FUJITSU

shaping tomorrow with you

Realizing Human-Centricity: Data-Driven Services

Ajay Chander
R&D Lead, Data Driven Life Innovations

Fujitsu Laboratories of America

January 22, 2014

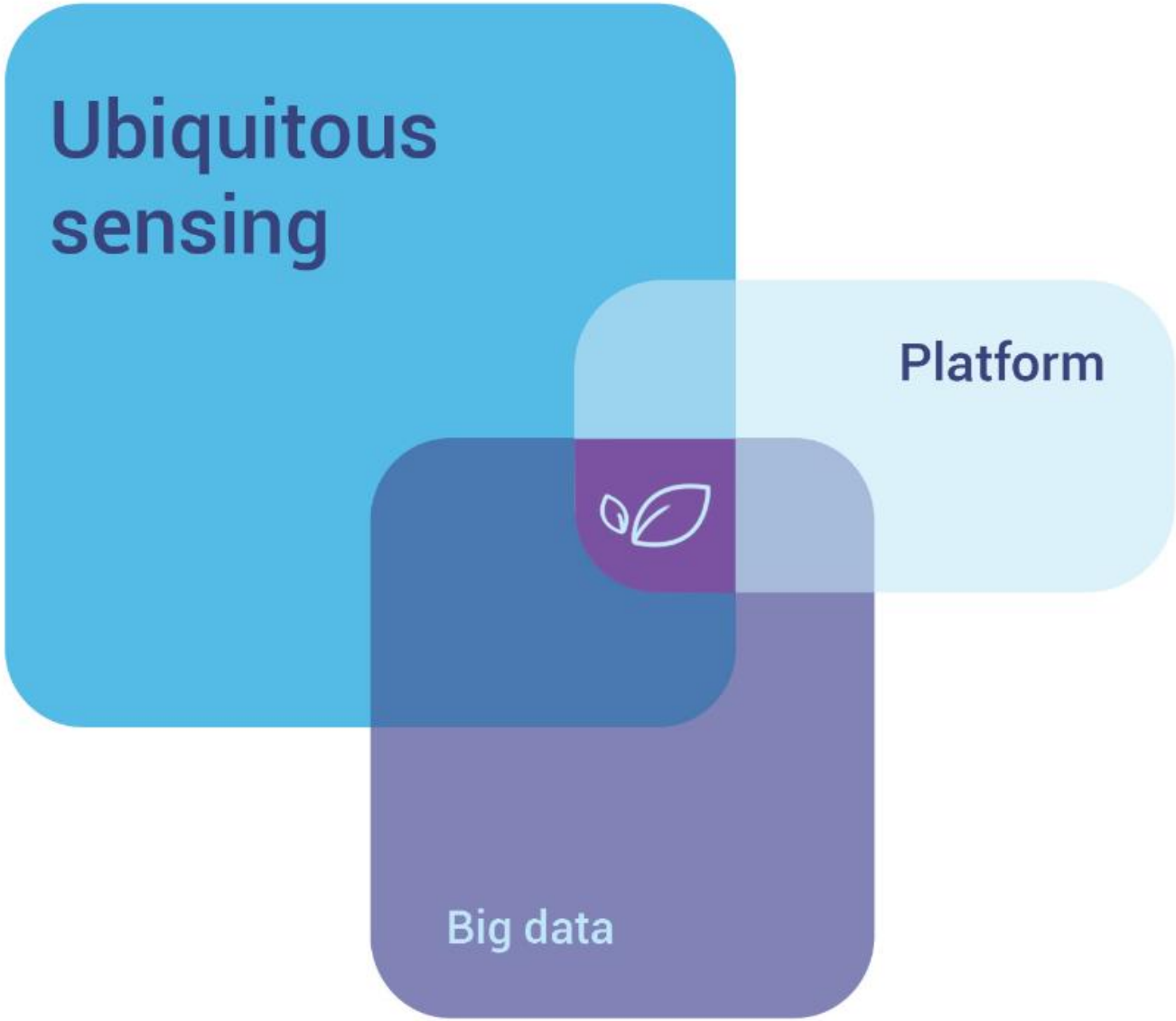
Context: Internet of Things

FUJITSU

- The world, including us humans, is getting quantified
- The world is generating data: new input to the IT infrastructure
- This creates an opportunity for a new class of services

