TEMPLE UNIVERSITY

Digital Systems

1.1 Introduction to MIS

FOX MIS

Welcome!

Fall 2020

FOX
MIS

Attendance

Please login to Canvas and “Check-In”

Attendance is not a part of your grade for this class. The university has mandated that we take attendance for all classes, face-to-face, online and hybrid, to assist in contact tracing should an outbreak of Covid-19 occur.

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Introduction to Instructor

- **Marie-Christine Martin**
- **E-mail: mcmartin@temple.edu**
- **Office: Speakman 209J (zoom)**
- **Office Hours:**

  Tuesdays & Thursdays: 1-2 PM, and by appointment

Introduction to Instructor (cont.)

Education
- BS Industrial Engineering
- MBA, Finance

Pre-Temple
- IBM (Canada, USA & Singapore)
- HP Global
- Oracle, USA
- Self Employed Consultant

Adjunct Faculty
- Temple University, MIS

Full-Time Faculty Temple University
- Undergraduate - MIS
- Graduate - FOX Business School MBA & MiM
- Director of MIS Masters Programs


PHOTOGRAPHY
www.kdphotography.net

Course Support: Information Technology Assistants (ITAs)

- **Rose Listman**

rose.listman@temple.edu

Office Hours: by appointment,

send Rose an email to schedule

“Tell me and I forget. Teach me and I remember. Involve me and I learn.”

- Benjamin Franklin

Managing Expectations

- **This class is unique!**
- **We will work through challenges together…plan on it!**
- **You will find the class engaging and fun!**
- **You will acquire knowledge and skills that you will use in future classes and your career!!!**

Course Highlights

- **Systems Analysis**
- **Process Mapping (Modeling with swim lanes & entity relationship diagrams)**
- **Digital Product Management**
- **Information Systems CRM & ERP, Data Analytics & SCM**
- **Platforms & Digital Business models, including API's**
- **Cyber security and the Enterprise plus AI**
- **Programming including: JavaScript, HTML & CSS**

Course Objectives

- Explore the systems which organizations use to create their digital products
- Explore the platforms which these digital systems are built upon
- Explore the API ecosystems by which systems extend their reach and capability.
- Discuss cyber security including risks & responses surrounding digital products
- Introduction to the creation of software
- Learning the basics of programming in JavaScript

Graded Components

Component	Percentage
In-Class Activities & Worksheets (approximately 17) * ~~must be present in class to earn credit – no exceptions!~~	10%
Learn IT! and Max Lab Assignments ** no late assignments accepted – no exceptions!	30%
Exam #1 (50 minutes)	20%
Exam #2 (50 minutes)	20%
Exam #3 (60 minutes – held during finals week)	20%

*In-Class activities must be submitted while in class.

**Completed assignments will not be returned in class. Grades will be posted to the gradebook. Please note that two weeks after a grade is posted, the grade will be considered “final.”

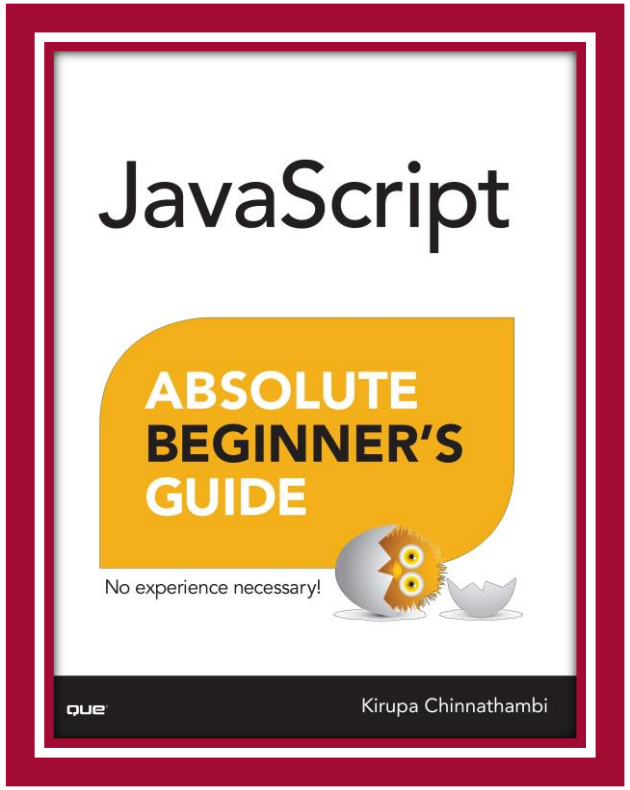
Readings & Videos – Part 1

- **No required texts the first half of the semester!**

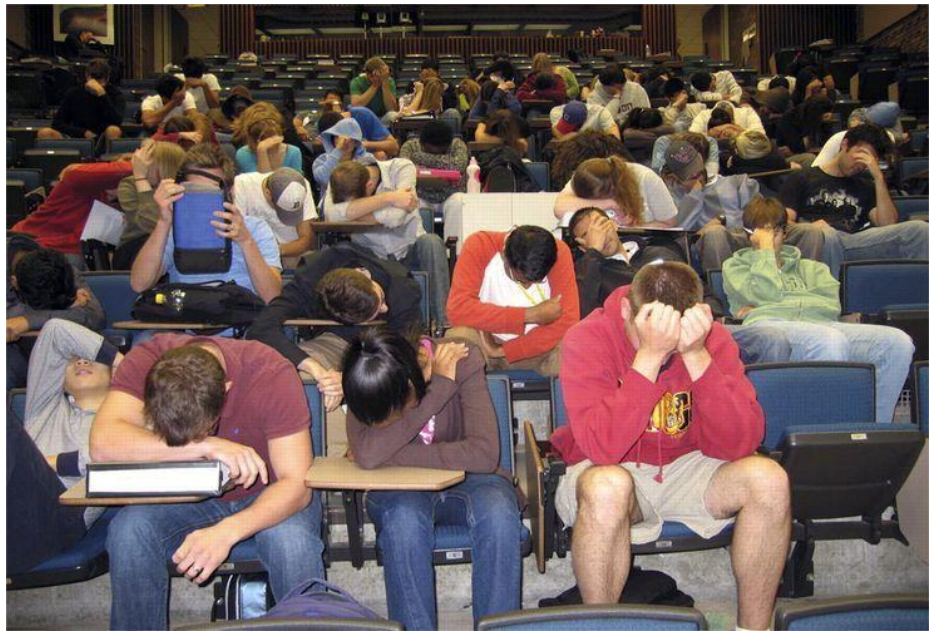
- **Engaging collection**
- **Current content**
- **Available for Free!!!**

Readings & Videos – Part 2

- **JavaScript**
  - Create simple JavaScript programs
  - Prompt users for input
  - Utilize loops
  - Process Information



Lecture vs. Activities



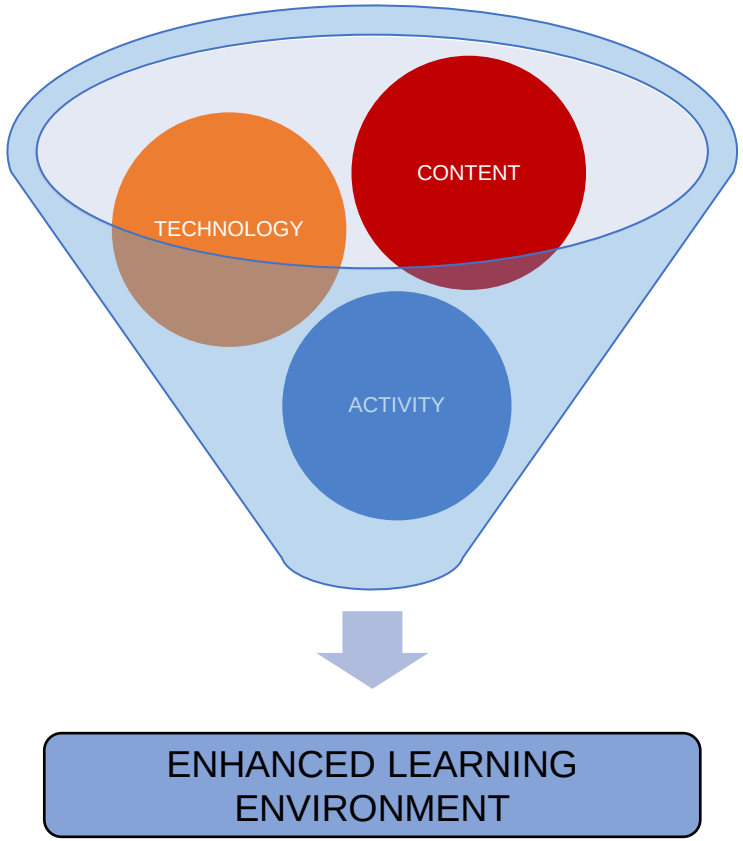
Source: https://www.theodysseyonline.com/11-things-college-lecture-hall

