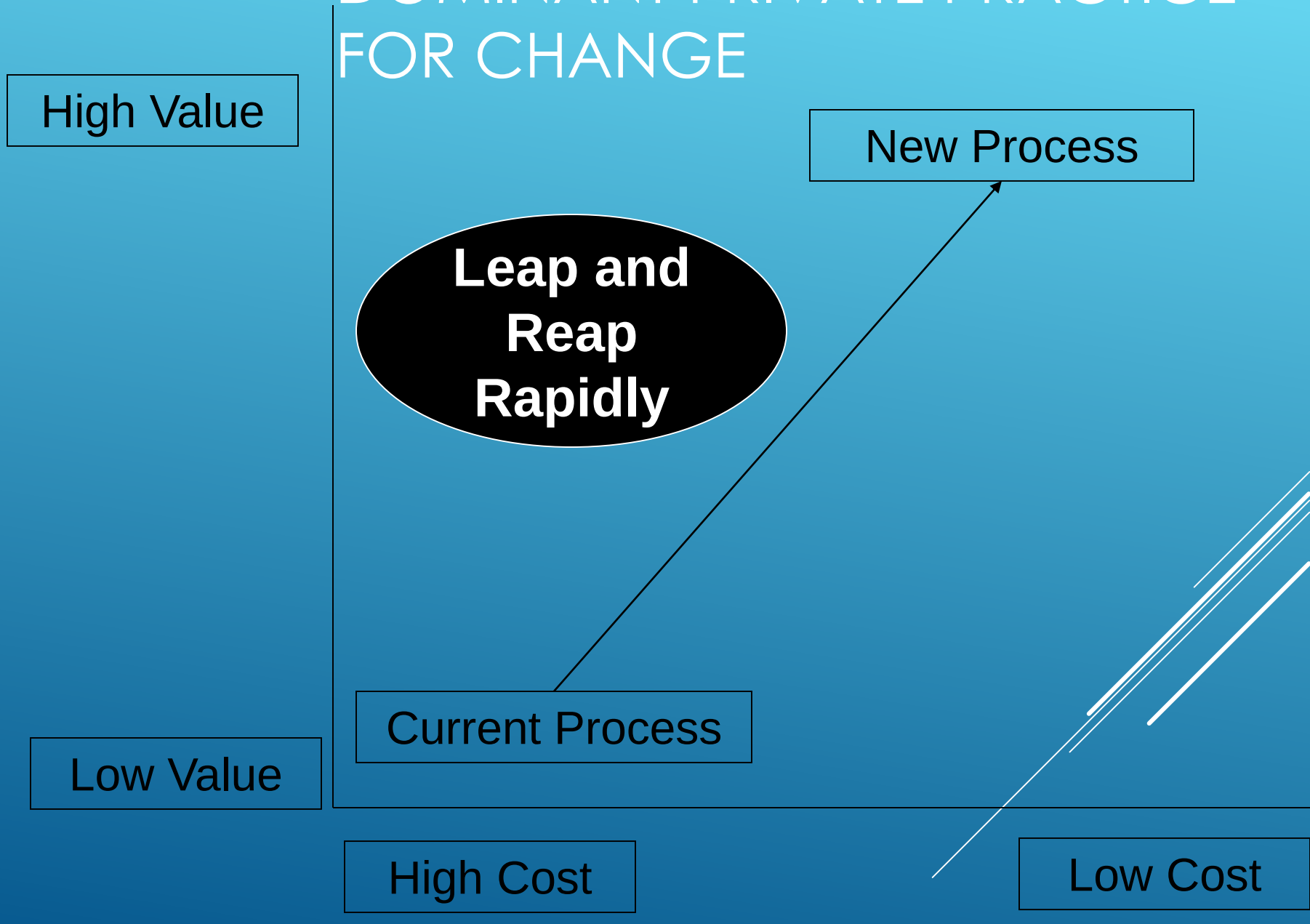
COURSE TITLE: INNOVATION IN FINTECH

LECTURE: INNOVATION IN FINTECH

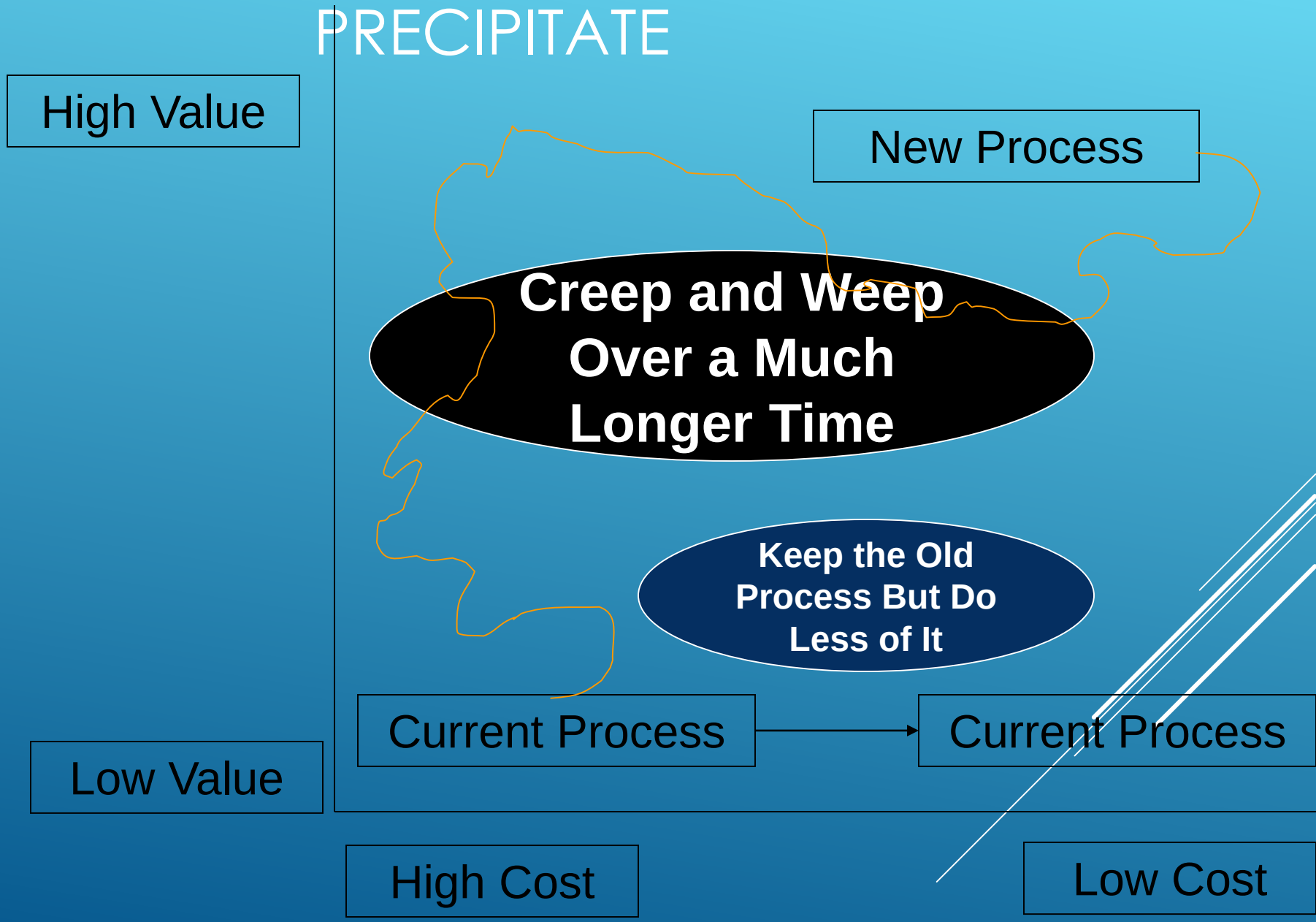
Lecturer Radjabov Jamsher

As with all students, the opportunity for students with learning disabilities to compete for college admissions, succeed in college and in the global market place depends upon the quality of their educational preparation and the systems they rely upon. Enhancing the effectiveness depends upon technology and innovation. Richard Varn will describe the challenges of relevance and innovation in technology that must be confronted in order for students with learning disabilities to achieve their goals in preparing for college. Varn will discuss how technology will reshape the schools and education systems that students with learning disabilities rely upon for preparation and the colleges and university environments that they will be entering. He will discuss issues that policymakers, educators and others must confront to close gaps in preparation and college access for students with learning disabilities.