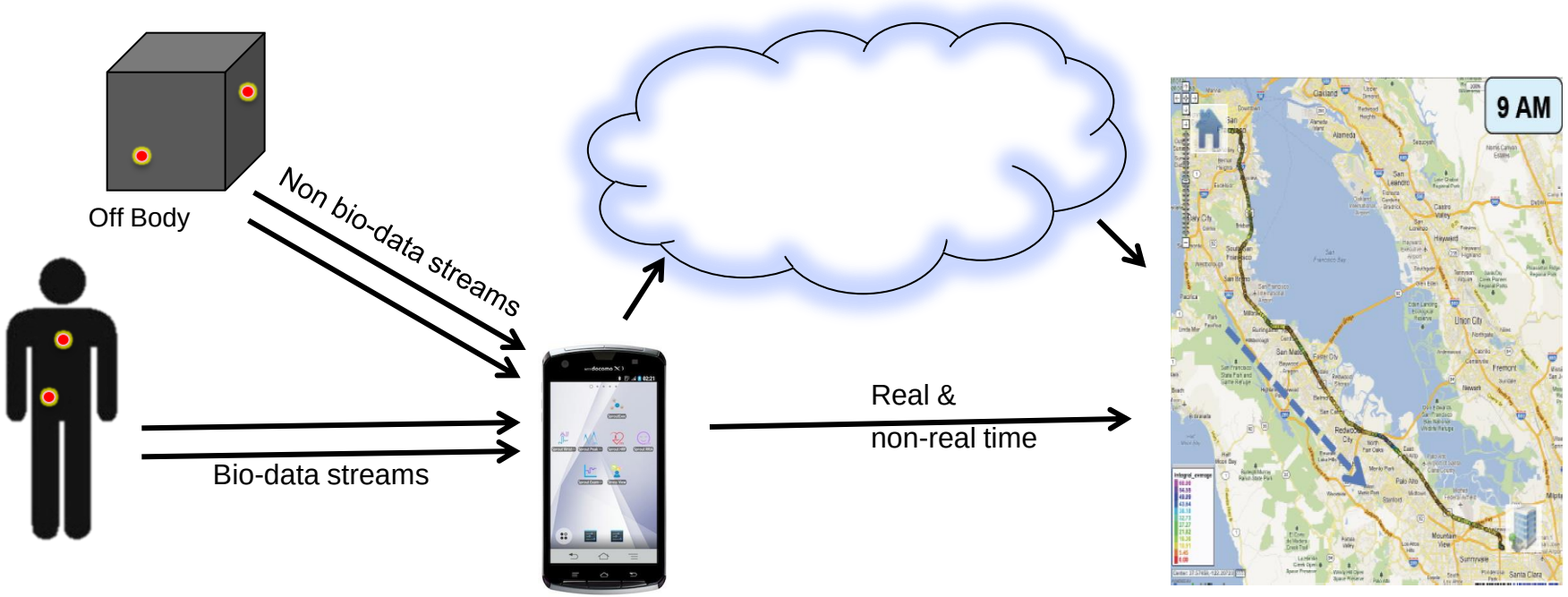
Sprout = Platform for big data from sensors

