Transit Technology and Cyber Security

EnoMax 2021

Charlotte Area Transit System

Agenda

- What is Information Technology?
- What does IT do all day?
- What Information Technology exists in Transit?
- Importance of IT to the business of Transit
- IT in Projects
- IT in Operations
- IT and your Employees
- Cyber Security and Transit
- IT and the Future of Transit

What is Information Technology?

- IT is both Hardware and Software.
- Hardware is physical and you can touch it.
- Software is programs and data instructions used by hardware.
- Hardware also provides data to software.


DELL


10:08
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16:25:36

GIRO HASTUS

KRONOS

ORACLE PeopleSoft

Trapeze™

VIA

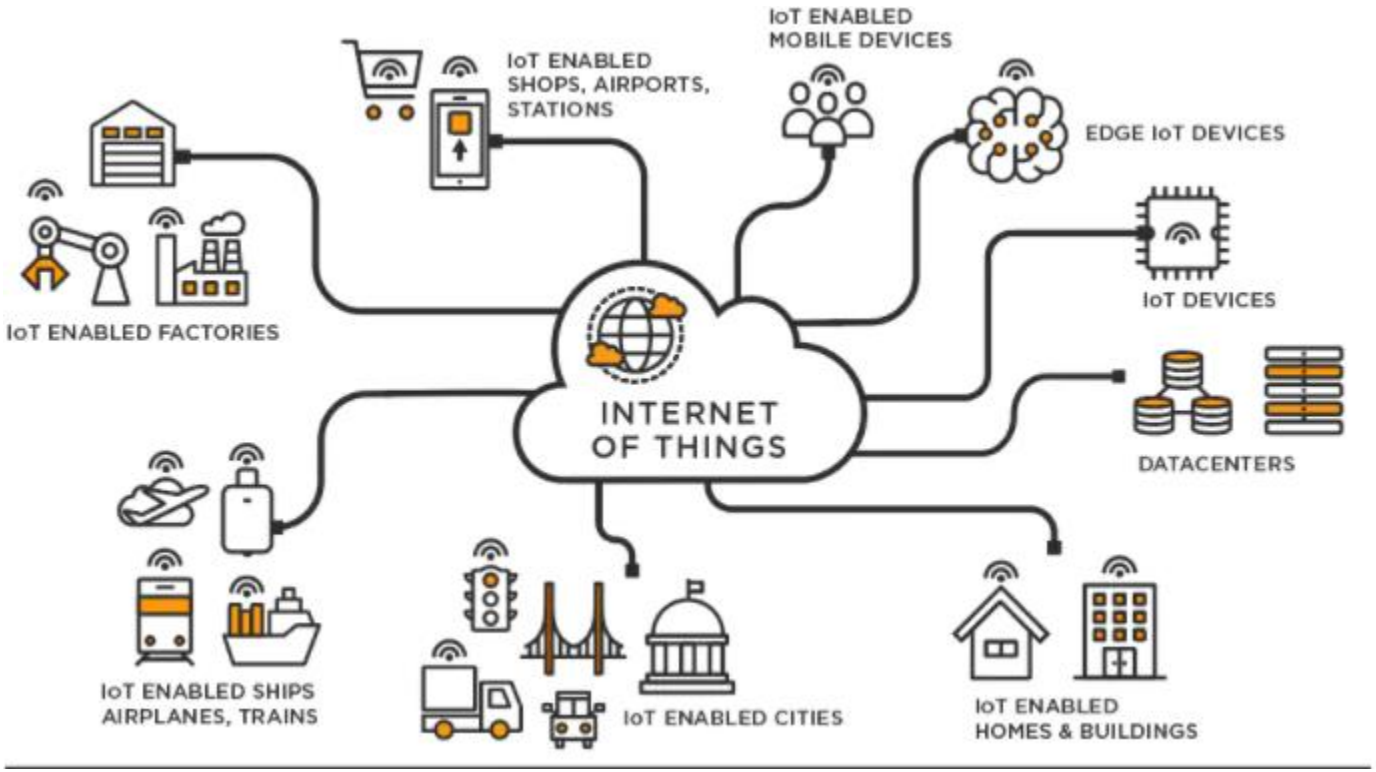
amazon

YouTube

Bank of America

aaS:

- PaaS
- SaaS
- MaaS


IoT ENABLED
MOBILE DEVICES
IoT ENABLED
SHOPS, AIRPORTS,
STATIONS
EDGE IoT DEVICES
IoT DEVICES
IoT ENABLED FACTORIES
INTERNET
OF THINGS
DATACENTERS
IoT ENABLED SHIPS
AIRPLANES, TRAINS
IoT ENABLED CITIES
IoT ENABLED
HOMES & BUILDINGS

What does IT do all day?....