DOMINANT PRIVATE PRACTICE FOR CHANGE



GOVERNMENT FAILURE TO PRECIPITATE



EDUCATION AND GOVERNMENT: RESISTANT TO **CHANGE**

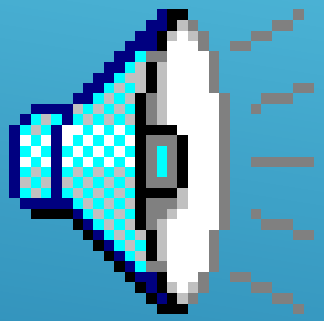
- Pushing change in education and government is like trying to run through a wall of spandex…
- …coated with Teflon so nothing sticks…
- And imbued with the universal element "Bureaucratium," an amazing substance that seems indestructible and repels everything…

EXAMPLES OF THE KIND OF QUESTIONS THAT I INTEND TO ASK AS A WAY OF INFECTING YOU WITH VIRAL IDEAS

No Birds Are Involved

In Transmission…

DO YOU REMEMBER?



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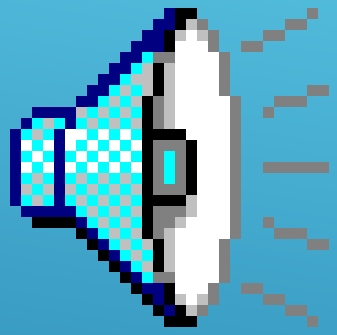

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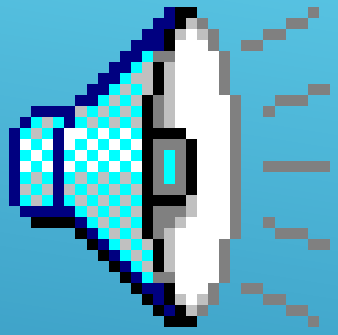


Cop

TECHNOLOGICAL ETHICS

- Would it be unethical to make learning addictive?
- Hint: TV, music, game, drug, pornography, gambling and

  other industries do not understand the question
- Time=Value=Mind Share=Learning:

  where the time goes, the mind goes

TECHNOLOGICAL ETHICS

- Which does not fit:

  Licentiousness, Extremes, Titillation, Comfort or Learning?

- We try to do analog replication and combination of these "easier" things to help learning - like with games that teach or a dramatization of an idea such as with Les Miserables.

TECHNOLOGICAL ETHICS

- What about when we can digitally and elementally duplicate the pleasurable to achieve the difficult?
- As we identify the electrochemical processes and stimulants that are involved with pleasure, spirituality, comfort, fun, etc., will the vice and commercial industries be the only ones willing and able to use them?
- If we can make learning to solve quadratic equations feel like eating junk food, gaming, and skateboarding all at once, what is wrong with that?

CREATIVE DECONSTRUCTION DESTRUCTION

- Modern science and technology
- Humanity's Great Quest: Being able to observe, identify, model, manipulate, create, form and combine the parts of anything
- Cosmos, atoms, genes, cells, brains, bodies, ecosystems, knowledge, work, processes, markets and institutions

KEY EFFECTS OF IT AGE

- Digitalization
- Automation
- Robotization
- Miniaturization
- Specialization
- Customization
- Globalization
- Mutation