FUJITSU



Sprout enables continuous IoT services

FUJITSU



Sensing

Analysis

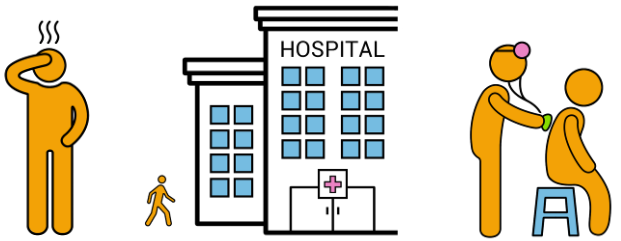
Services

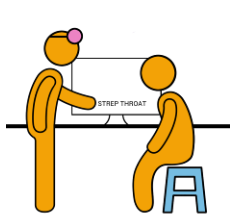
The Health-Tech Disruption

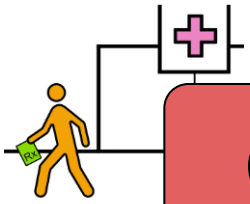
FUJITSU

Health	Care

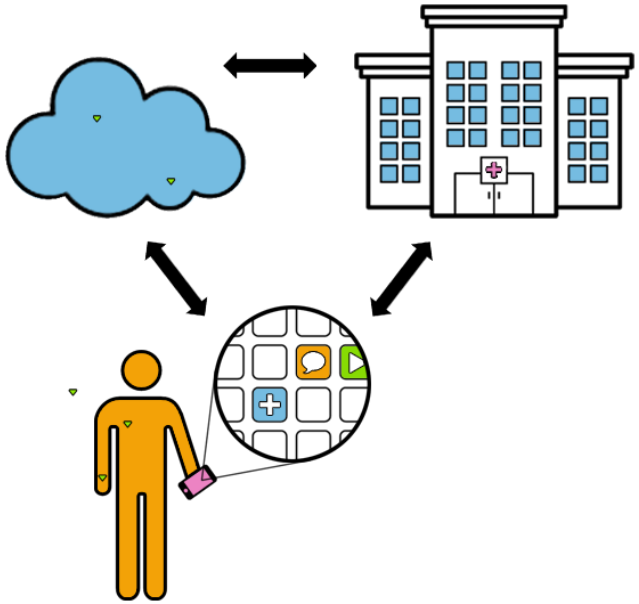
How am I? How can I get better?







