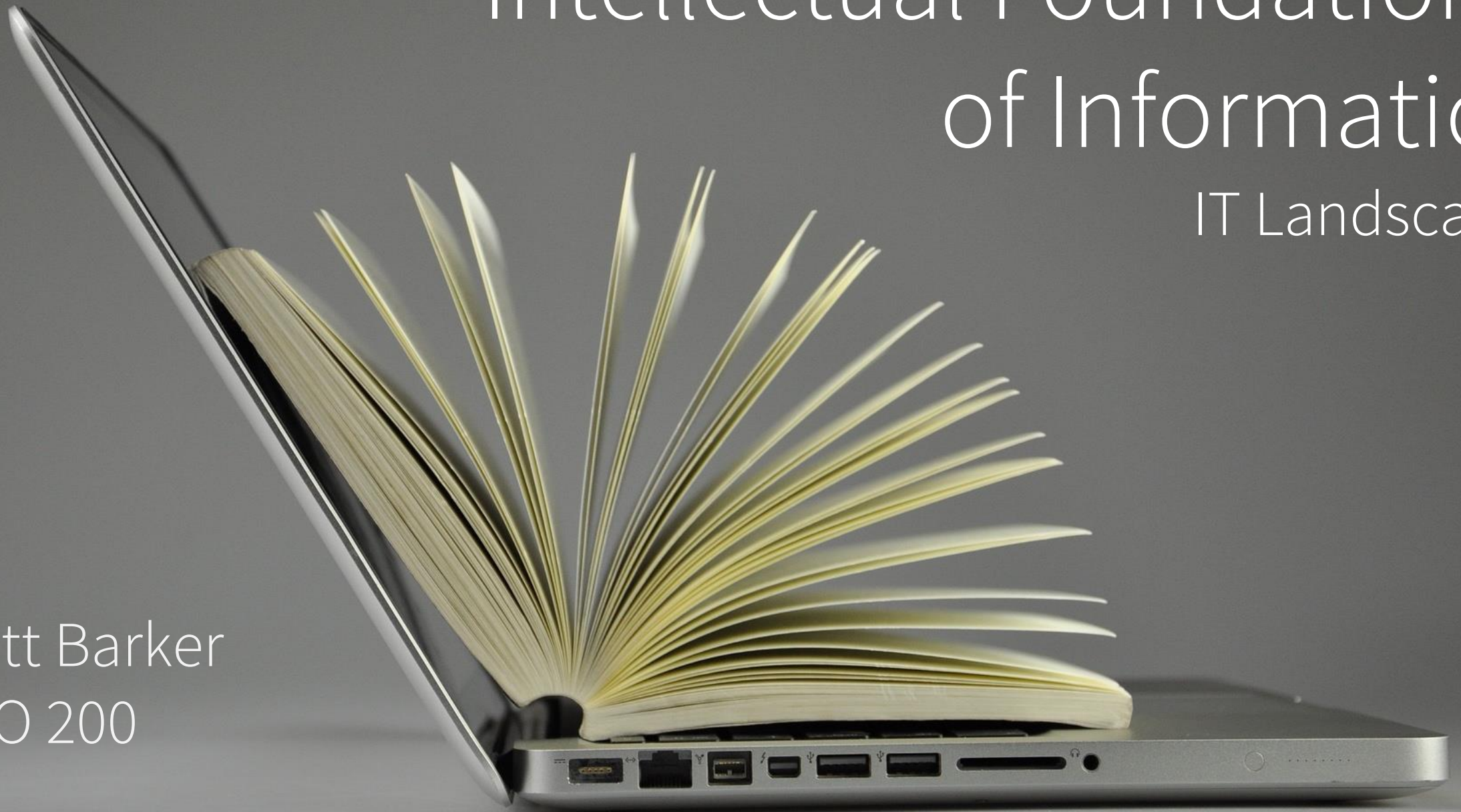


Intellectual Foundations of Informatics

IT Landscape

Scott Barker
INFO 200



The Information Technology (IT) landscape is vast and wide,
with many career options

Where do you want to go?



Opportunities exist everywhere...