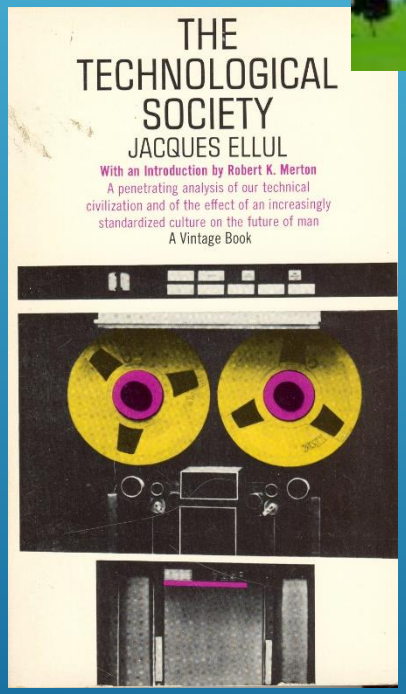
- Commoditization
- Disintermediation
- Modularization
- Technological Determinism
- Acronymization or TCCTA
  - Tendency to Create Colorful Technical Acronyms.
  - If you have a problem with that, join SPAM or Society to Prevent Acronym Memorization.

CENTERS ARE **SHIFTING**

- Center of Proximity and Concentration
- Center of Culture/Entertainment
- Center of Production
- Center of Application
- Center of Global Scale
- Center of Excellence
- Center of Integration
- Center of Creativity
- Center of Discovery
- Center of Brokering
- Center of Service (Concierge At Large)

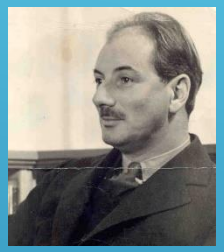
The Postman **Proviso**

Technology is ultimately a friend but mostly it is a "dangerous enemy" that "intrudes" into a culture "changing everything“ and even "eliminates alternatives to itself."



Automation
increases probability
but decreases possibility.

- Lewis Mumford



Technology or Technique is Not Neutral…

We conform to it, it does not conform to us.

But perhaps it can be Subversively Helpful.

Technological determinism means that if you change a part of an interconnected system, the rest of the system WILL eventually and inevitably change to reflect the speed, power or capabilities of the part that was changed. -Richard J. H. Varn

- The long term sneaky way to change the world without ever asking permission or having to try to convince those who will be forced to change and already hate the idea, whatever it is and no matter what it is, before you even thought of it.
- Change key, interconnected tools, and the rest of the system will change.

DETERMINISM: A SHORT CUT

TECHNOLOGICAL DETERMINISM

- Technological systems are interconnected webs.
- The history of such systems shows a consistent repeating pattern.
- Changes in the speed, power or complexity of one part causes comparable changes in all other parts to which it is connected.

ONE WORD: DATABASE

- Tools are viral containers of ideas.
- How we think differently from their use is often even more important than what they actually do.
  - Do you remember the first time you clicked instead of typed?
  - Do you remember pocket protector wearers saying GUI was a waste of time and resources, and was the SAME AS TYPING COMMANDS?
  - The viral idea was the connection between interface, function and data, and they could not see it.
- The dominant tool, metaphor, idea of our time is the database.

CONVERGENCE

- The coming together or merging of:
  - Jurisdictions
  - Industries
  - Companies
  - Tools and technologies
  - Products and devices
  - Professions and skills
  - Jobs
- The viral spread of IT across and within industries and elements of life

ANALOG: **STANDARDIZATION**

- Nut, screws and bolts
- Rails
- Electricity
- Auto tires
- Paper
- Plumbing and lumber
- Drove the greatest expansion of human productive capacity in history and **a lot of extinctions**

DIGITAL: **STANDARDIZATION**

- Data (XML in every industry)
- Networks (IP everything)
- Software (Web Services and SOA)
- Storage (the one file holy grail)
- Human Computer Interface (see me, feel me)
- Processing (Gird for the Virtual Grid)
- And the effect will be at least as large…
- Technological bow waves…

AS A SERVICE

Public Developers
Domestic, Global and Open Source

Private Developers
Domestic, Global and Open Source

Concierge Layer

Web Services

Customer Agents

Government Integrated Into Other Software and Services

Personalized and Automated Human, Software and Hardware Services

Bit → Niche → Function → Industry → Cross-Industry → Stop Government

Subject Matter Expert Layer

Subject and Industry Specific Human, Software and Hardware Services

Public Entities		Non-Profit Entities and Associations			For-Profit Entities		
Public Only	Both	Public Only	Both	Private Only	Public Only	Both	Private Only