- 3 Hours of zzzzzzzzz's

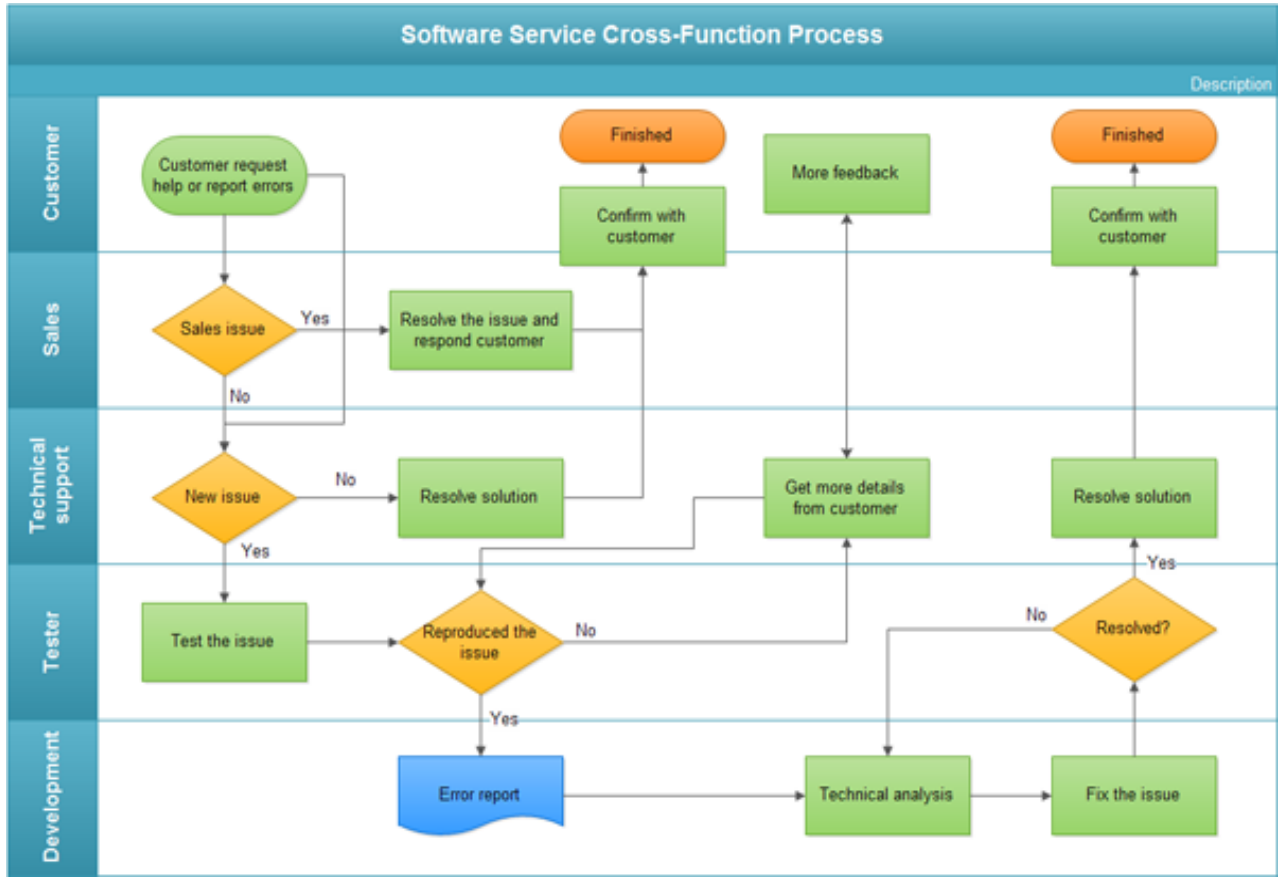
- 1 Hour Discussion
- 2 Hours of Activity

Active Learning Components

The Active Learning Funnel

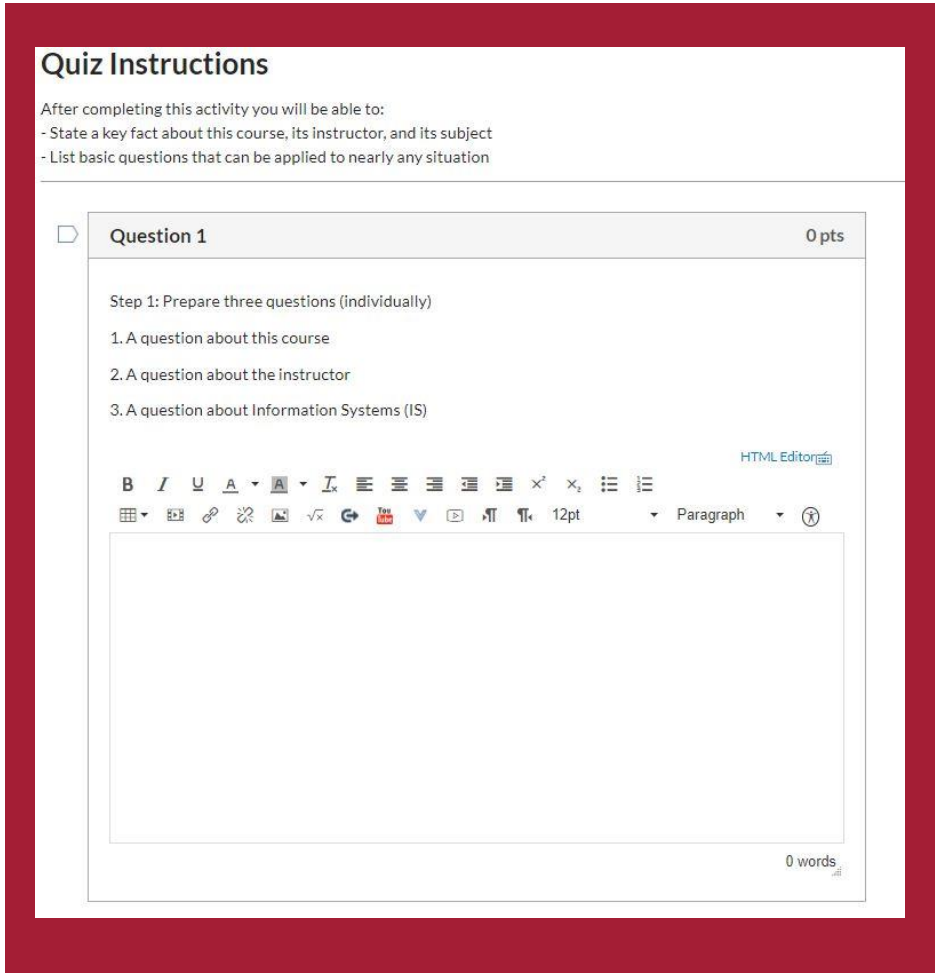


The In-class Activity



- **Process Diagrams**
  - **Swim lane diagram**
- **Real life scenarios**
- **Knowledge Application**
- **Problem Solve**
- **Synthesize Solutions**