episodic

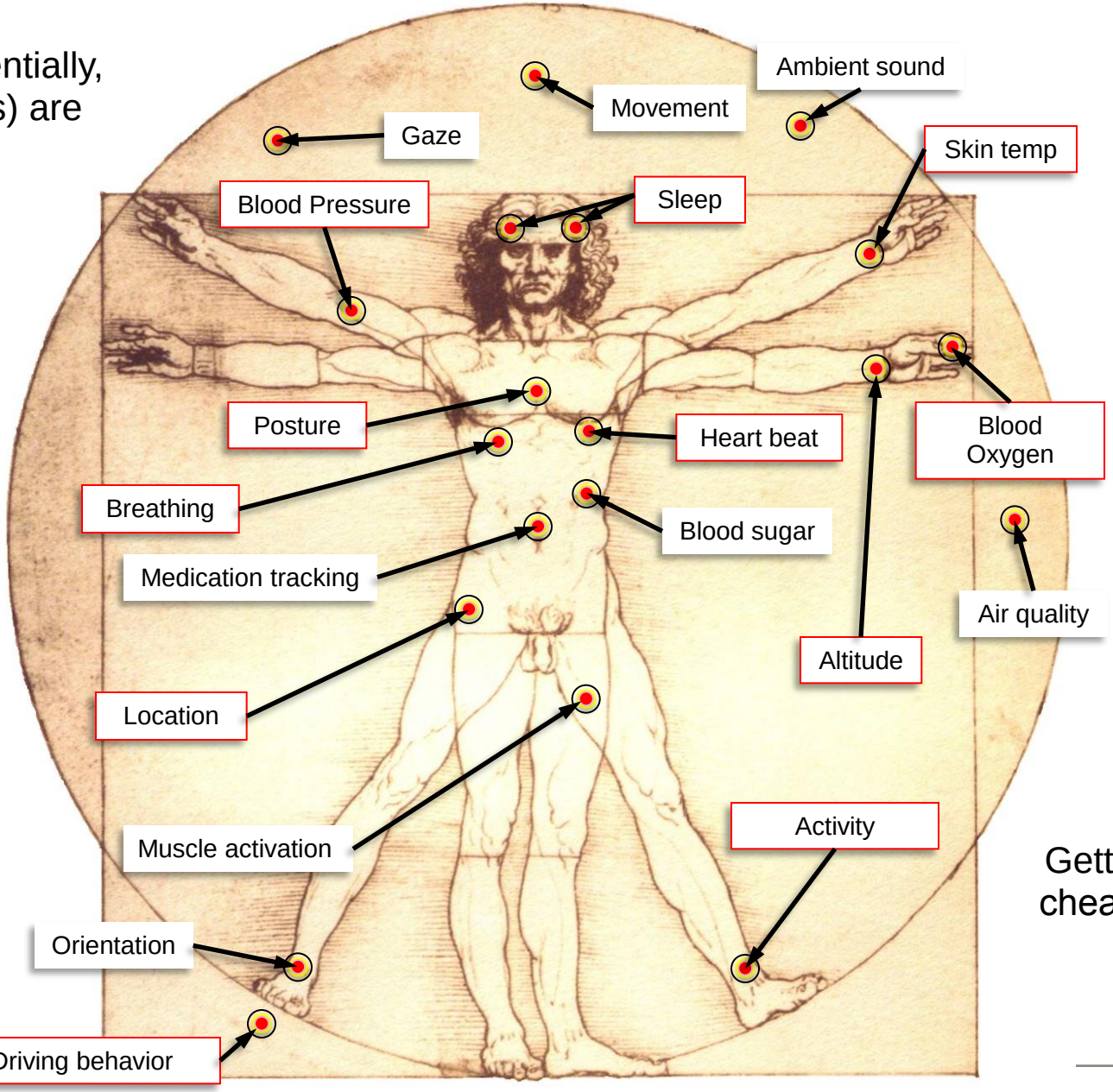


continuous

Now, we can be measured, anywhere/anytime

FUJITSU

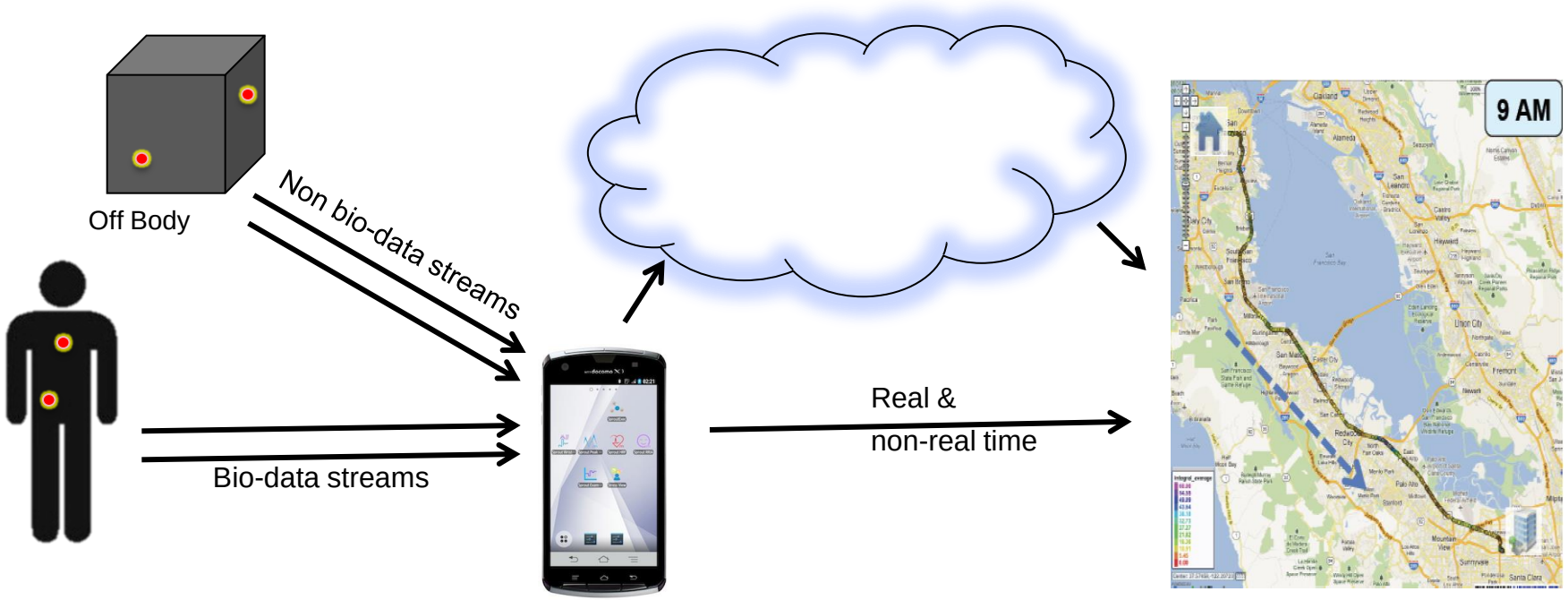
Sensors (essentially, tiny computers) are increasingly ubiquitous



