




ZEBRA

 **HEALTH SLAM '16**
IoT for Healthcare Virtual Conference
December 2nd 2016
An IoT Slam® Production

Healthcare IoT New Technologies & Possibilities

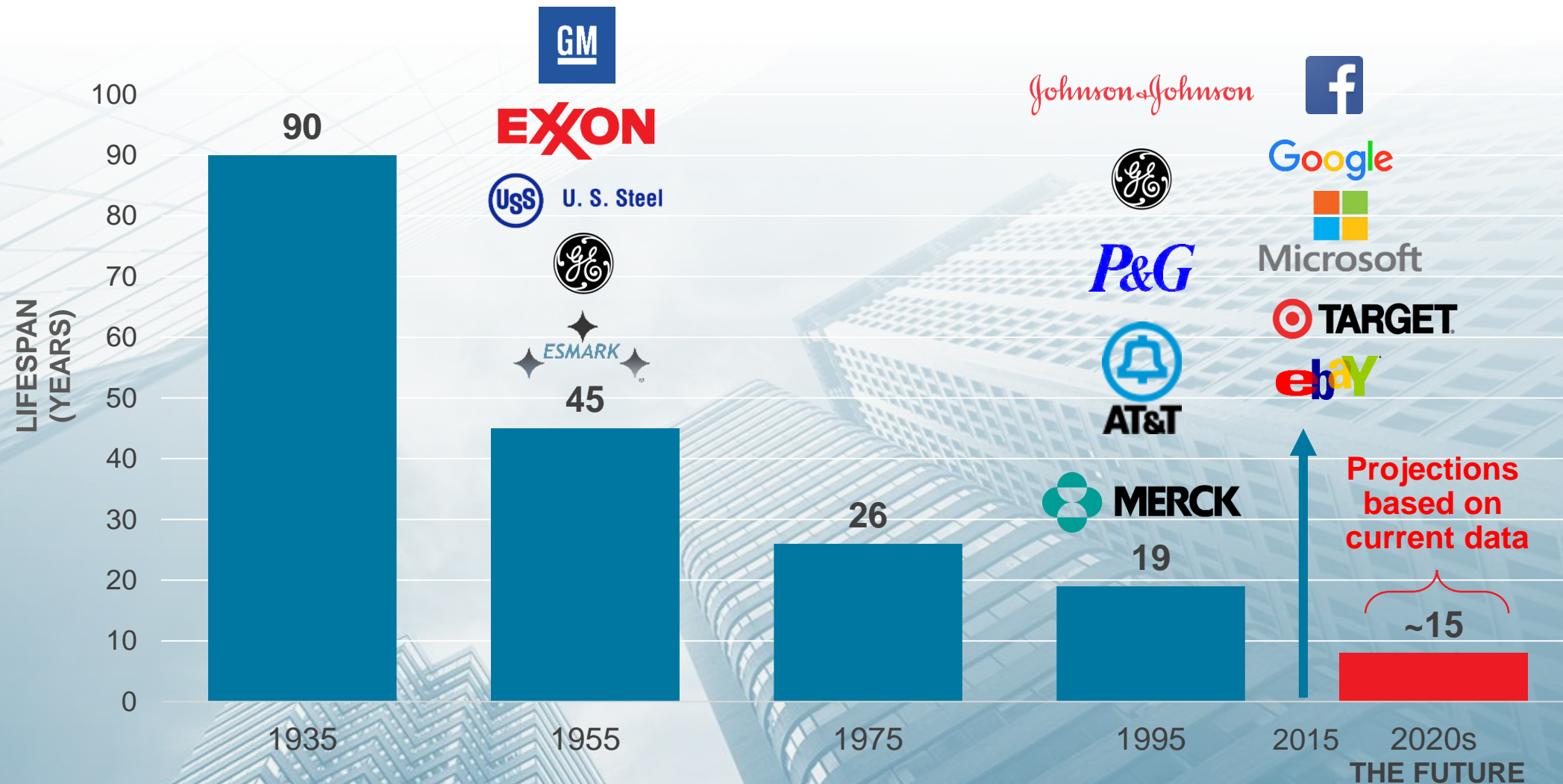
Tom Bianculli – CTO, Zebra Technologies



**“We are burying a
population the size
of Miami every year
from medical errors
that can be
prevented.”**

- Leah Binder
President and CEO of Leapfrog Group

INNOVATING TO STAY RELEVANT



VISION

**Connecting people, places
and things to minimize errors,
improve care and lower costs**

Healthcare Megatrends

The World is Changing

MANDATE TO IMPROVE QUALITY OF CARE...