Domestic and Global Economy of Scale Layer

Common, Interchangeable, Customizable Software and Hardware Services

STEPS TO **GAAS UP**

- Consolidate (across boundaries and industries)
- Broker (think "*Plastics*…")
- Standardize (what and how)
- Automate (no human can…)
- Innovate (no machine used to…)

- Document rules (rules are made to be coded)
- Virtualize (it happens somewhere)
- Eliminate (processes and systems)
- Re-deploy resources (harvest)

STEPS TO **GAAS UP**

Functional Summary

"COUNT"

First Form

"COUNT"

First Form

"COUNT"

First Form

- Extract Data
- Apply Business Rules
- Validate
- Sign
- Submit
- Route

Authentication

Forms Engines to:

- Submit Data
- Apply Business Rules
- Sign
- Submit
- Route

Data Analysis, Sharing and Public Access

Direct Data Transfers

Data to Agencies to:

- **Accept**
- **Share**
- **Reuse**
- **Query**
- **Manage**
- **Safeguard Privacy**

WHAT IS GOOD E-COMMERCE SECURITY?

- To achieve highest degree of security
  - New technologies
  - Organizational policies and procedures
  - Industry standards and government laws
- Other factors
  - Time value of money
  - Cost of security vs. potential loss
  - Security often breaks at weakest link