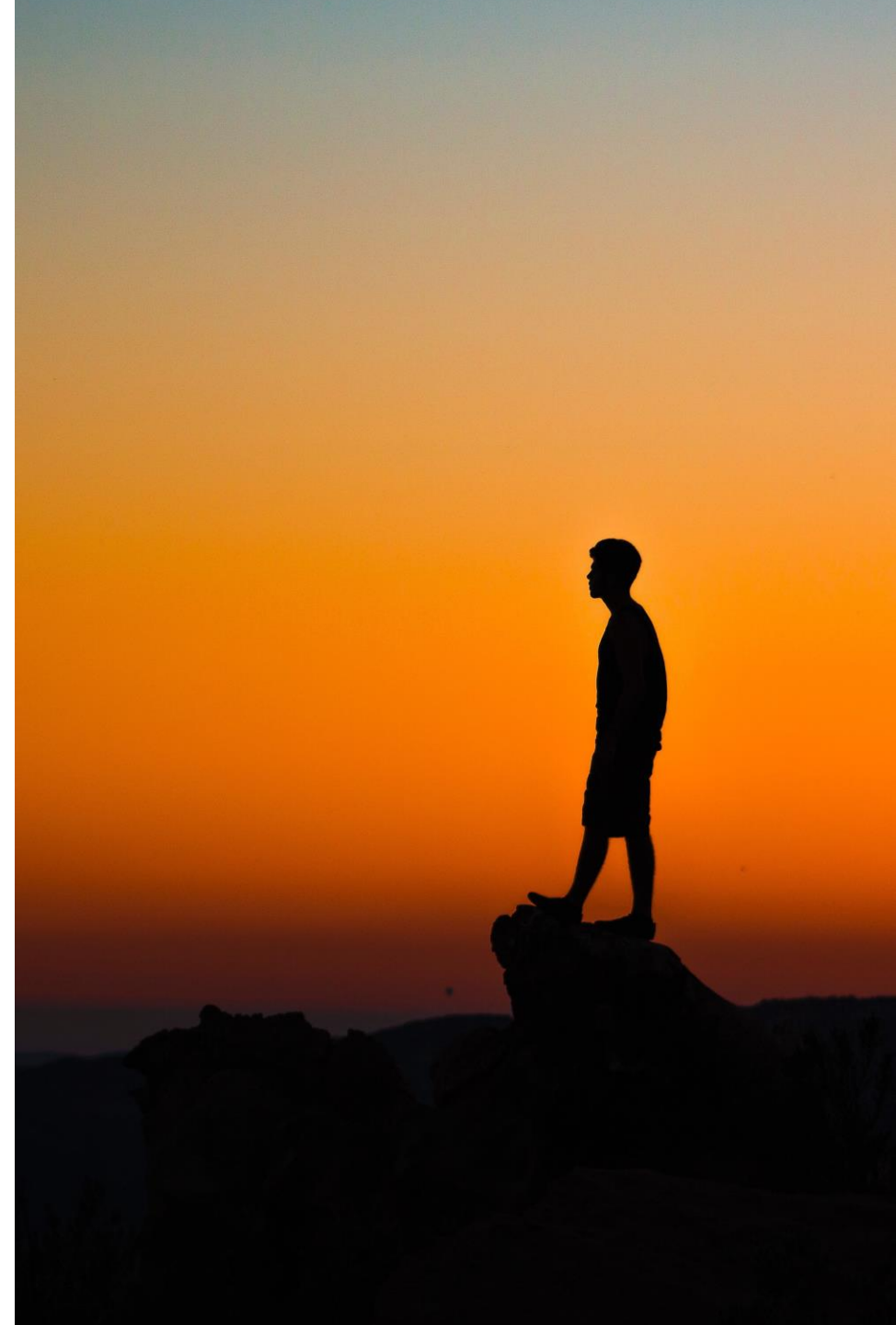
- Tech – Microsoft, Google, Cisco, ExtraHop, IBM, HERE Technologies
- Retail – Amazon, Costco, Nordstrom, Starbucks (13 iSchool interns last summer!)
- Manufacturing - Boeing
- Consulting - Deloitte, Ernst & Young, Avanade, Accenture, West Monroe, Slalom
- Airlines - Alaska Airlines
- Finance - BECU Credit Union
- Design – Point B
- Libraries - UW, Seattle Public, King County, Pierce County, ProQuest, OCLC
- Non-Profits - Bill and Melinda Gates Foundation
- Universities/Schools – UW, local elementary and high schools
- Government – City of Seattle, State of Washington

All these organizations and more are Information School Advisory Board Members looking to hire grads



Common motivations to major, minor, or seek a career in tech

- Passion for technology
 - Strong job prospects and salaries
 - Improve society or change the world
 - Interest in starting your own company
 - Parents, other pressure
 - Other
-
- What about you?