- **+400K deaths annually due to errors**
- **1 in 20 patients catch healthcare-associated infections**
- **700K-1M patients fall annually**

WHILE STREAMLINING WORKFLOW

- **35% nurses' time spent on documentation**
- **20% nurses' time spent on care coordination**
- **Nurse population needs to double by 2020**

We could identify and locate every patient, care giver, piece of medical equipment and medication in real-time....

WHAT IF?

- 1. We would significantly reduce the #3 cause of death in the U.S. due to medical error and virtually eliminate the 10% directly attributable to medication errors**
- 2. We would enable nurses and clinicians to spend time on what they do best and are passionate about - caring for patients rather than spending 55% of their time coordinating and documenting care**

Disruptive Innovation Creates the Answer to Challenges

Enterprise Computing 1990 - 2020

WHAT SHOULD BE HAPPENING

Driving strong adoption of traditional AIDC technologies



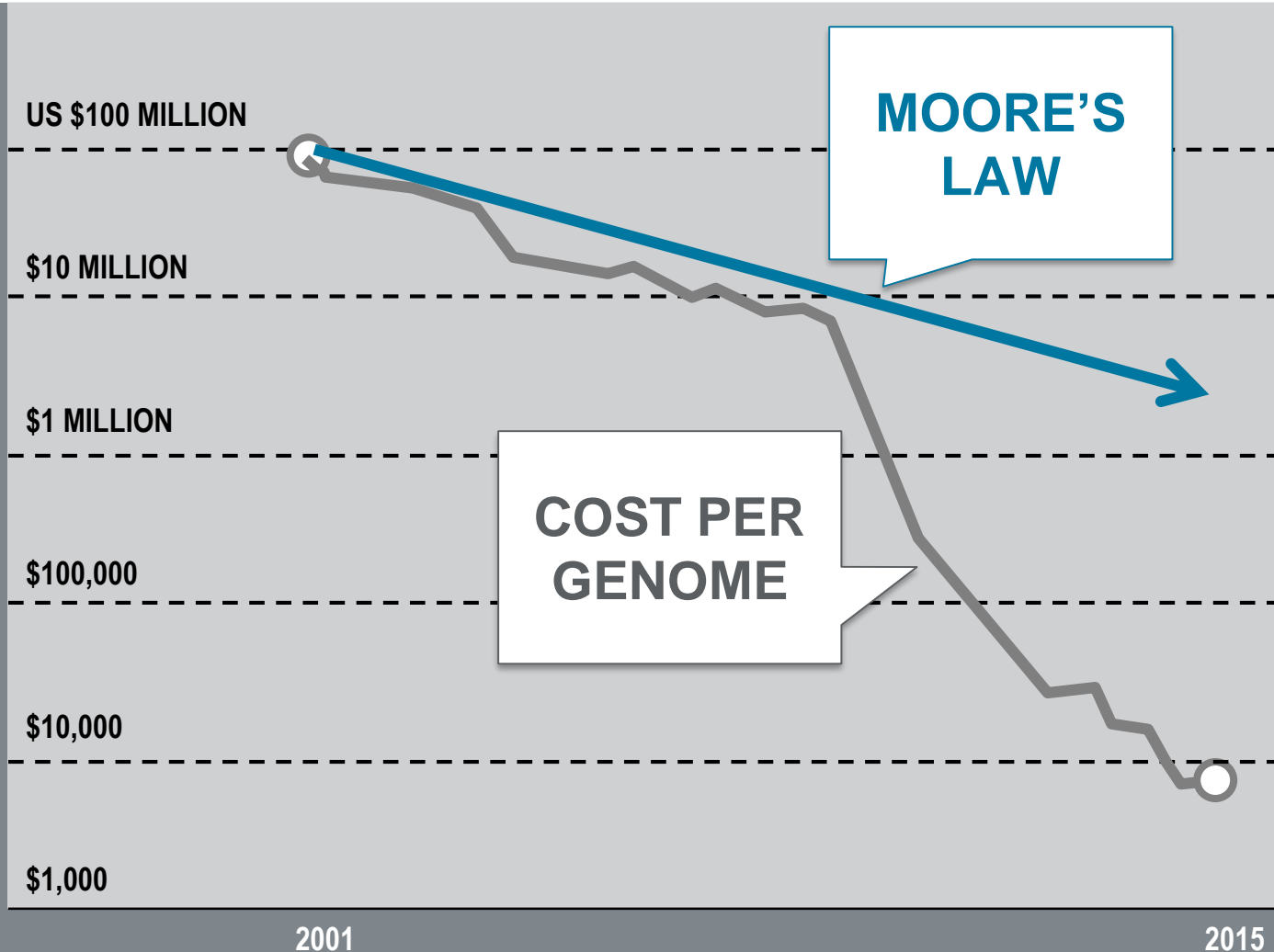
WHAT'S REALLY HAPPENING

Creating new opportunities to expand beyond AIDC



Speed and Rate of Change

Looking Beyond Moore's Law



Moore's Law:

For the same given cost computing hardware performance doubles every 18 months.

Compute as a Utility:

Cost of computation has outpaced Moore's Law by two orders of magnitude!



MOBILITY



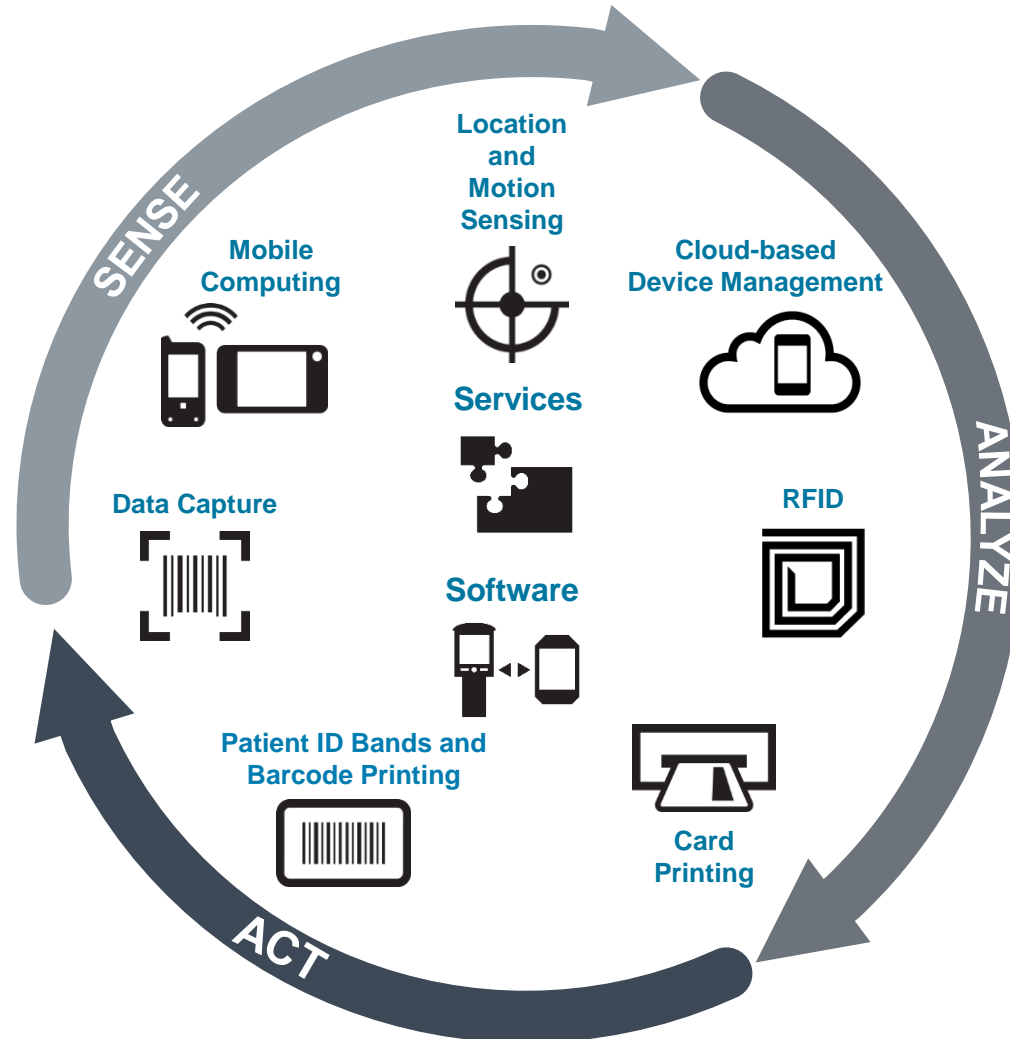
INTERNET
OF THINGS



CLOUD

Enterprise Asset Intelligence (EAI)

