Building An Industrial Ecosystem:
Crafting Optimal IIoT Interfaces For Automation

Industrial Internet of...

Things:

customers/users

facilities

assets

Industrial Internet of…

Nouns:

people – customers/users

places – facilities

things – assets

Verbs:

streamline process

analyze information

maximize efficiency

The hidden advantage of the IIoT...unforeseen relationships

1854 Cholera Outbreak
In Central London
by Dr. John Snow

One of the first pin/scatter
plot diagrams.

Reference:
The Visual Display of Quantitative Information,
Edward R. Tufte

What does GE do?

GE Aviation

GE Energy Connections

GE Healthcare
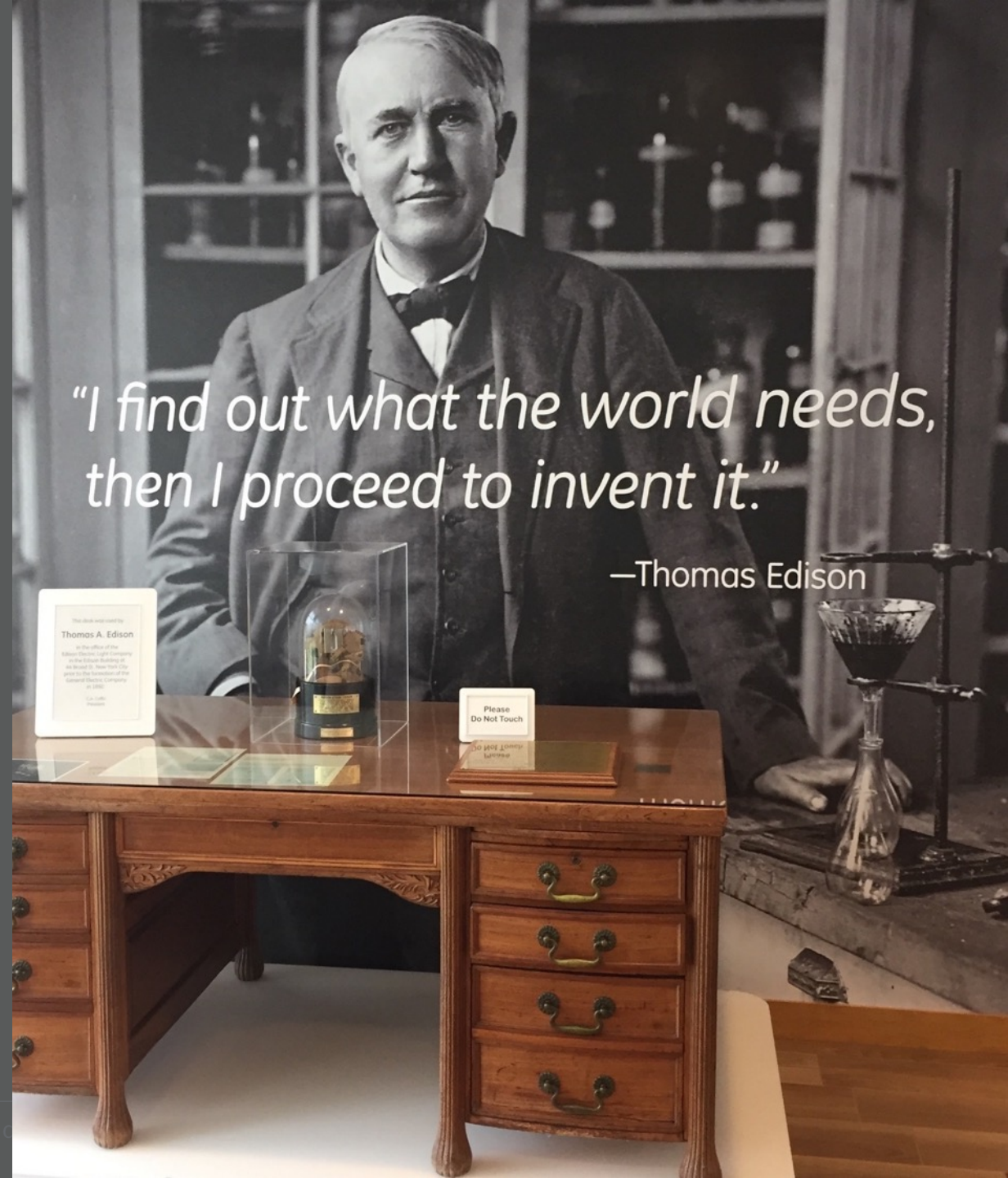
GE Oil & Gas

GE Power

GE Renewable Energy

GE Digital

GE Transportation

Our History

"I find out what the world needs, then I proceed to invent it."

—Thomas Edison

We are a digital industrial company. We transform industry by connecting people, data, and machines.