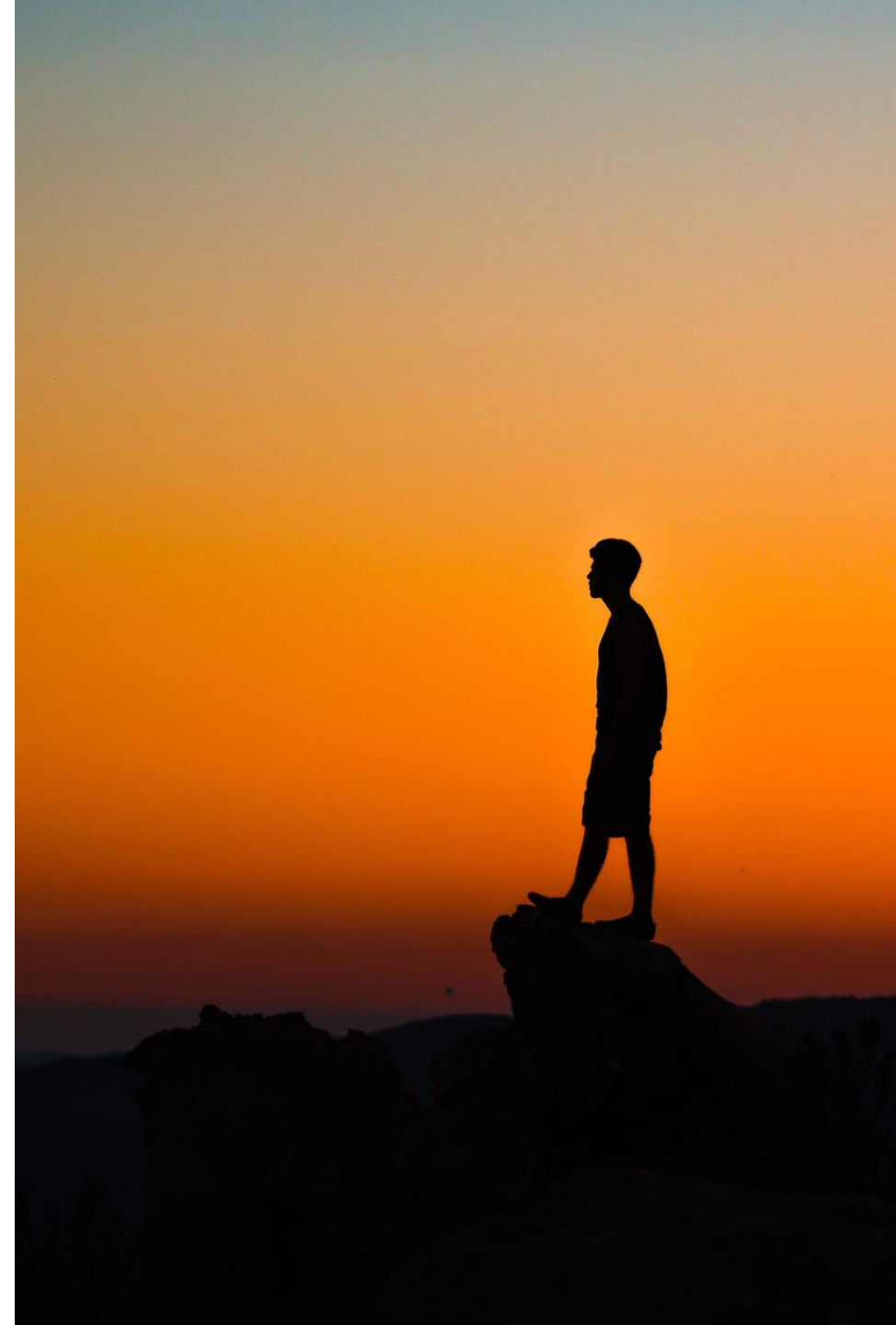
Think for a minute....