Zebra in the Healthcare Industry

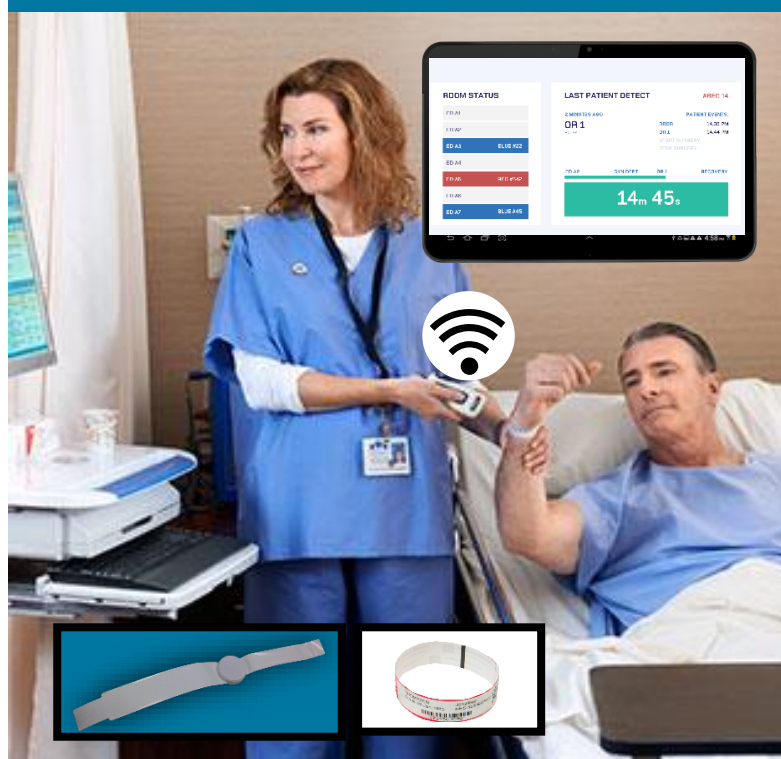


Enabling This New Reality

SMARTER DEVICES



SMARTER THINGS



SMARTER ENVIRONMENTS



Visibility/Identity

- Identity mistakes are high-risk issues in Healthcare and manifest themselves in many different ways.
- Digitization of identity management processes creates an admission to discharge quality control processes and reduces patient safety risk.

- 80% reduction in medication dose admission scanning errors - Southwestern Vermont Medical Center case study
- Barcode usage has reduced the number of drug administration errors by 42% - *The New England Journal of Medicine*, May 2010
- After the implementation of a positive patient identification system using barcoding and computer technology, the number of labeling errors decreased from 103 to 8 per year - *J Nurse Care Quality*, 2011

IDENTITY

- Improves Patient Safety
- Reduces Waste and Rework
- Ensures Patient Rights



Positive Patient ID



Blood Bank Mgt



Pharmacy Mgt



Lab Mgt



Specimen Collection



Medication Administration



Tissue Tracking

Mobility

- Increasingly clinicians are spending less time directly with their patients.
- Communication and workflow collaboration barriers can prevent clinical integration and effective patient care from occurring.

- “The information we are getting is now much more reliable. We are now hitting on all of our critical delivery information targets.”
- Major University Hospital.
- “Mobile nursing information devices give us significantly more control over safety. Nurses no longer need to transfer records from their memories to the patients’ files after they return to their stations.”
- Major urban 955-bed hospital.

MOBILITY

- Simplifies Workflows
- Improves Communications
- Enterprise Effectiveness



Nurse Call
and Alerts



Secure
Voice



Alarms



Secure
Messaging



Patient Record
Access

Intelligent Workflow

- Too frequently clinicians are pressed into making patient care decisions without the most current and relevant information being available to them.
- Real-time information is the difference between clinicians guessing and knowing.