PREDIX

People - Automation

Process - BMS

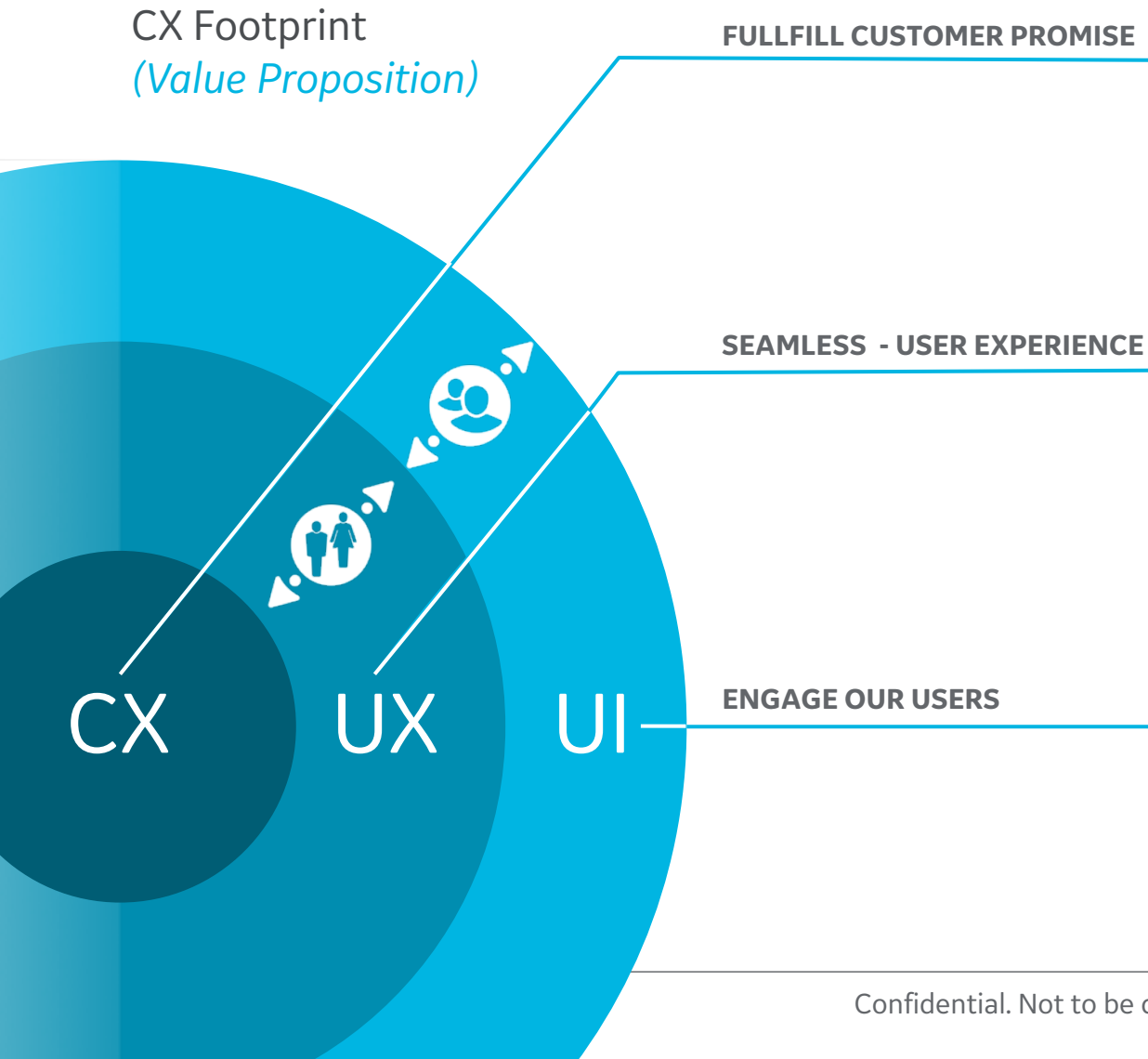Machines - APM

Industrial Strength Challenges

CX Footprint
(Value Proposition)

FULLFILL CUSTOMER PROMISE

SEAMLESS - USER EXPERIENCE