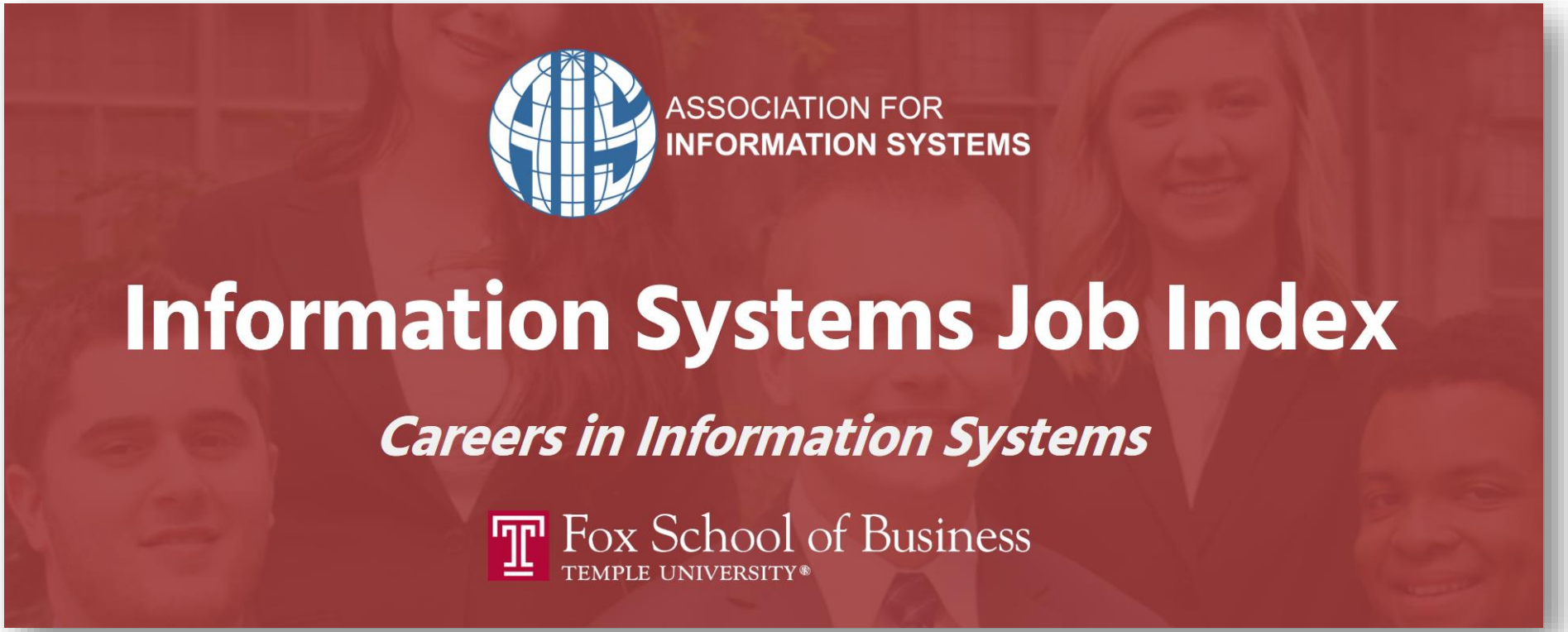
The In-class Activity – Canvas



- **Reinforce assigned materials**
  - **Readings**
  - **Videos**
  - **Lecture**
- **Exam Preparation**
- **Work in teams**
- ~~**Must be present**~~
- **You keep your work**

Not Just Another Intro Class!

- Accounting
- Business Management
- Entrepreneurship & Innovation Management
- Financial Planning
- International Business Administration
- Marketing
- Risk, Insurance & Healthcare Management
- Supply Chain Management
- Actuarial Science
- Economics
- Finance
- Human Resources Management
- Legal Studies in Business
- Management Information Systems
- Real Estate
- Statistical Science and Data Analytics



Read the full report at **isjobindex.com**

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Based on 1420 recent graduates from 43 universities across the U.S.

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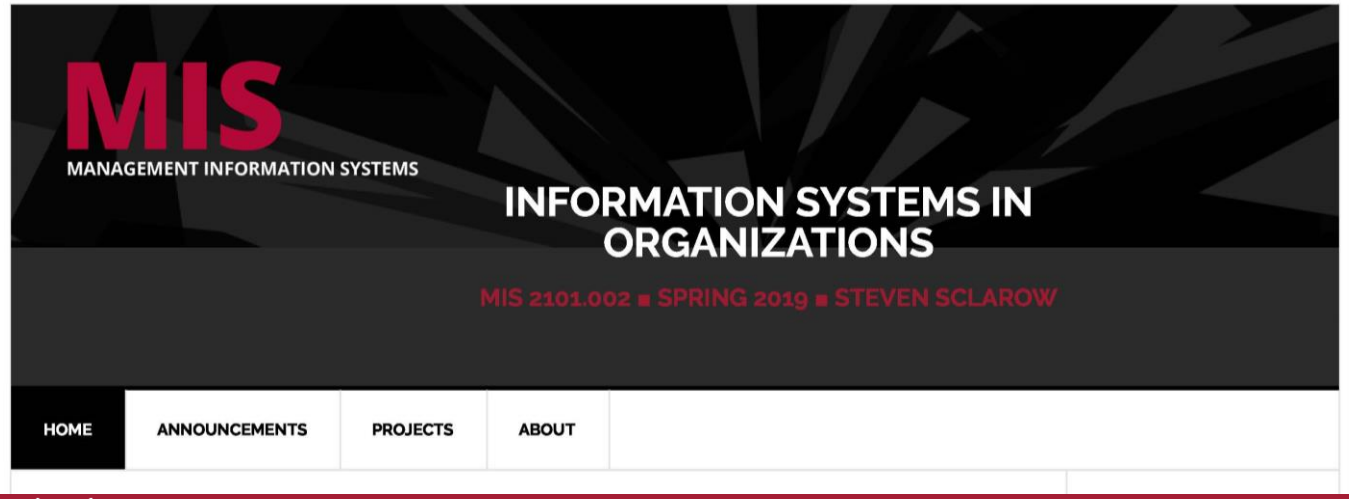
Class Sites Review

- **We use Canvas for our exams, assignments and in class activities.**

https://templeu.instructure.com/courses/79652

- **The rest of the information is on our MIS site:**

https://community.mis.temple.edu/mis2101sec701fall2020/



ROADMAP

START

Week 1:
Introduction & Systems Analysis
- Course Description
- Systems Thinking

Week 1:
Introduction to Process Mapping
- Systems & Processes
- Swim Lane Diagrams

- Max Labs 0- due
- Practice test - due

Week 2:
Digital Product Management & ERD

Week 2:
Introduction to Data Modeling

- Max Labs 1A/1B- due
- Max Labs 2A/2B due

Week 2:

Exam #1

10/30 – 11/1: Exam Availability

Week 3:
Information Systems
- ERP & CRM
- Data Analytics & SCM

- Lean IT #1 due

Week 4:
Platforms & Digital Business Models
- API's
- Cloud

Week 4:
Cybersecurity & AI
- Protection Protocols
- Artificial Intelligence

- Cybersecurity/AI assignment due
- Max Labs 3a/3b due

Week 4 :

Exam #2

11/13-11/5 Exam Availability

Week 5:
JavaScript Unit #1 & 2
- Hello World, Variables
- Input and Output
- Operator types
- Strings

Watch Lynda.com video – due
Code Academy due

Week 6:
JavaScript Unit #3&4
- Logical Operators
- Conditional Types
- Intro to Loops
- While and Do
- Writing the code
- Practice Coding Exam

Week 7:
HTML & CSS

- Coding Assignment -due
- Lean IT #2 due

Week 7:

Exam #3

12/8 – 12/ 9: Exam Availability

FINISH

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1.1 Intro to Information Systems in Organizations
In-Class Activity

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1.2 What are Systems?

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Max Labs

DUE BY EOD SUNDAY!

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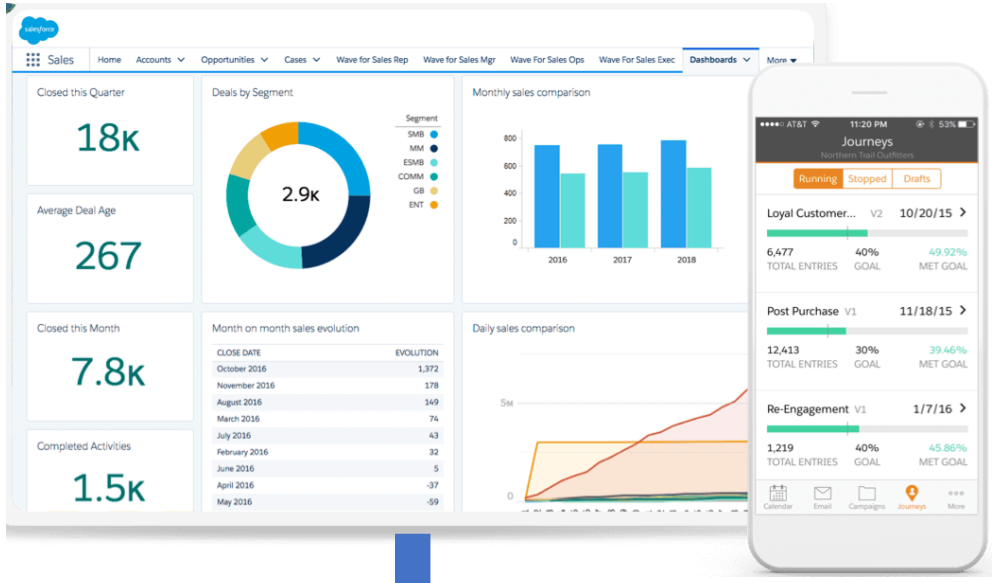
What is MIS?

Using Information Technology to solve business problems.