THE E-COMMERCE SECURITY ENVIRONMENT

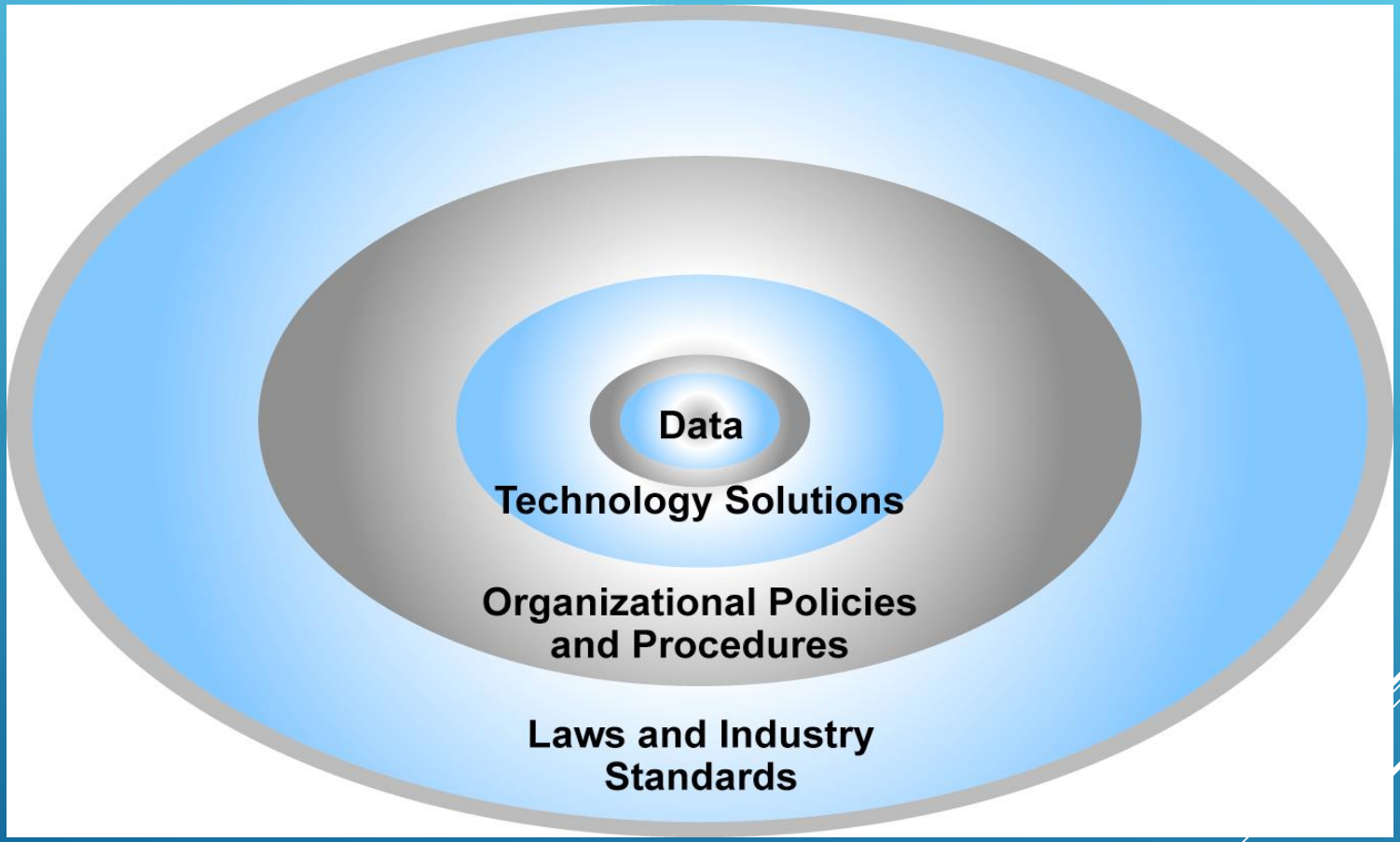


TABLE 5.2 **CUSTOMER AND MERCHANT PERSPECTIVES ON THE DIFFERENT DIMENSIONS OF E-COMMERCE SECURITY**

DIMENSIONS	CUSTOMER'S PERSPECTIVE	MERCHANT'S PERSPECTIVE
Integrity	Has information I transmit or receive been altered?	Has data on the site been altered without authorization? Is data being received from customers valid?
Nonrepudiation	Can a party to an action with me later deny taking the action?	Can a customer deny ordering products?
Authenticity	Who am I dealing with? How can I be assured that the person or entity is who they claim to be?	What is the real identity of the customer?
Confidentiality	Can someone other than the intended recipient read my messages?	Are messages or confidential data accessible to anyone other than those authorized to view them?
Privacy	Can I control the use of information about myself transmitted to an e-commerce merchant?	What use, if any, can be made of personal data collected as part of an e-commerce transaction? Is the personal information of customers being used in an unauthorized manner?
Availability	Can I get access to the site?	Is the site operational?