ENGAGE OUR USERS

CX   UX   UI

Diverse User profiles
- Customers
- Integrators
- End Users
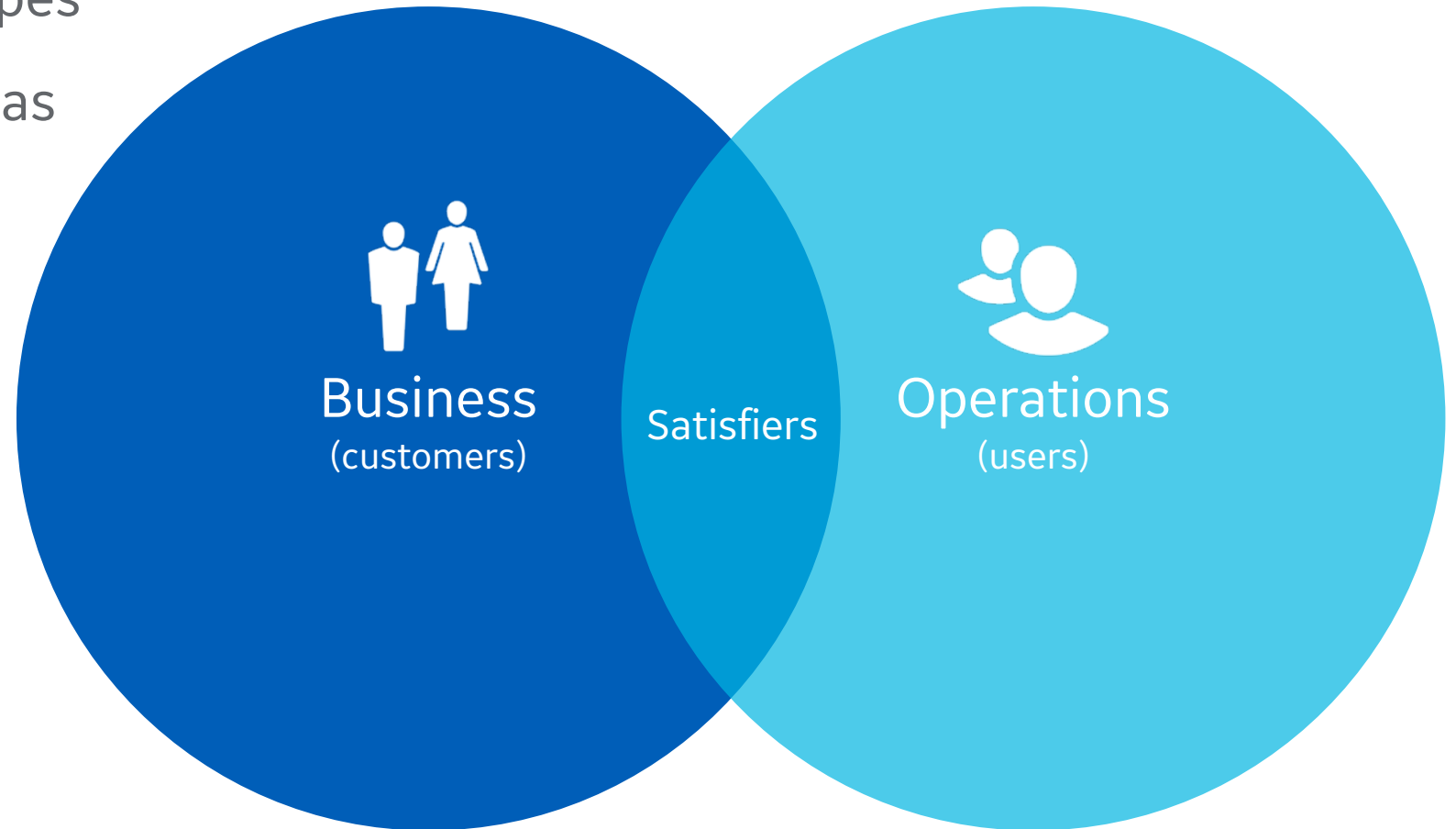
Conceptual Differences
- Late adopters - trailing edge
- Behavioral & process change across the board