- “The system enables automatic time registration and provides insight into the entire patient care delivery process.” - M.D., Leiden University.
- “We now have a reliable, highly performing system in place that allows our staff to locate their resource quickly and accurately.” - CIO, Aarhus University Hospital, Denmark.
- “We are provided reliable real-time access, and this helps us optimize our logistics chain.” - Chief of Staff, Head of Cardiology, Leiden University

INTELLIGENCE

- Real Time Information
- Situational Awareness
- Enhanced Decision Making



Patients



Staff

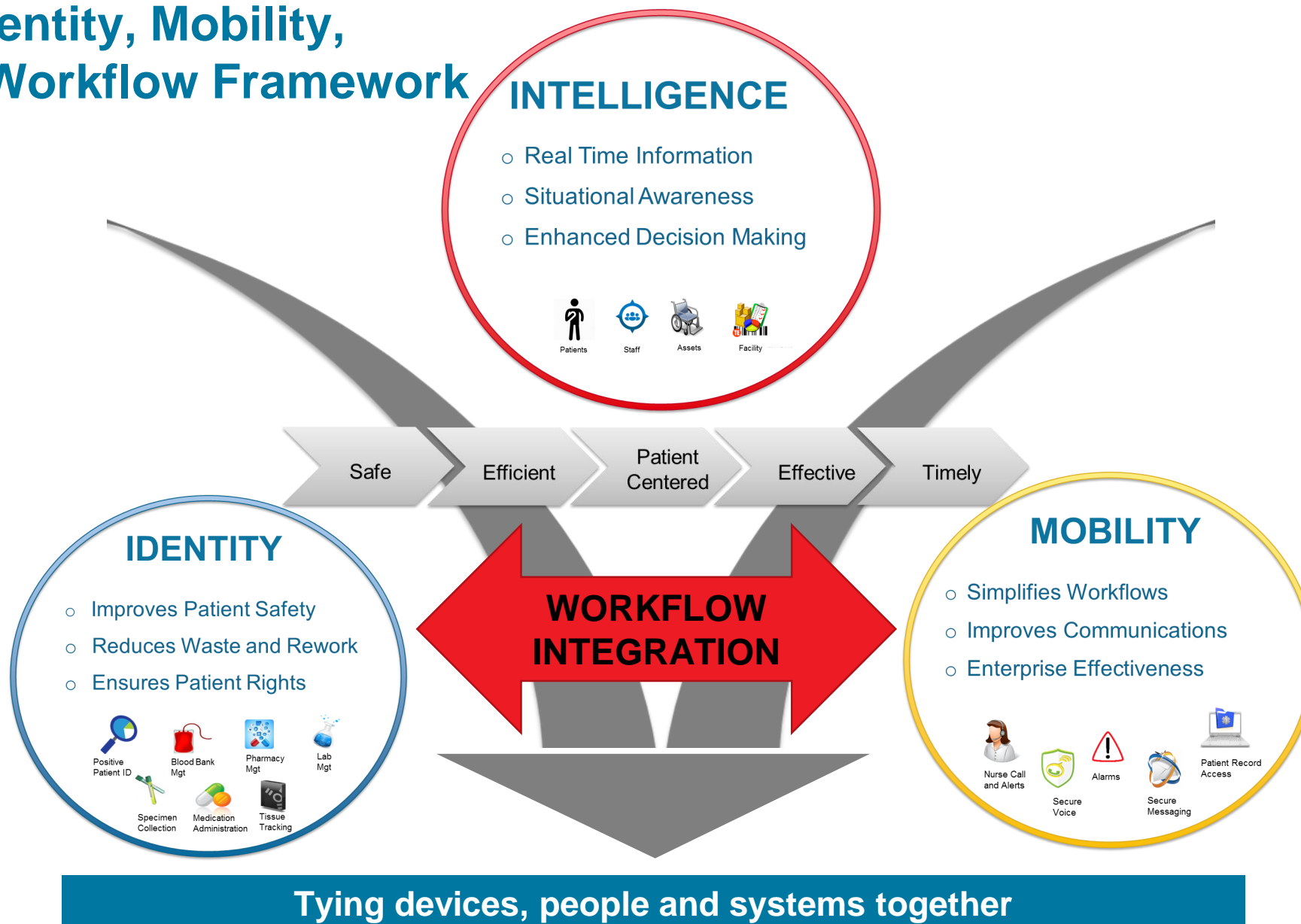


Assets

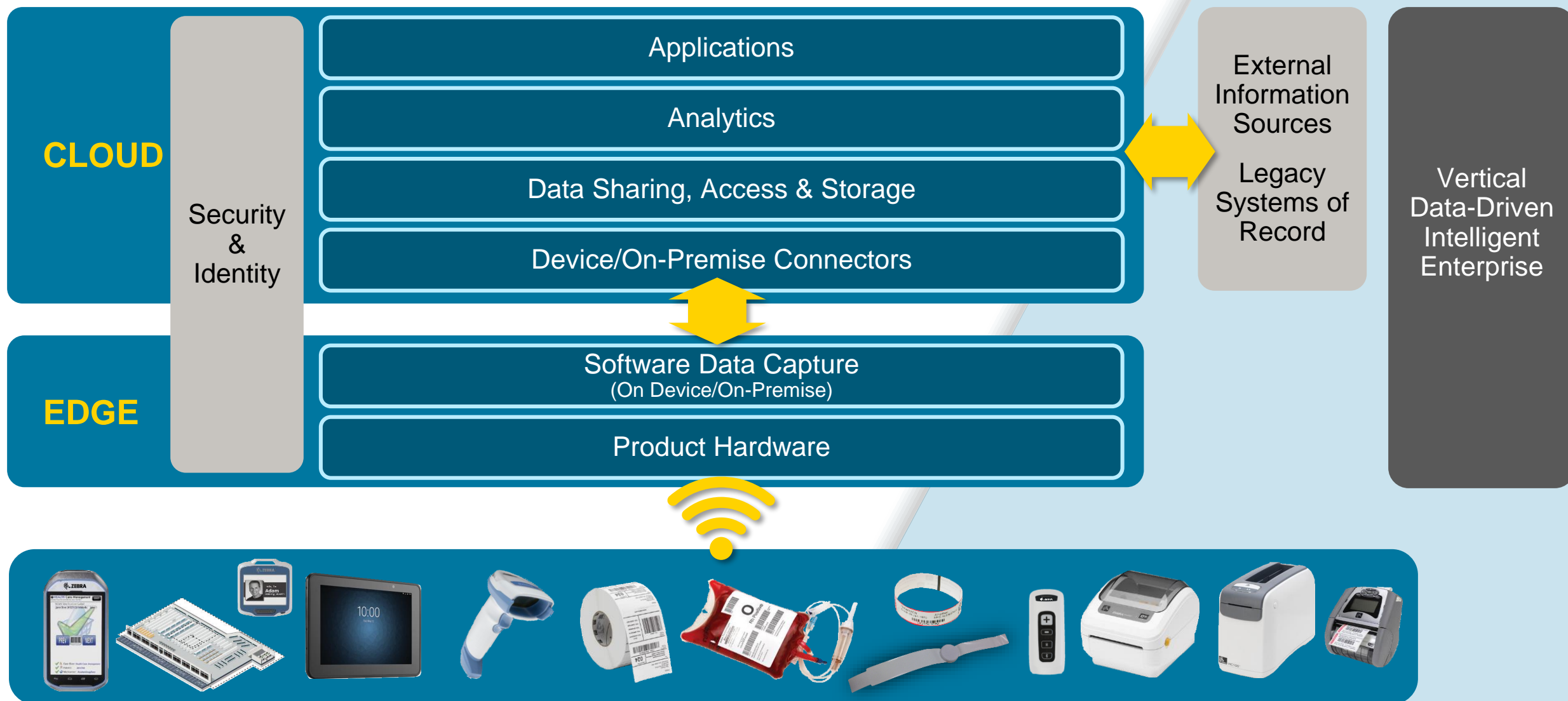


Facility

Visibility/Identity, Mobility, Intelligent Workflow Framework



Enabling Enterprise Asset Intelligence in Healthcare



Co-Innovation Approach



INTERVIEW
UNDERSTAND NEEDS



OBSERVE
IDENTIFY OPPORTUNITIES



PROTOTYPE
ITERATE ON IDEAS



VALIDATE
USER TESTING



IMPLEMENT
DEVELOPMENT PLAN

FOCUS ON UNDERSTANDING AND INNOVATING AROUND BUSINESS PROCESSES



Allowing nurses and clinicians to focus on the key tasks in **blue** through enabling technology that senses and analyzes data to automate the tasks in **grey**.

RESULTS

- Less time spent on data entry
- More patient interaction
- Dynamic resource allocation

Co-Innovation Approach

AARHU "SUPER" HOSPITAL



RFID Tag Deployment on
Employee Badges, Medical
Devices, and RX Packaging

WASHINGTON HOSPITAL



Pattern Recognition and
Workflow Optimization
Powered by MotionWorks™
Technology

BETH ISRAEL MEDICAL CENTER



Medical Device and UDI
Compliance Solution

LEIDEN UNIVERSITY MEDICAL CENTER



Time to Treatment Tracking
Solution for Heart Attack and
Stroke Patients

A NEW FRONTIER...

Deriving insight from
data to enable better
outcomes in real-time...

**THANK
YOU**