THE TENSION BETWEEN SECURITY AND OTHER VALUES

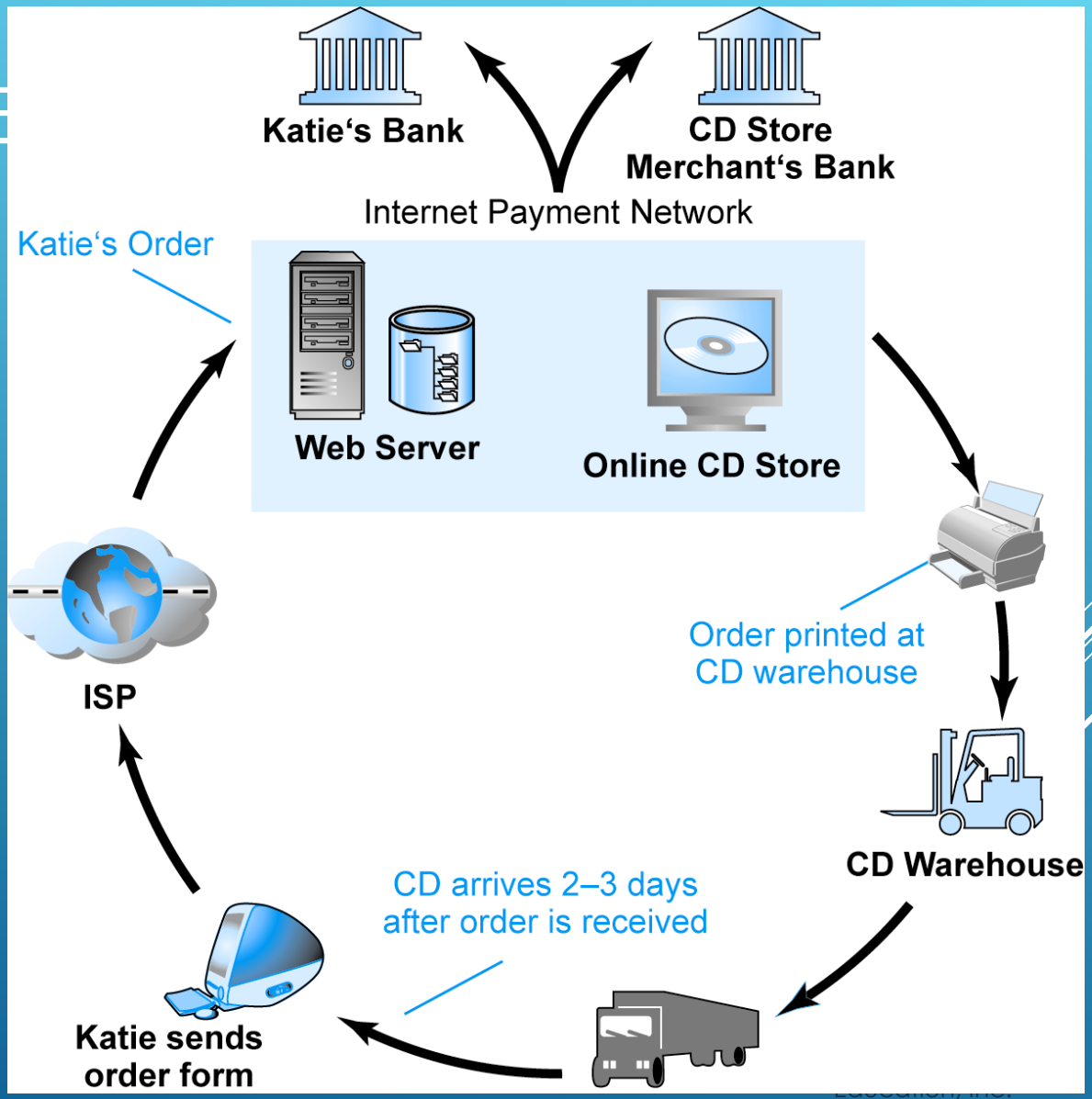
- Security vs. ease of use
  - The more security measures added, the more difficult a site is to use, and the slower it becomes
- Security vs. desire of individuals to act anonymously
  - Use of technology by criminals to plan crimes or threaten nation-state