What are your motivations for obtaining a tech major or minor (if that is a goal)?

Is there a type of company, organization, or type of position/role you are aiming for?

Do you have a role model?

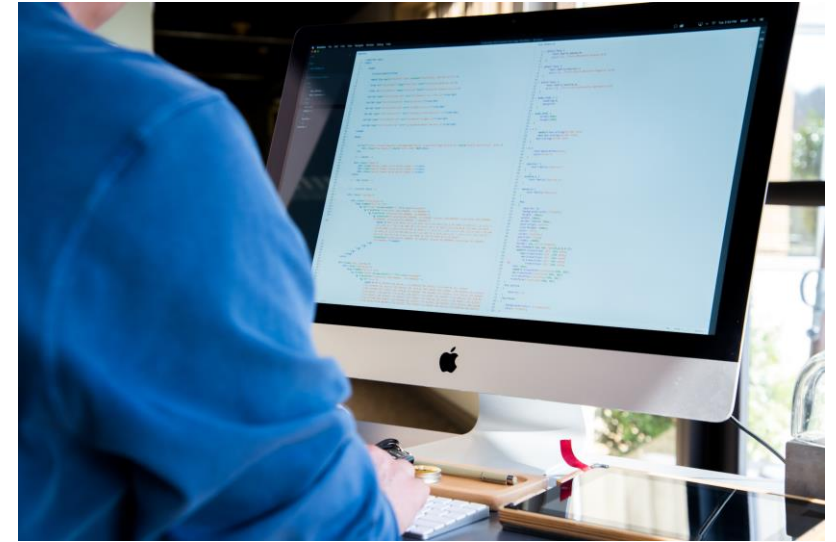
Other than taking classes, do you have a plan for how you will reach your goal?



Developers, developers, developers...

Who was that guy and why is he so passionate about developers?

- Most common career students interested in “tech” are aware of
 - Sometimes the only option students are aware of
 - Employers typically look for CS majors, but Informatics as well (especially Web and Mobile Developers)
 - Fundamentally developers “build stuff”
 - Critical to have developers on board to support your eco-system
- alternative titles (links to average salaries):
 - [Programmer](#), [Software developer](#), [Software engineer](#)
- Primary duties involve writing, debugging, and testing code
- Strong skills in a variety of programming languages (C, C++, Java, HTML, CSS, JavaScript, Python, PHP, SQL) and tools to manage code (GitHub), various IDE's, strong knowledge of data structures and algorithms
- May be specialized such as:
 - [Web developer](#), front-end web developer, back-end web developer, [full-stack web developer](#)
 - [Mobile developer](#)
 - [Database developer](#)



The Good and the Bad



Good:

- Currently high demand with strong salaries
- Generally good working environments
- Potentially able to work with a flexible schedule or remotely
- Can be very creative and rewarding

Other:

- Frequent change
- Need to continually learn on your own to keep-up

Bad:

- Possible lack of interaction with people, users, customers
- May be writing code from a spec, sitting at a computer all day
- “Loaner” or “Geek” stereotypes
- Possible concerns with outsourcing
- Can be very competitive
- Only 18% of CS grads nationally are women - depending on the company there may be a “bro culture” that is not welcoming to women, we will talk more later

IT and Stereotypes

Information Technology (IT) is of vital importance to nearly every organization, whether they are a “tech” company or not.

Many/most organizations have an internal IT group that employs people in many different roles besides “developers”.

There are issues and stereotypes here too.



“The IT Crowd”, UK TV Channel 4

So what really does IT do?

- Helps make the company or organization **as a whole** more effective or more profitable by...
- Insures the organization has appropriate, well designed and well managed **infrastructure** (systems, servers, networks)
- Insures that data, information and secrets are protected from disaster and secured against hackers/malware/attack
- Insures that the organization is legal, compliant and socially responsible
- Utilizes “business intelligence” and data to support better decision making by managers
- Establishes hardware and software standards for improved efficiency and to facilitate collaboration
- Facilitates procurement/purchasing, repair, licensing, and system deployments
- Makes “buy vs. build”, cloud, or outsourcing decisions
- Provides end-user support, help, ticketing, and documentation
- Develops and maintains “line of business” systems
- Insures systems are well designed - easy to use and navigate, information is well organized
- Manages technology or software development related projects
- Improves customer experiences and interactions (for example through an organizational web presence/store)
- **Overall, IT works strategically to ensure that technology has a positive impact on the organization as a whole (Sometimes what is best for an individual is not what is best for the organization)**
- Each bullet may take one or many people in varying jobs/roles to achieve, not just developers