- **MIS is not Computer Science**
- **It's about business where we train people to do what?**
  - **Use technology to solve day-to-day business problems`**



Sources: https://c1.sfdcstatic.com/content/dam/web/en_us/www/images/products/what-is-salesforce/whatis-jumbo-astro-product.png

https://www.kindpng.com/picc/m/568-5683178_real-cash-stack-100-dollar-bill-hd-png.png

World View – A collection of “Systems”

Systems = people + process + technology

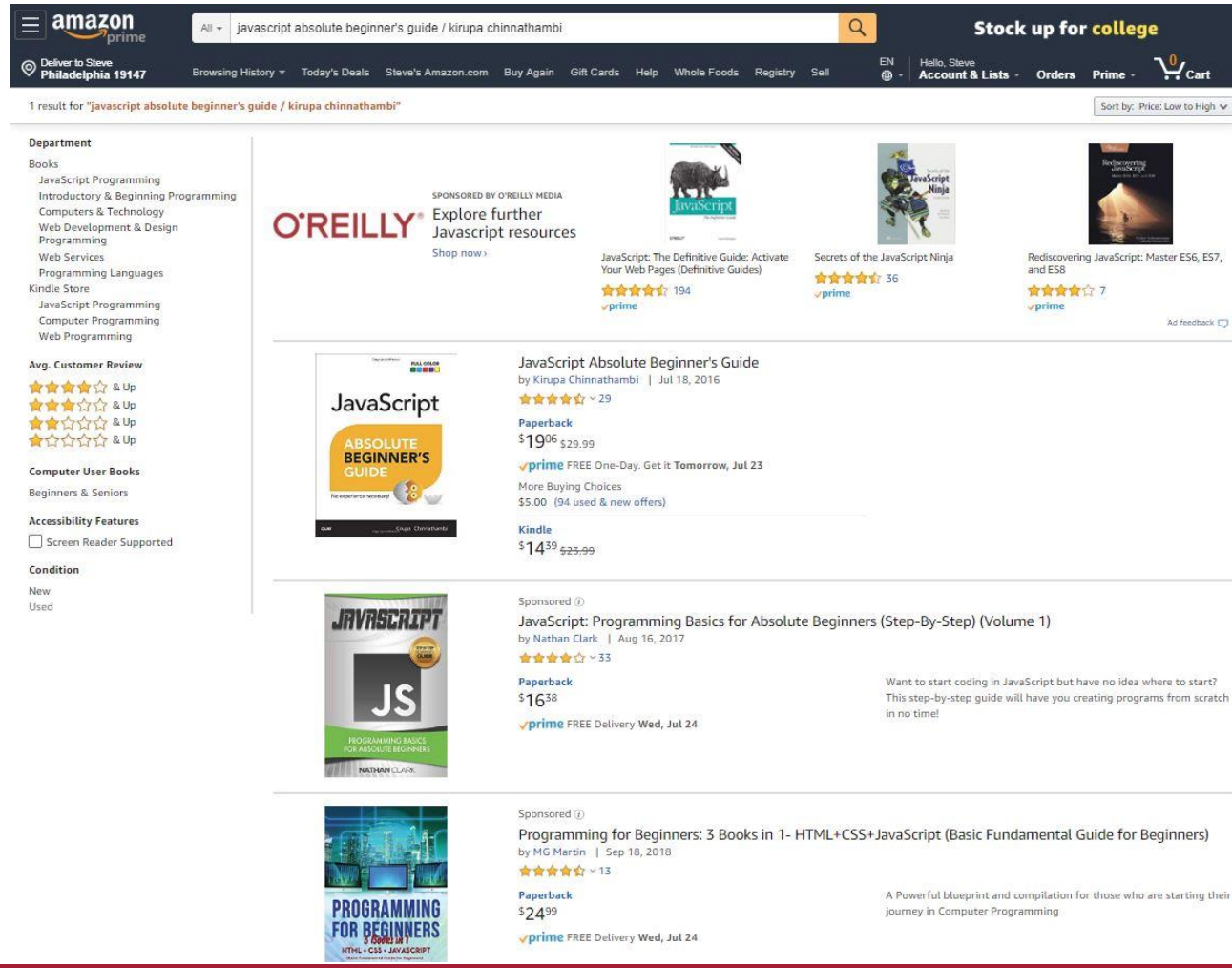
- Manipulation of information = value
- Managed by MIS professionals
- Systems surround us 24/7
- Application Program Interface (API’s)

Source: https://www.aecom.com/ca/management-information-systems-mis/

Understanding Systems

Buying textbooks on Amazon

- What is part of that system?
  - Log-in (multiple steps)
  - Search
  - Shopping Cart
  - Purchase (Multiple steps)
  - And much more…..



Understanding Systems (cont.)

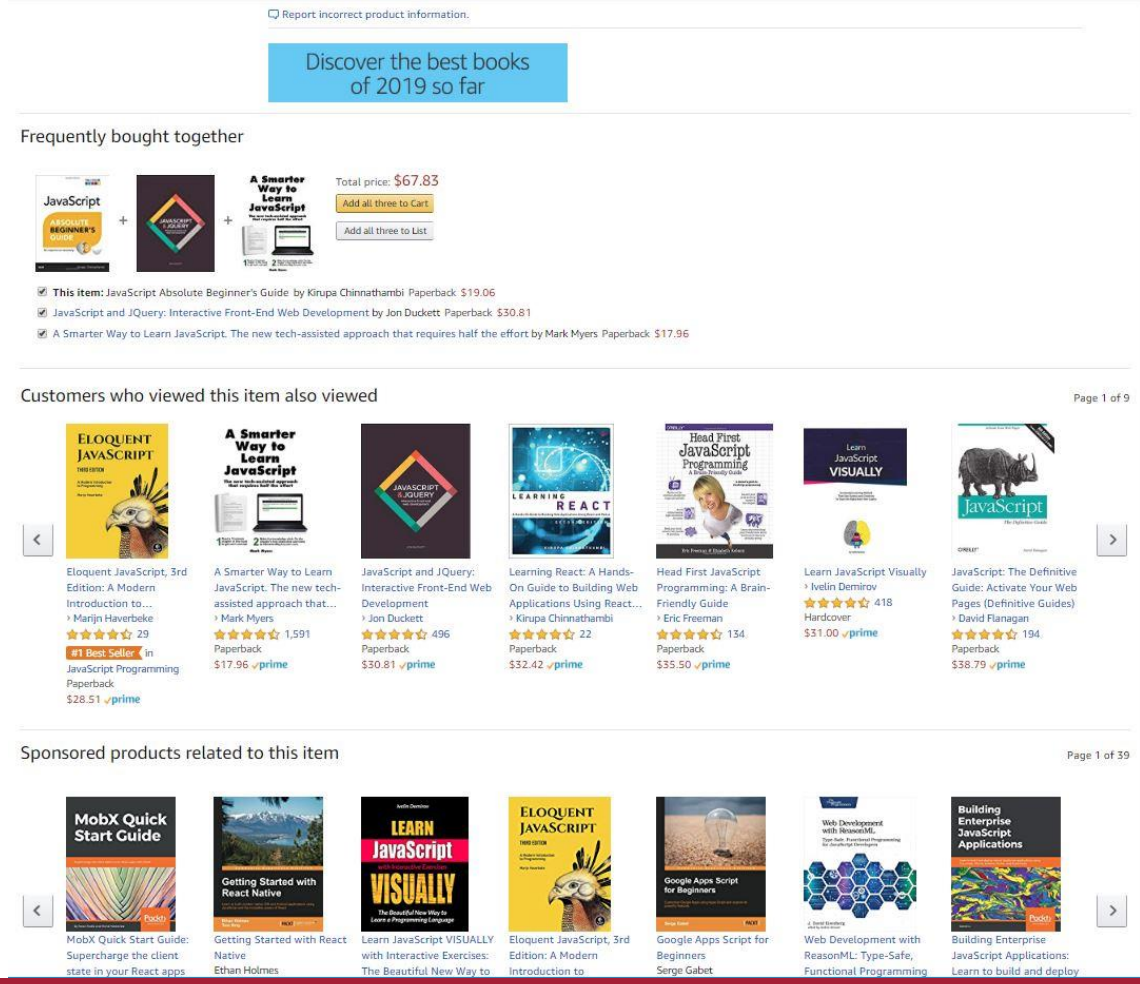
Buying lunch

- What is part of that system?
  - Take the order
  - Hand order to cook
  - Prep to-go bag
  - Order cooked (multiple steps)
  - And much more….

Understanding Systems (cont.)

Describe the Process of Ordering

- What keeps info accurate?
  - Data
- Who is involved?
  - Customer ♦ Store ♦ Warehouse Mgr. ♦ Admin ♦ UPS driver…
- How much effort?
  - None…it's automated!
  - Technology !!!



“information system –
an integrated set of components for collecting, storing, and processing data and for providing information, knowledge, and digital products.”

- Encyclopedia Britannica

Source: https://www.britannica.com/topic/information-system/Management-support

A collection of technologies

Including:

- **Hardware**
- **Software**
- **Policies**
- **Education tools**
- **API's**
- **Etc…**

Source: https://www.kisspng.com/png-laptop-computer-hardware-computer-repair-technicia-1180595/preview.html

API's Case Study: UBER

Requesting a ride?