1. We respond to reports of broken equipment or software not working right. This may be your PC, but more likely it is the equipment out in the field.
2. We plan and build out projects- New bus deployments, Rail expansions, video projects, etc.
3. We respond to requests for assessments on how to improve something- Your ROCC displays are getting old.

4. We maintain and upgrade existing software and hardware that is behind the scenes.
5. We inventory, track, and assess for future needs.
6. Employee onboarding/offboarding

What IT exists in Transit?

- Rail:
  - ROCC
  - LRV equipment
  - Track equipment
  - PA
  - Ticketing Systems
  - Signs

What IT exists in Transit?

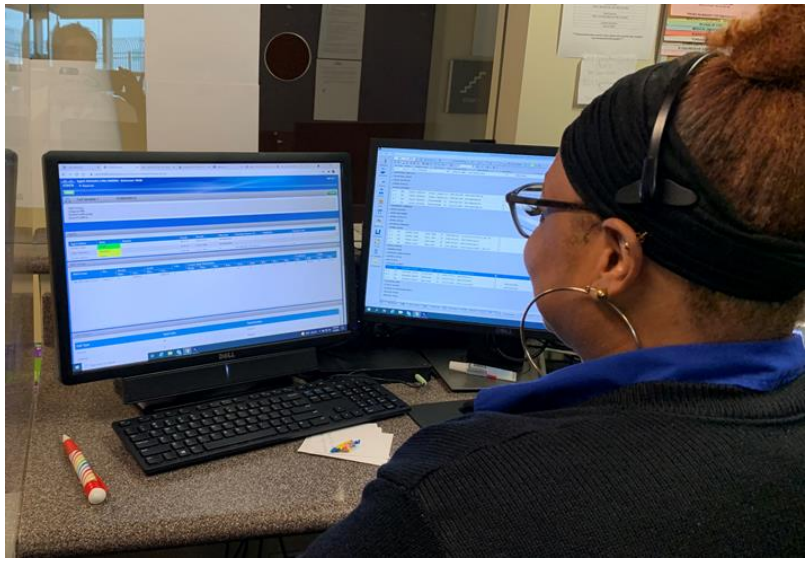
- Bus:
  - BOCC
  - Bus on-board equipment
  - Bus chargers
  - Fare Collection
  - Kiosks

What IT exists in Transit?

- Safety & Security
  - Dispatch Center
  - Camera Systems
  - Video Systems
  - Records Management
  - Badging Systems

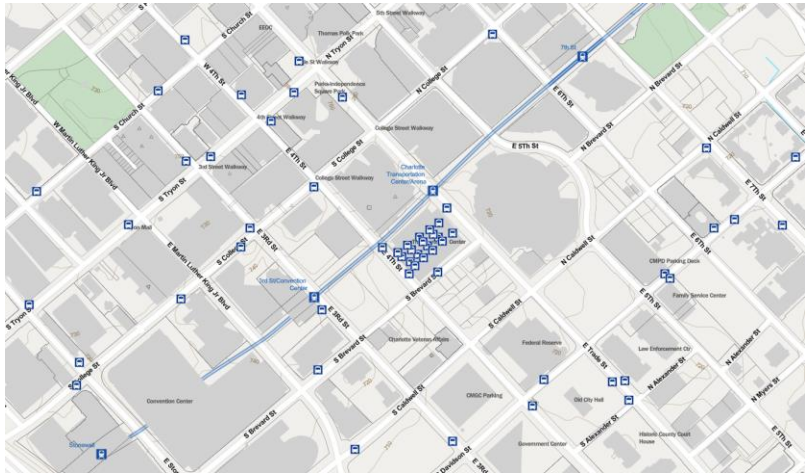
What IT exists in Transit?

- Marketing & Communications
  - Call Centers
  - Websites
  - Mobile Apps



What IT exists in Transit?

- Business Software
  - GIS Systems
  - Financial Systems
  - HR Systems
  - Document Repositories



The Importance of IT to Transit

- IT people are not geniuses, they are trained in specific skillsets just like you
- IT must understand Operations to be effective.
- IT must understand the Business Strategy and Vision.
- IT is a partner, not just a tool. Just like you, IT wants to be ahead of the work and plan to succeed instead of reacting.
- IT needs a business process to align with. IT does not exist solely for the sake of IT; instead, we exist to help the business and solve problems.