Sample tech job titles that are not “developers”

- [CIO – Chief Information Officer](#)
- CTO – Chief Technology Officer
- CISO – Chief Info Security Officer
- Chief Privacy Officer
- Director of IT
- IT Manager
- Project Manager
- Program Manager
- Network Manager/Engineer
- Game Designer
- Risk Manager
- Cybersecurity engineer
- Info Assurance Analyst
- UX Designer
- UI Designer
- System Administrator
- Help Desk Manager
- [Help Desk Technician](#)
- Technical Writer
- IT or Computer Specialist
- IT Technician
- Desktop Support Engineer
- Systems Analyst
- Business Analyst
- Consultant
- IT Auditor
- Database Manager
- Database Administrator
- Business Intelligence
- Data Scientist
- Info Viz Designer
- Usability Tester
- Web Producer
- Accessibility Engineer
- DevOps Engineer
- **Entrepreneur**

Start-ups and Entrepreneurship

- Upon graduation, most students tend to work for established companies
 - Big, small, or non-profits
- Others prefer to work for start-ups. There are tradeoffs
- Some students are very entrepreneurial and want to start their own company.
 - One success already from Informatics, [Kabir Shahani](#)
 - Foster has an [Entrepreneurship minor](#) that may be helpful



Amperity Video

Some Big IT Challenges

- Rapid technological change – more devices, more platforms than ever
- Complex and rapidly changing legal landscape
- The “Consumerization of IT”
 - Most “regular” people can now use technology quite well without IT guidance.
 - Many are fast adopters who demand control. Their device, their software, their services - when and where they need it.
 - IT potentially seen as a bottle-neck or viewed as the people who just say “NO”, or who stay with old/out-of-date legacy tech for too long
 - Bring your own device (BYOD) trend makes it difficult for IT to control and secure information
 - Many users want to intermix their personal life and work life on a single device
- Cloud Services
 - Some services may be attractive to end-users with rich functionality, but may not be legally compliant. Users will try to go around IT or ignore IT to use what they as an individual prefer.
 - May expose the organization to considerable extra risk.
 - Adds reliance on another company or Internet connectivity. Loss of control.
- Some say that “IT Doesn’t Matter” any longer
they claim technology is not a business differentiator as it is now commoditized.
- IT may spend too much effort fighting fires vs. thinking strategically about how to improve the organization or company



What else should you know for success?

Soft-skills are super important

Ability to work well on a team

Ability to communicate well 1:1 and
present your ideas to others



Steve Jobs...

You also need skills specific to your area of interest



- Data Science, Databases, Data Analytics, Information Visualization
- Networking, Risk Management and Cybersecurity
- Code and algorithms
- Design and Information Architecture
- Research Methods to inform your designs/decisions
- Vendor, product, or platform specific knowledge such as Windows Server, Linux, Active Directory, Storage Area Networks, Cloud services (Azure and AWS), SQL Server, Cisco networking

Some tech jobs may also ask for vendor certifications, other skills can be learned “on the job”, as part of an internship, or online

Tech skills are transitory – you must become a lifelong learner!



Your personal people network means a LOT.

Are you on?



- If not, sign-up, create an initial profile, add some contacts
- If so, update your profile and add some more contacts

Seeing the world through Information colored glasses

Holistic thinking, it's not just the tech or algorithm that matters



- Think “big picture” and ask questions.
- Why are we doing this?
- What is the problem we are trying to solve?
- What information and technology do we need to solve this problem?
- Who are the stakeholders and what do they think? Have empathy.
- What are the positive and negative implications (legal, social, and organizational)?
- Is this solution cost effective?
- Is this solution sustainable?
- Who will run it, manage it, maintain it when change is needed?
- How do we design this solution so it is “easy to use”?
- Is there a non-technology solution that would be better?

If you can continually think holistically, through information colored glasses, you will stand-out.

End Part 1