- **Describe what happens...**
  - **What are these systems?**
  - **How do they work?**

Source: https://www.okta.com/security-blog/2019/05/how-uber-takes-advantage-of-the-api-economy/

Four Core Steps of Designing UX (user experience)

- **Problem Definition**
- **Documenting Business Processes**
- **Process Decomposition**
- **Data Modeling**

Source: http://www.petraware.com/consulting/

Software Development Lifecycle (SDLC) methodologies

- **Waterfall**
- **Agile**
- **Lean**
- **Scrum**
- **DevOps**

Image: http://www.xanadutec.com/software-as-a-service.html

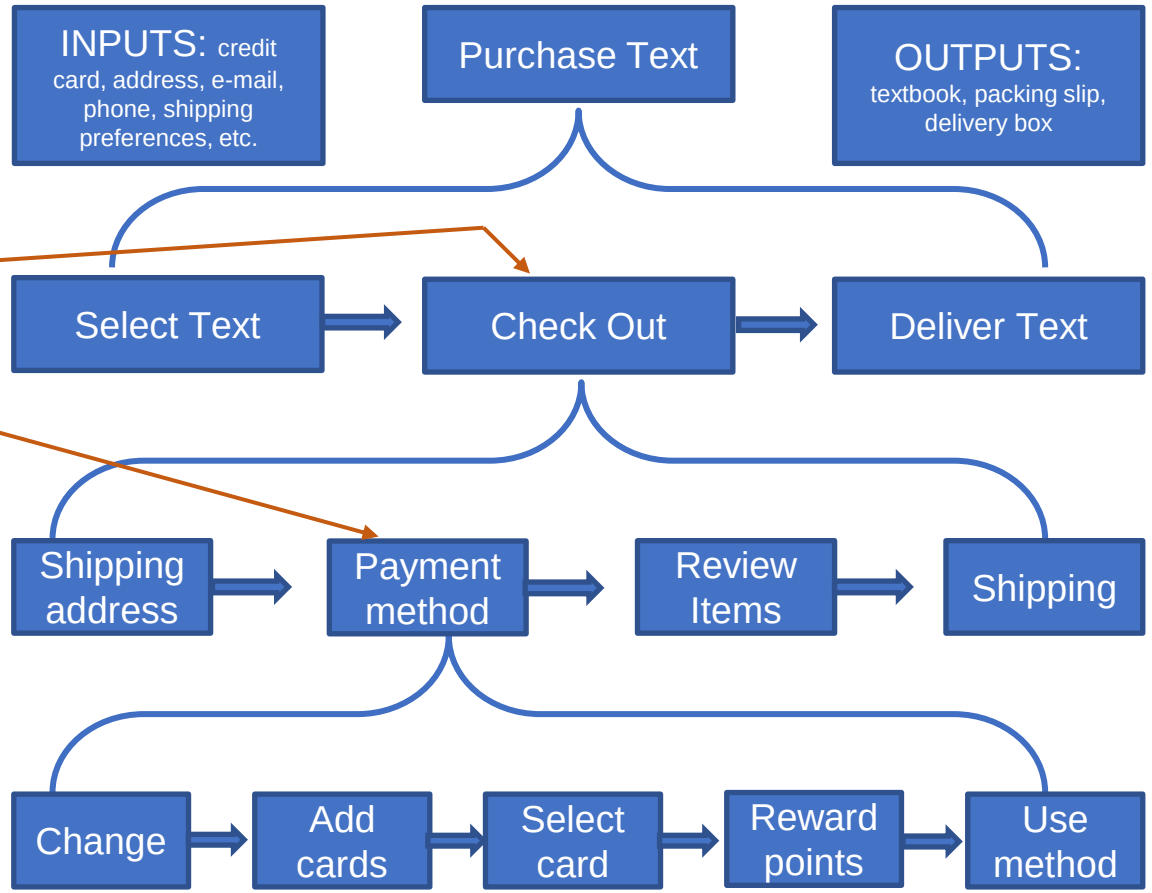
“Once a Product Manager / Technologist understands the *business problem*, they can architect a solution.”

- Mart Doyle

What is “Systems analysis?”: Problem solving technique that “decomposes” a system into its component pieces for the purpose of studying how well these parts work & interact to accomplish their purpose

Process Decomposition

- **Single entity**
- **Subsystem**



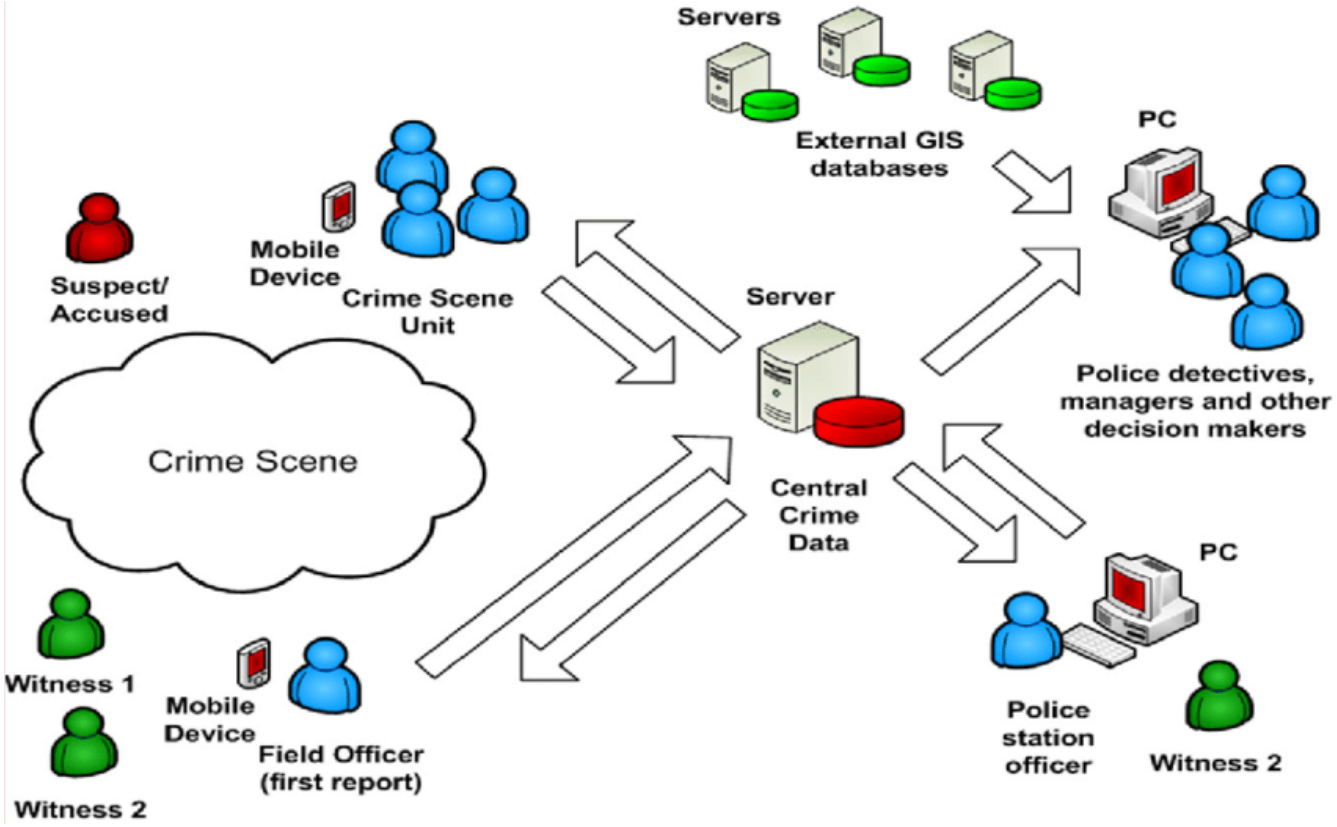
“Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems.”

- Boris Golden

What is “Systems Architecture?”: Representation of the system & all of its parts/components