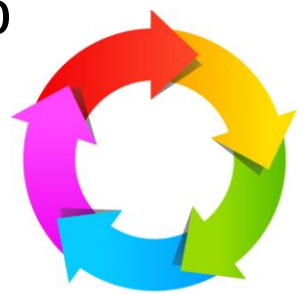


IT in Projects

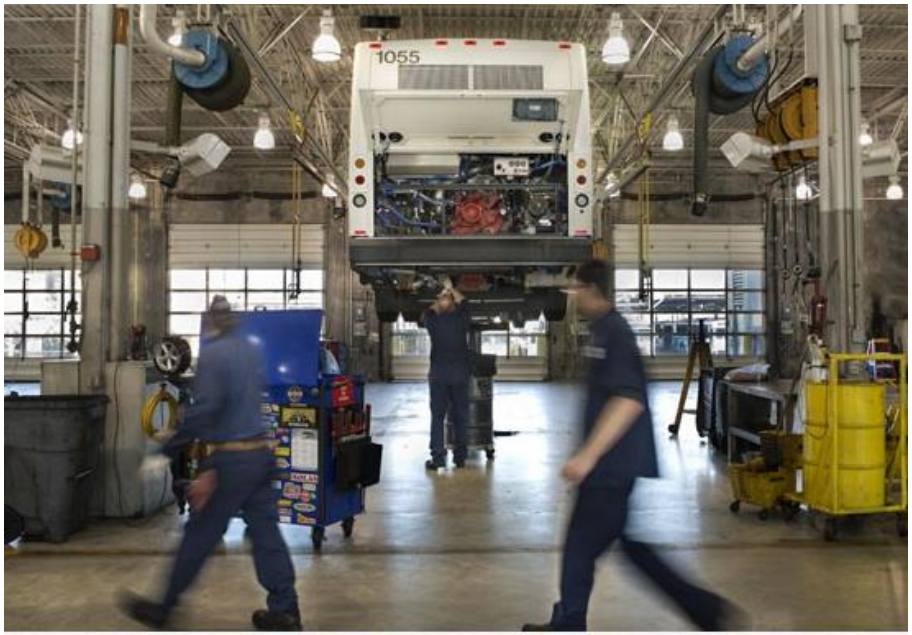
- ❑ Bring IT in early during the planning process.
- ❑ Don’t Assume what we did last time will work again.
- ❑ IT projects always cost more than anticipated.
- ❑ IT projects always take longer than planned.
- ❑ Technology solutions rarely come out of a box. We must develop a plan and follow project processes. **Define, Design, Build, Test, Redesign, Deliver, Burn-In.**
- ❑ Is there a ROI to this technology project? Does the benefit outweigh the cost?

IT in Operations

- If you build it, you must support it. Once a project transitions from a project into operations the system will incur operational maintenance costs.
- Lifecycles- hardware and software both have a time limit in operations.
- Software typically will be upgraded every year or two and the developer will typically indicate the end-of-life status a few years in advance of the event.
- Typical IT hardware aside from computers have a 5-9 year shelf-life.
- Budgeting for refresh cycles is very important due to the cost. Refreshes are typically very expensive.
- IoT devices have not existed long enough to understand what the support cycle is yet.



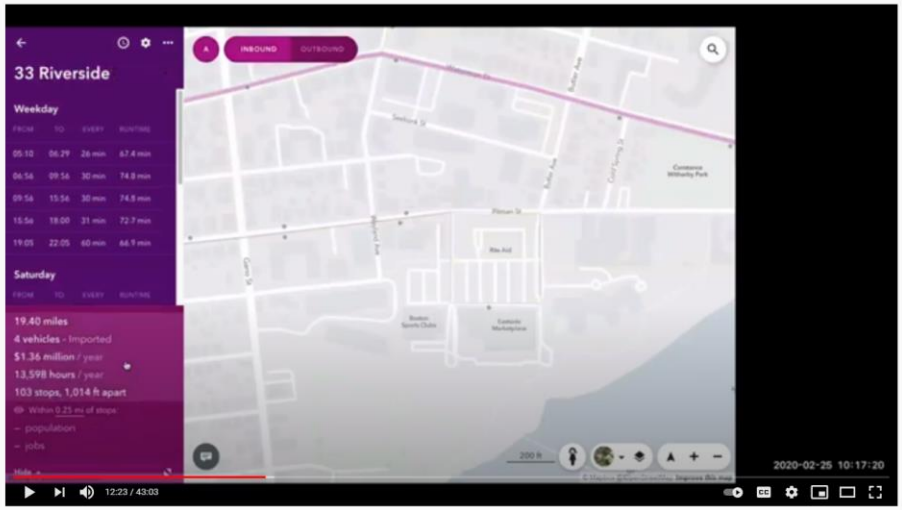
IT and Your Employees



- A good manager knows not just their business but also the supporting areas such as Procurement, Finance, HR, and IT.
- Employees more and more need IT skills. Not just office workers but our operators and mechanics are everyday interfacing with hardware and software.
- Assess for skill differences and offer training where appropriate. Include free options such as YouTube.

Microsoft Excel Tutorial - Beginners Level 1 - YouTube

YouTube · Teacher's Tech



https://www.youtube.com › watch

Computer Literacy Lesson 1 2020- Introduction, basics ...