SECURITY THREATS IN THE E-COMMERCE ENVIRONMENT

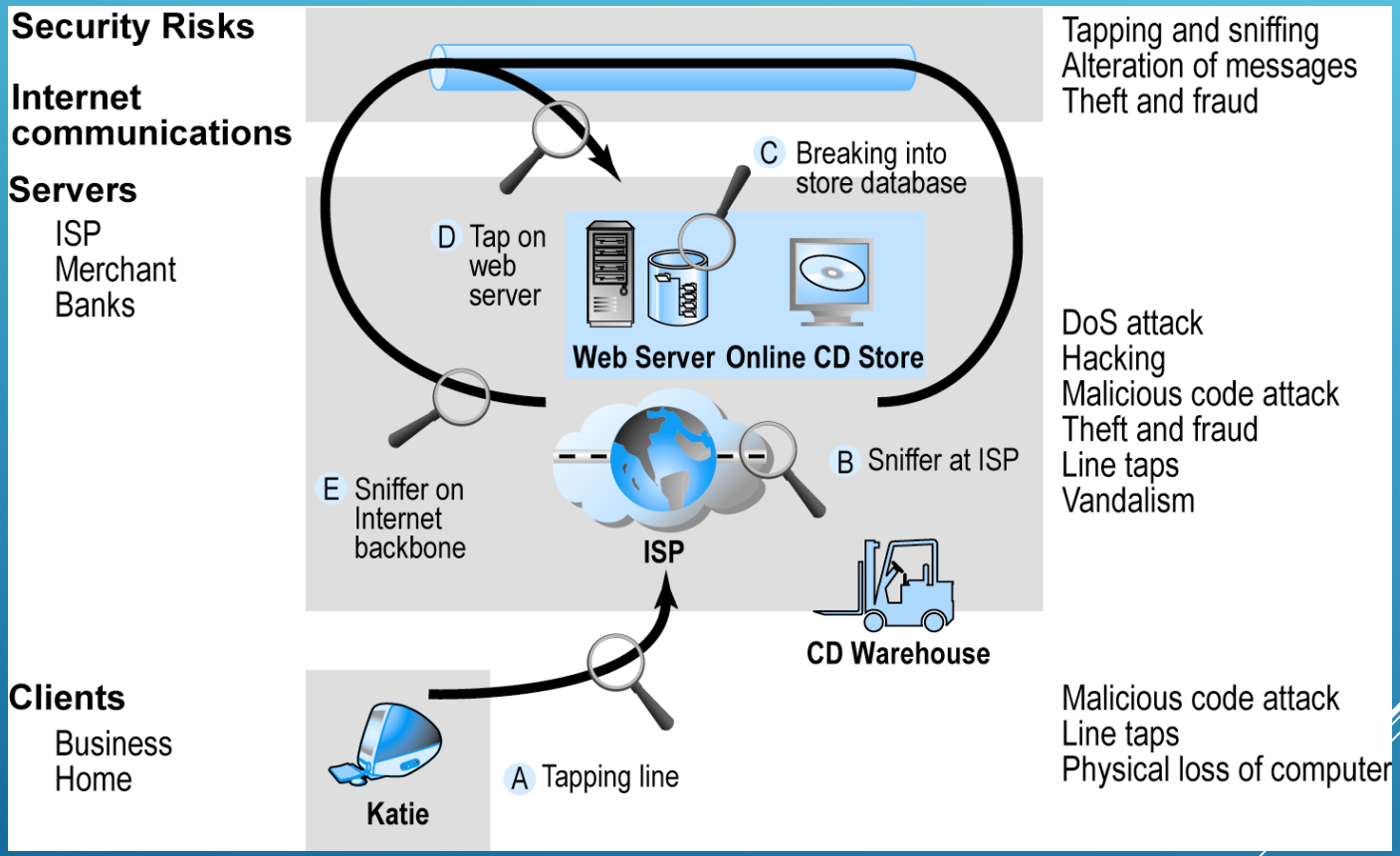
- Three key points of vulnerability:

1. Client
2. Server
3. Communications pipeline

A TYPICAL E-COMMERCE TRANSACTION



VULNERABLE POINTS IN AN E-COMMERCE ENVIRONMENT



MOST COMMON SECURITY THREATS IN THE E-COMMERCE ENVIRONMENT

- Malicious code
  - Viruses
  - Worms
  - Trojan horses
  - Bots, botnets
- Unwanted programs
  - Browser parasites
  - Adware
  - Spyware

MOST COMMON SECURITY THREATS

- Phishing
  - Deceptive online attempt to obtain confidential information
  - Social engineering, e-mail scams, spoofing legitimate Web sites
  - Use information to commit fraudulent acts (access checking accounts), steal identity
- Hacking and cybervandalism
  - Hackers vs. crackers
  - Cybervandalism: intentionally disrupting, defacing, destroying Web site
  - Types of hackers: white hats, black hats, grey hats

Reference

1. The Innovation Ultimatum: Six strategic technologies that will reshape every business in the 2020s By Steve Brown.
2. Bank 4.0: Banking Everywhere, Never at a Bank By Brett King.
3. The World of Digital Payments: Practical Course By Pavlo Sidelov.
4. The PayTech Book Edited by a team of Susanne Chishti.
5. The Future Is Faster Than You Think: How Converging Technologies Are Disrupting Business, Industries, and Our Lives By Dr. Peter H. Diamandis.
6. Advances in Financial Machine Learning By Marcos Lopez de Prado
7. Financial Services Revolution: How Blockchain is Transforming Money, Markets, and Banking By Alex Tapscott.
8. The STO Financial Revolution: How Security Tokens Change Businesses Forever By Alex Nascimento.
9. FinTech Founders: Inspiring Tales from the Entrepreneurs that are Changing Finance By Agustín Rubini
10. The Innovation Ultimatum: Six strategic technologies that will reshape every business in the 2020s By Steve Brown