Systems Architecture

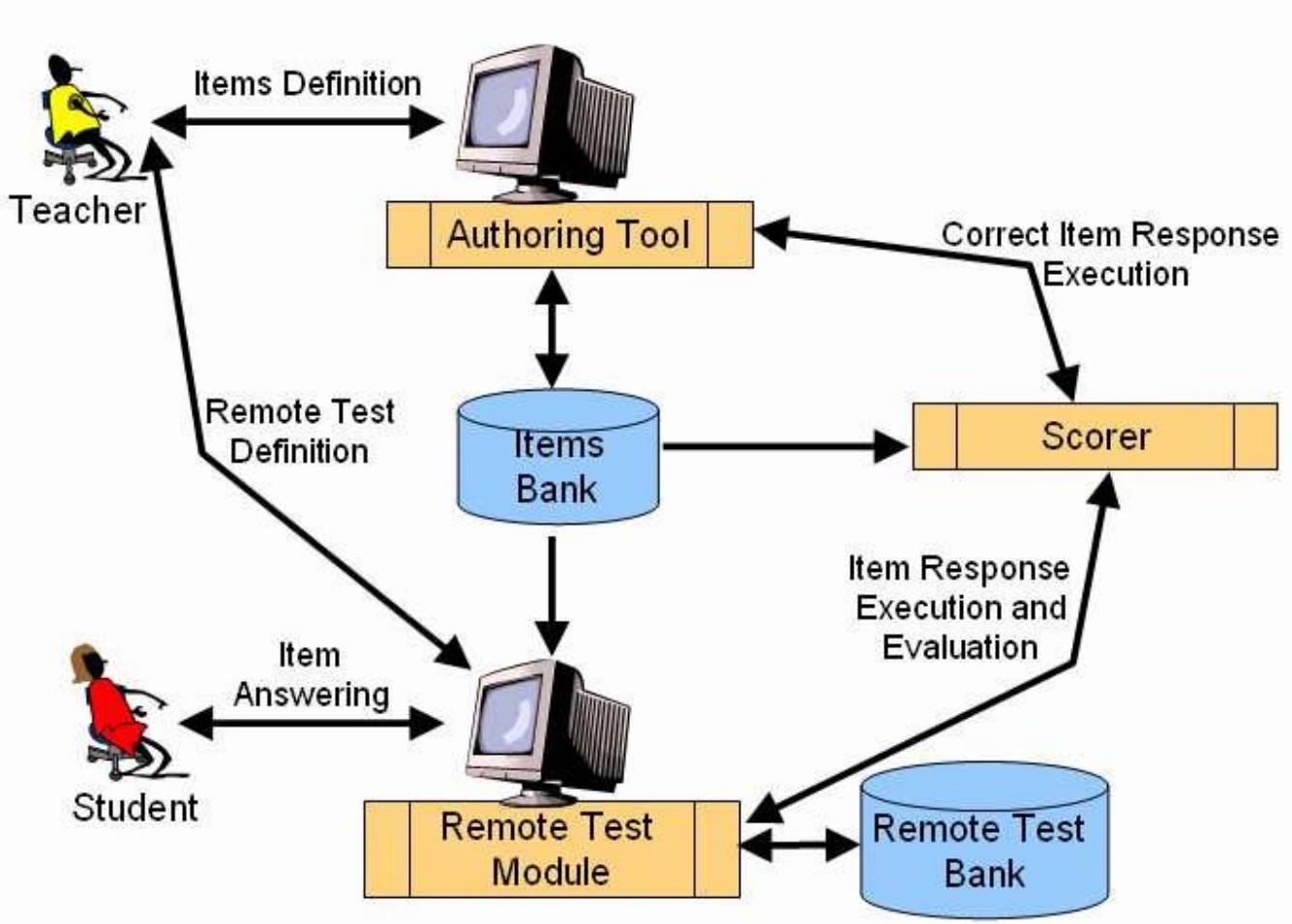
- Conceptual Diagram
- Structural components
- Identify/Solve Problems
- Existing or New
- Communication tool



Source: https://www.researchgate.net/figure/Conceptual-System-Architecture_fig2_327987580

Systems Architecture

- **Test question defined**
  - **Authoring tool**
- **Remote test created**
  - **Test module**
- **Student responses**
  - **Test module**
- **Execution & Evaluation**



Source: http://spmarchitecture.com/systems-architecture/system-architecture-learning-environment-for-automatic-rating-64721-2/

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2.1 Intro to Process Mapping

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Process Mapping

What

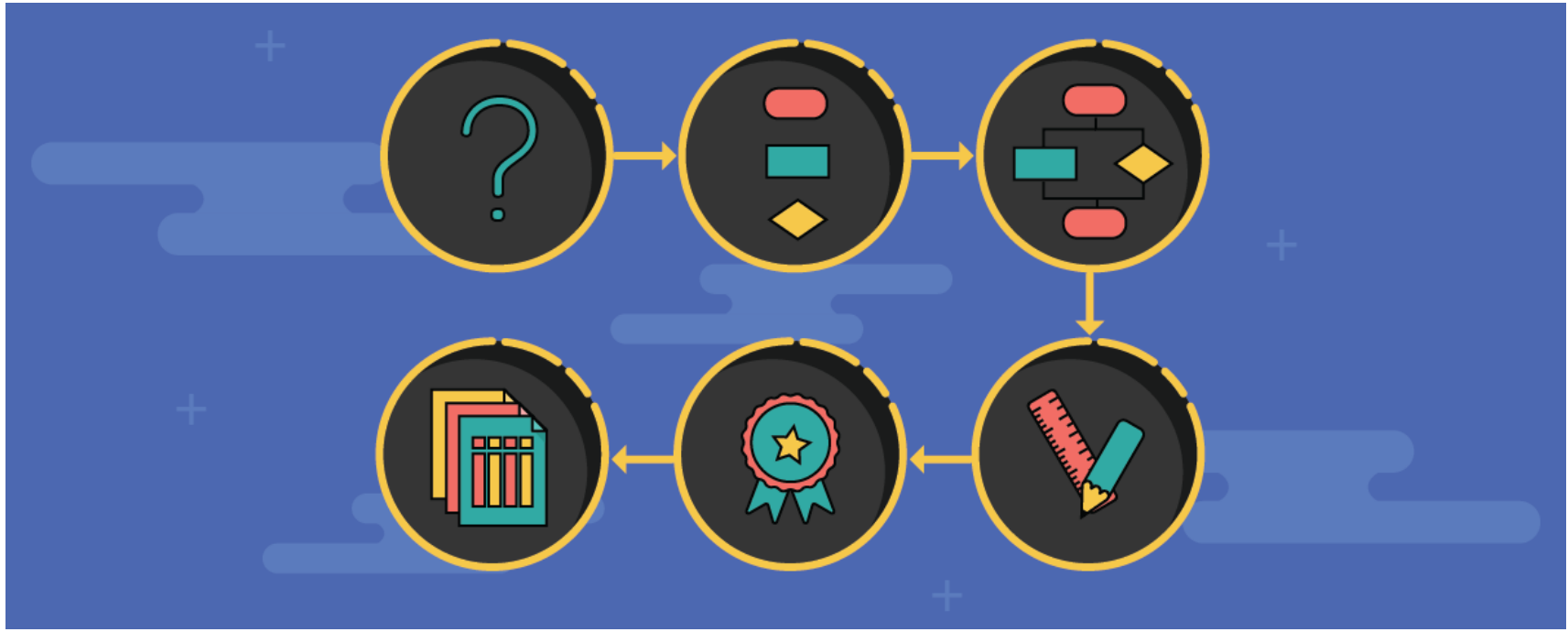
- Visual Representation

Why

- Identify Problems

How?

- Draw the “as-is”

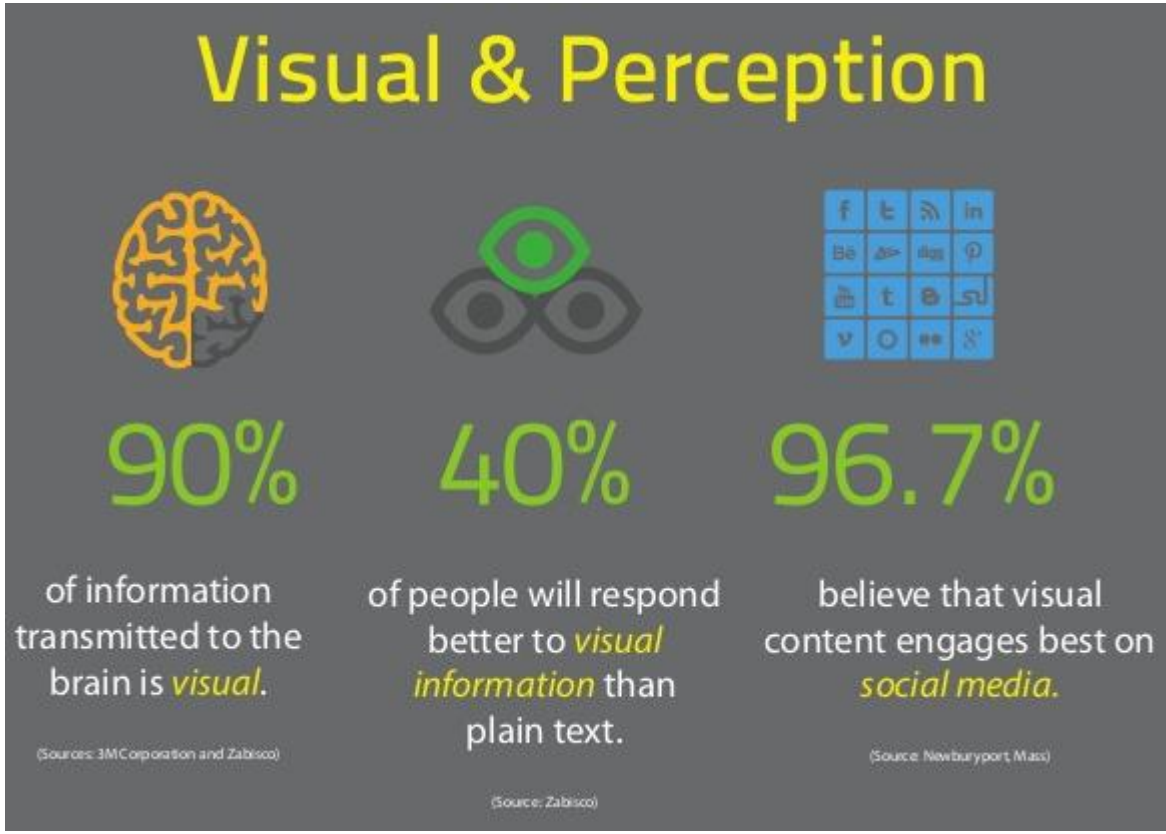


Source: https://creately.com/blog/diagrams/process-mapping-guide/

What's a Picture Worth?