Environmental Challenges
- Security
- Air gapped
- Sub-second data visualization

Who are we designing for?

- Identify User Types
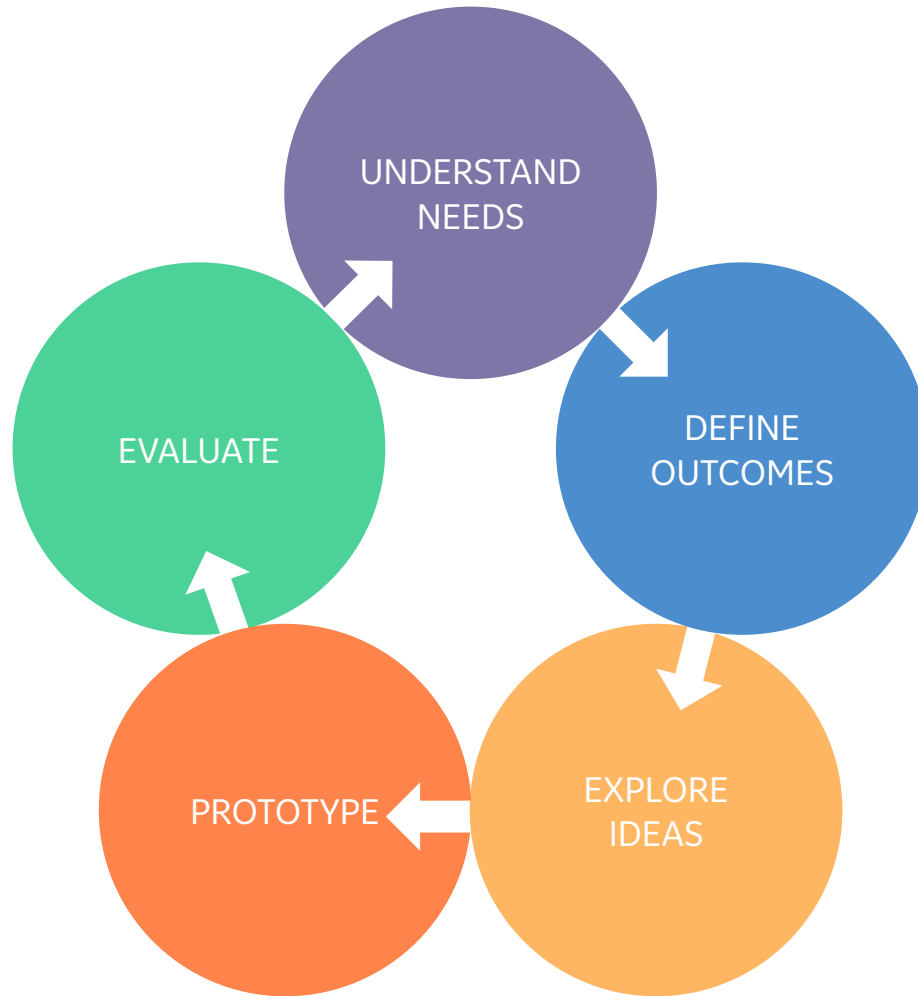
- Develop Personas

- Tell a story...

Business
(customers)

Satisfiers

Operations
(users)

Customers are not necessarily users!