In this **lesson** I go over:**Introduction**.**Computer** basicsI also cover a number of other topics, such as, using ...

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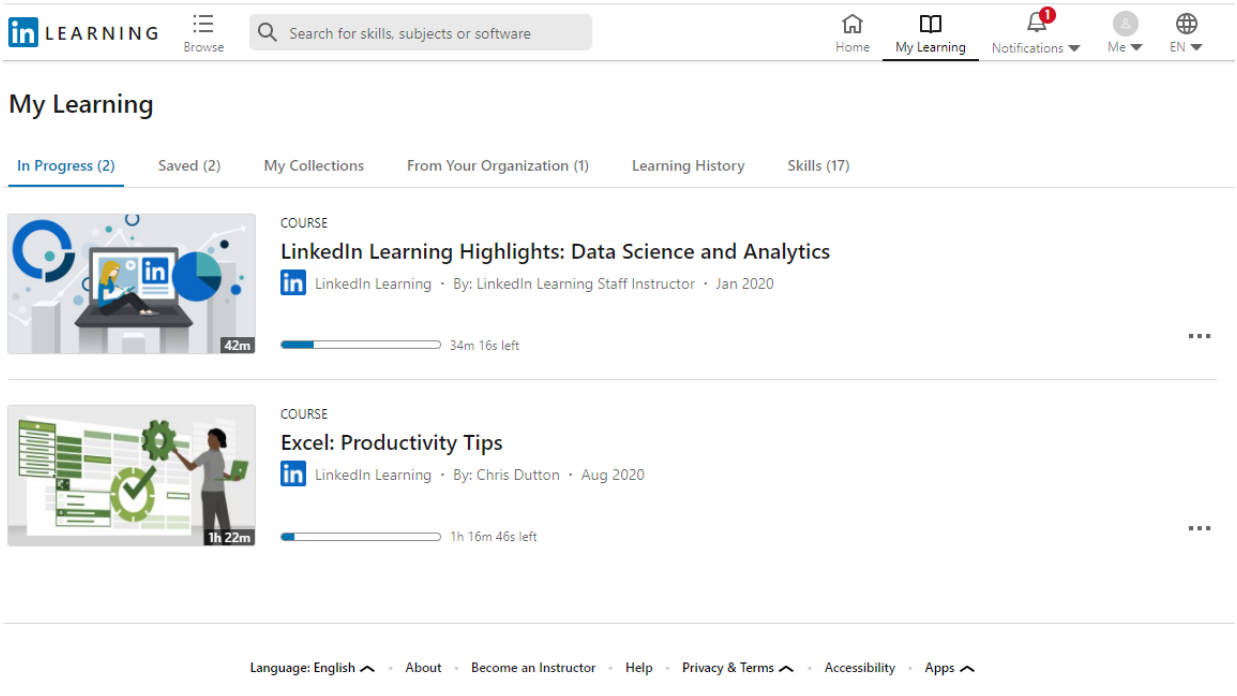

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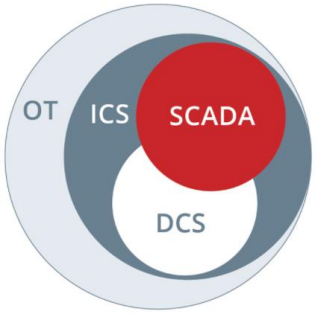
Cyber Security & Transit

- Every member of your staff is responsible for IT security. Just as you would challenge a stranger in your offices or shops, you must challenge strangers asking about our IT environments.
- MFA and Passwords.
- Hardware authentication- Transit networks are built to recognize hardware. If you WFH don't let your kids use your laptop. Kids make bad decisions and can be targeted, they may infect your computer with spyware and malware which will have access to the network next time you are on VPN or put your laptop on the network at home.

- How hackers gain access to networks- phishing and social engineering
- Employee separations
- ICS and SCADA
- Disrupting vital networks
- Recovering from cyber attacks
- Importance of having a Business Continuity plan and including IT.
- IT should have a Disaster Recovery plan
- Practice your BC/DR plan. Have hard copies of your plans; in the event of a network issue you may not be able to access your documents.



Innovation and the Future of Transit IT

- Technology evolves rapidly and that includes the technology that can be used in Transit.
- What happens in the world outside of Transit will eventually affect us. Twitter and Facebook for Marketing; online shopping paved the way for online pass sales; Mobile apps on phones translated to apps for our transit modes.
- We can typically adopt one of two positions; we can be on the leading edge or adopt tried and true solutions. We must weigh the benefits and risks of either option.

- TNCs like Uber and Via are purchasing our routing and scheduling software companies.
- Autonomous vehicles are now being piloted
- More and more the future is opting out of the physical world, how will that translate to transit?
- IT is like the stock market; you make guesses where the industry will go but sometimes you will be wrong.