How about a diagram???

- How fast does the brain process images?
- 70% of your sensory receptors are in your eyes
- 50% of your brain is active in visual processing



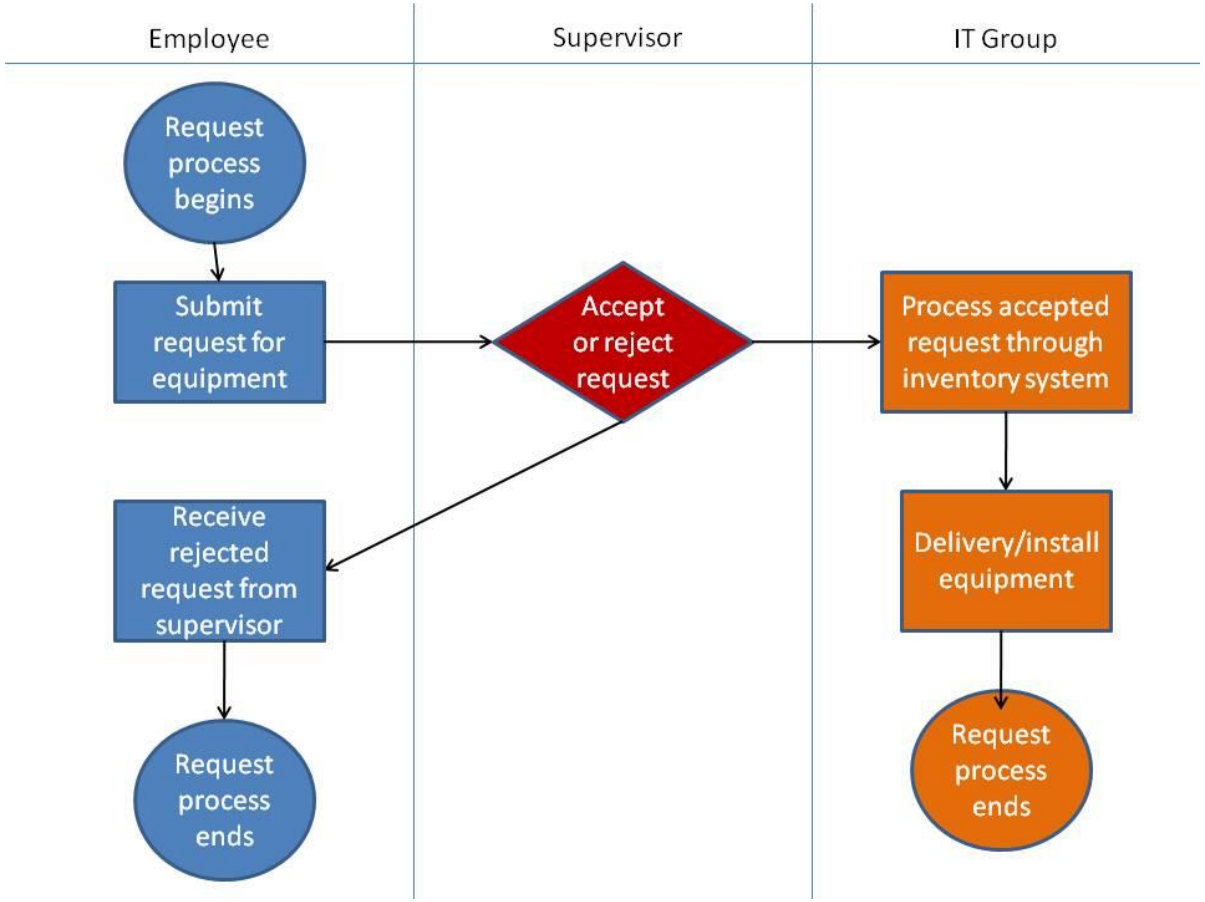
Source: https://tax.thomsonreuters.com/blog/the-importance-of-visual-content-marketing-infographic/

Source: http://esheninger.blogspot.com/2018/08/a-picture-is-worth-thousand-words.html

Swim Lane Diagrams

Advantages

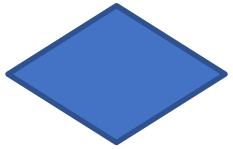
- Identifies who does what & in what order
  - Logical & Chronological
  - Indicates hand-offs
- Versatile
  - Applied to other diagrams
  - Training tool



Swim Lane Diagrams - symbols

- A circle signifies the starting and ending of an event in the process

- A rectangle represents an activity in the process.



- A diamond represents a decision that must be made.

- Arrows indicate the flow of the process.

- A cylinder represents stored data.

Swim Lane Diagrams – Order to Cash (O2C)

The process starts when the customer contacts Sales to place an order. The person in Sales creates the sales order. As part of doing this, the person in sales first checks to see if the customer has enough available credit to cover the order. They do this by looking up the customer's credit on a report that is generated by Accounting and sent to Sales every Monday morning. If the customer doesn't have enough available credit then the person in sales notifies the customer who can then either update or cancel their order. Next the person in sales checks to see if the items being ordered are in stock. They do this by checking a report on inventory that the Warehouse created at the end of each day. If the items being ordered are not in stock then the person in Sales notifies the customer who can then update or cancel their order. If the report indicates the items are in stock then the order goes to the Warehouse where the workers there will pick the order. Since Sales is looking at a report that is only updated at the end of each day, there is a chance that they accepted an order for an item that is not really in stock. If that is the case the Warehouse notifies Sales who then notifies the customer who can update or cancel their order…

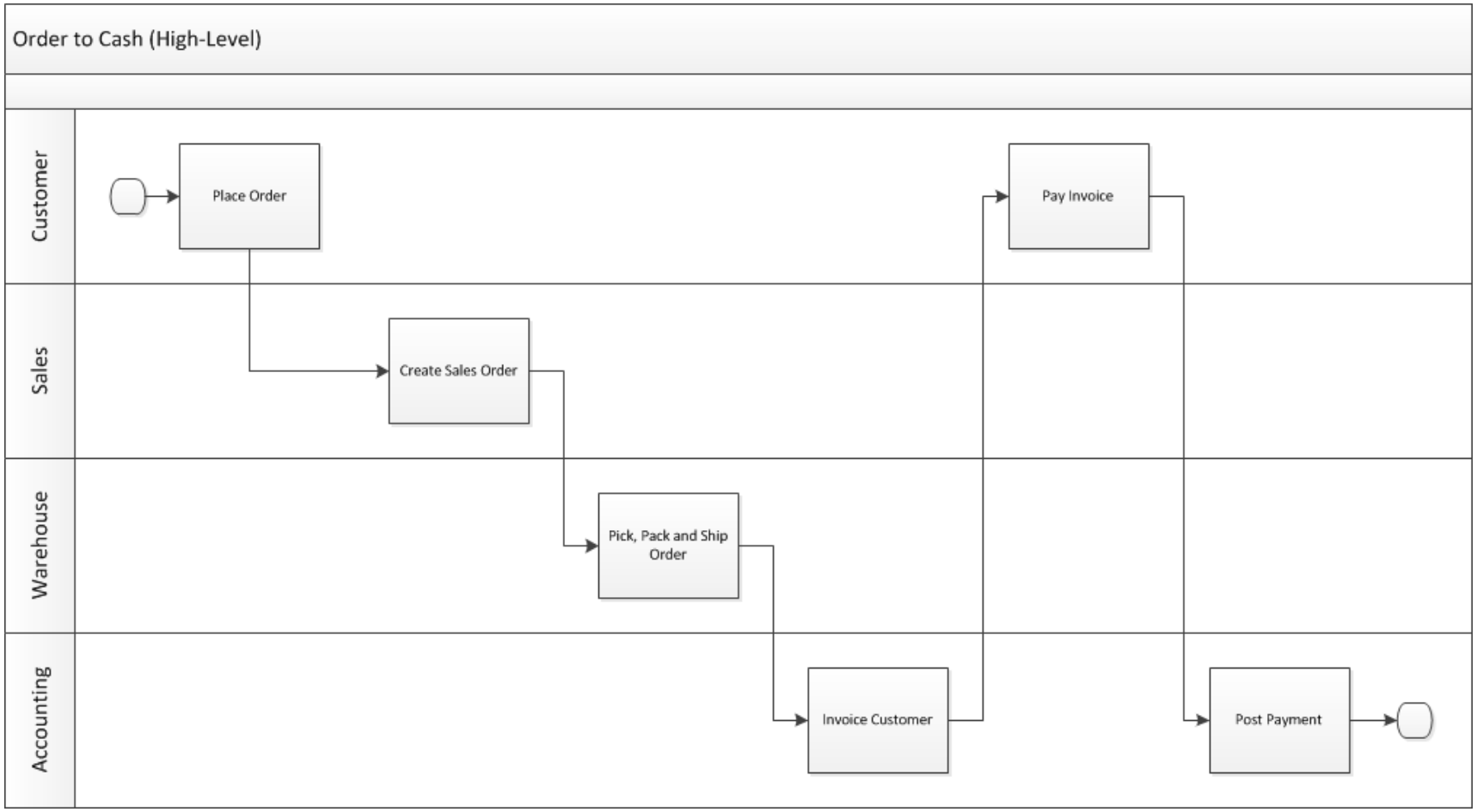
Swim Lane Diagrams – Order to Cash (O2C)