How to approach design?

The Design Thinking...

A *formal approach* that takes the essence of designers' *sensibility*, *process* and *methods* to help solve problems in a practical, creative, outcome-focused way.

What Predix is creating
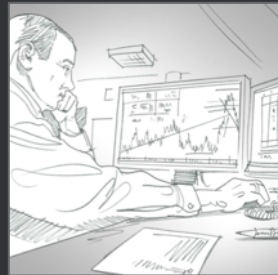
CX Concept – custom vs. modularity

CX Concept – modularity:
takes advantage of the fluid nature of IIoT!

UX Personas and Requirements

PRODUCT DEVELOPERS	SYSTEM INTEGRATORS	OPERATORS	MAINTAINERS	SYSTEM ADMINISTRATORS	ANALYSTS	MANAGERS

ONE fully integrated development experience

Robust pre-built components

Seamless transition from requirements to model to code

Simulation-based validation

Unified experience for system-wide integration

Automation

Configuration & troubleshooting toolkits

Discovery and Provisioning

Ability to work outside the control room

Shifting skillsets & roles

Exception based

Simplification & guidance in the face of growing complexity

Operational analytics

Models, not schematics

Intelligent diagnostics, prognostics, and analytics

Knowledge management

Mobility and hands-free interaction

Unified installation, administration, and update

Streamlined, intuitive processes

Tools & partnership to optimize system operation

Ability to adapt quickly to changing business needs

Access to unprecedented quantities of data

Tools and services to find actionable insights in the data

Advanced information visualization

The means to communicate and collaborate insights with others

Transparency

Integrated decision support & planning tools

Enterprise integration

Collaborative intelligence

Fleet/enterprise analytics

An Industrial Ecosystem
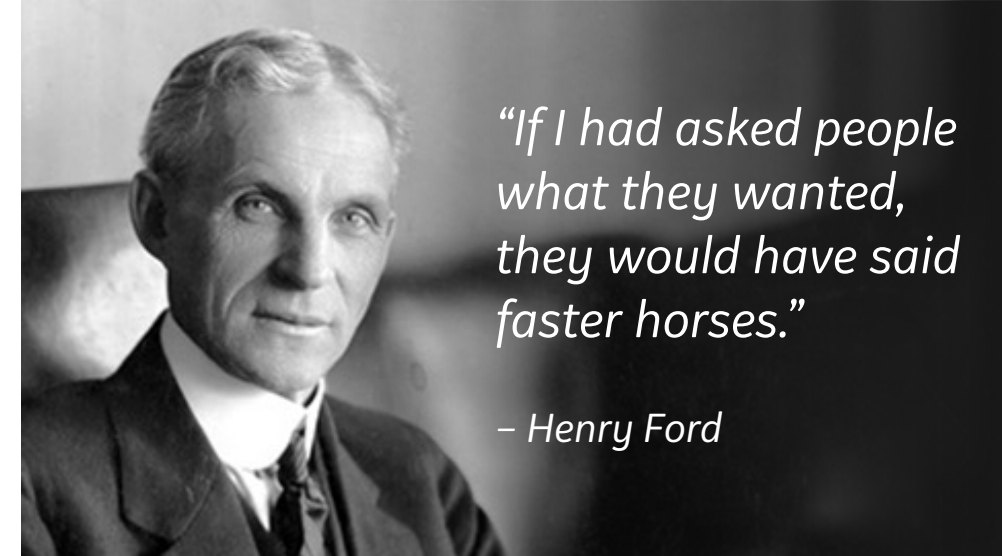*...allows the composition of IIoT data into unforeseen visualizations*

Wrap-Up

- The Importance of user profiles

- It's about the journey...tell a story
  - All about process change
  - Manufacturing/industrial space is trailing edge
  - It's not about an app changing a single behavior. It about revolutionizing the entire work stream

- The purist form of B2B
  - End-users are not point of purchase

- Challenging Environment(s)
  - Security
  - Air gapped
  - Sub-second data visualization
  - Boundless workspace

"If I had asked people what they wanted, they would have said faster horses."

– Henry Ford

Imagination at work