…Once the people in the warehouse pick the order, the people in Accounting have to make sure that the customer actually has enough credit to cover the order. Since the people in Sales use a credit report that is generated on Monday morning, there is a chance that the information on the credit report is old. If the customer doesn't have enough available credit then Accounting notifies Sales who then notifies the customer who can then choose to update or cancel their order. If the customer has enough available credit then their available credit is reduced by the total cost of the order and the warehouse is notified and they pack and ship the order. As soon as the order is shipped the people in the warehouse notify accounting and accounting generates and sends the invoice to the customer. When the customer pays the invoice the people in Accounting increase the customer's available credit by the amount of the payment, they post the payment and we're done.

Swim Lane Diagrams – Order to Cash (O2C)

Who does What & When

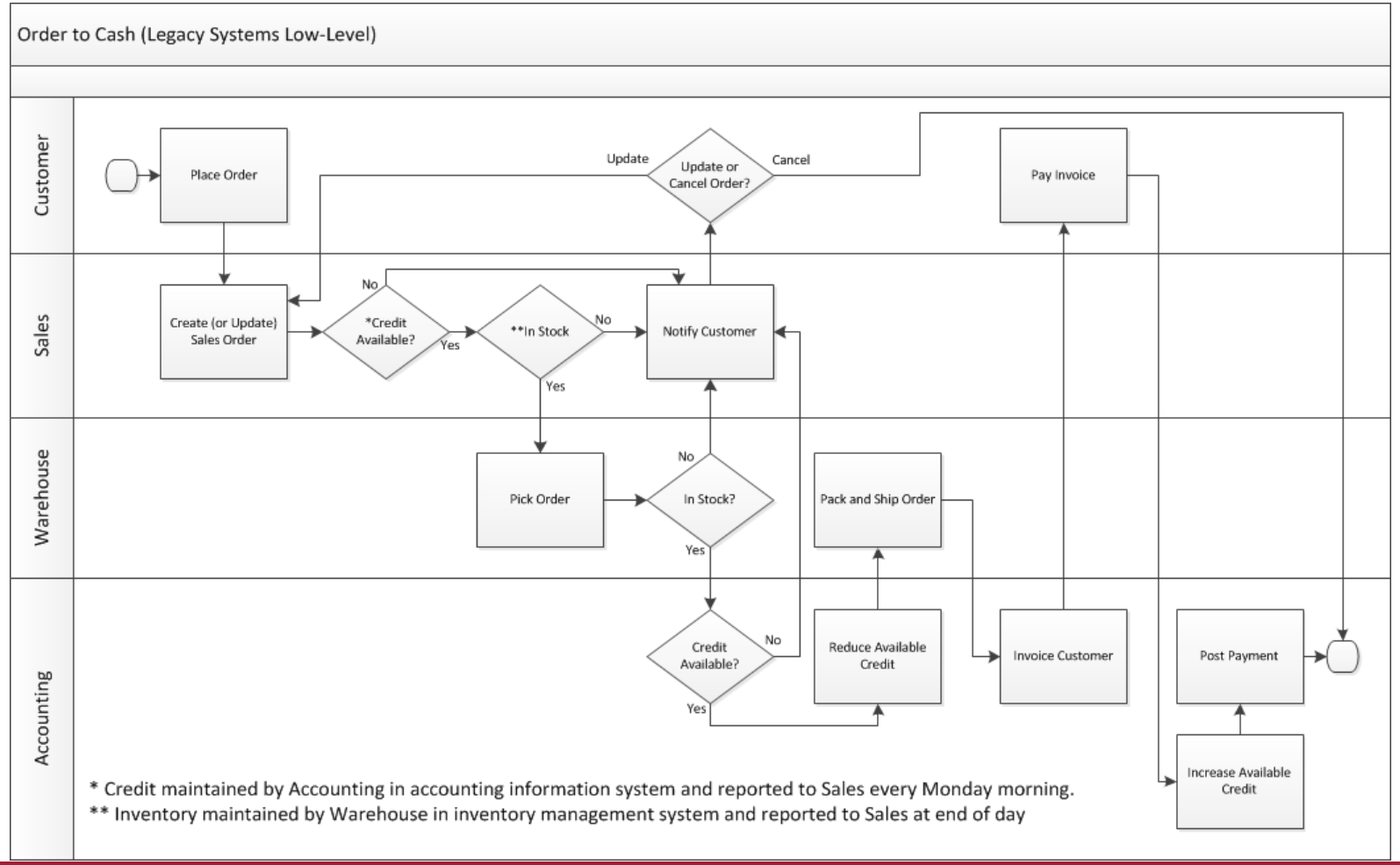
- Overview example



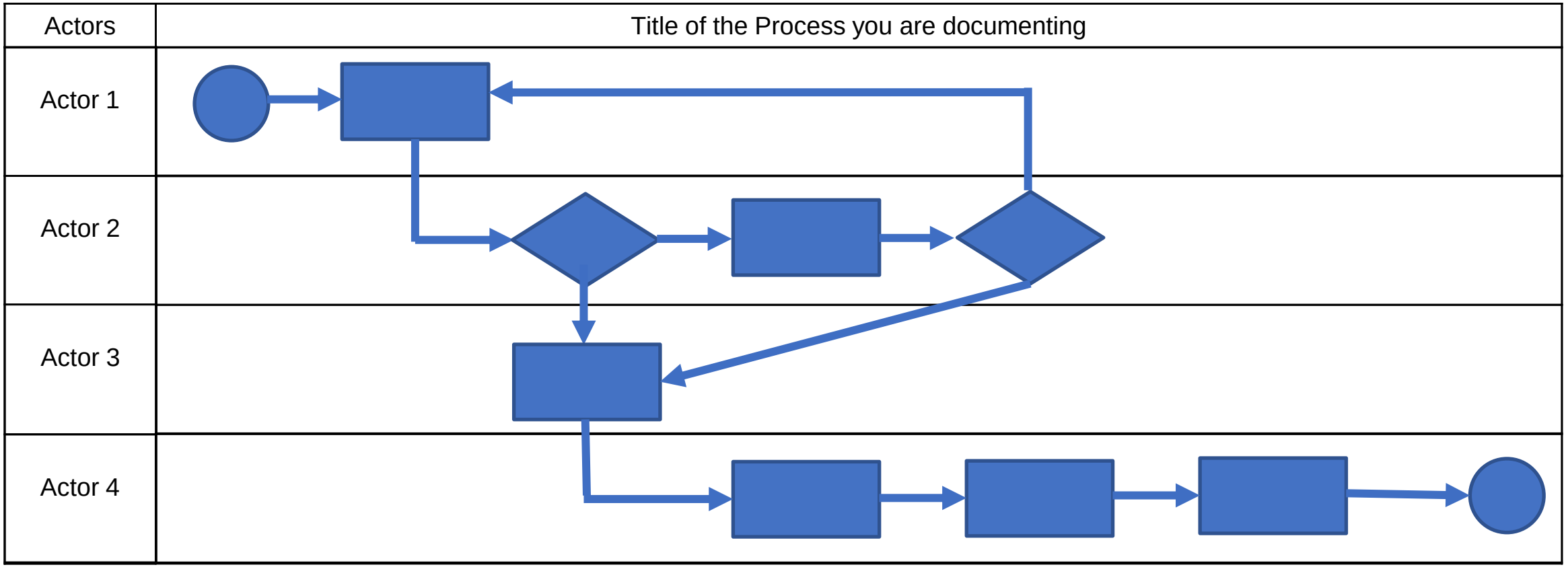
Swim Lane Diagrams – Order to Cash (O2C)

Who does What & When

- Complexity added
- Legacy system



Swim Lane Diagrams – Create your own



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Swim Lane Diagrams #1
In-Class Activity

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More to Come

Prepare with Readings & Videos before our next class!!!