Getting smaller and cheaper on Moore's Law (roughly)

Healthcare as a Service

FUJITSU



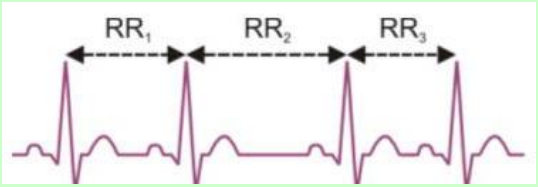
Sensing

Analysis

Services

An Example Application: Mobile Real-time Stress Assessment

Real-time ECG/PPG

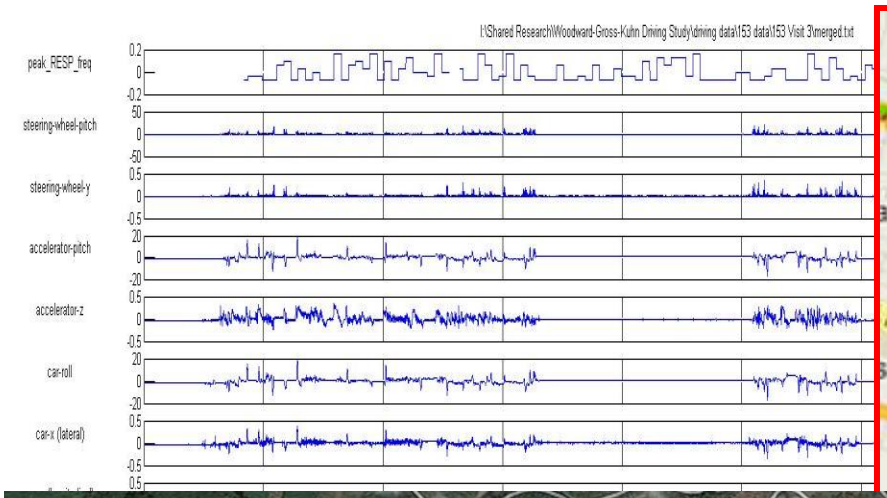


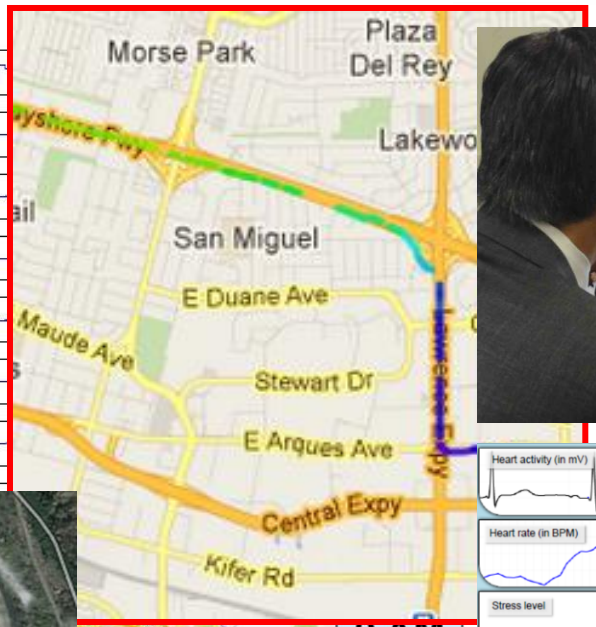
Beat-to-beat time variability is a measure of stress

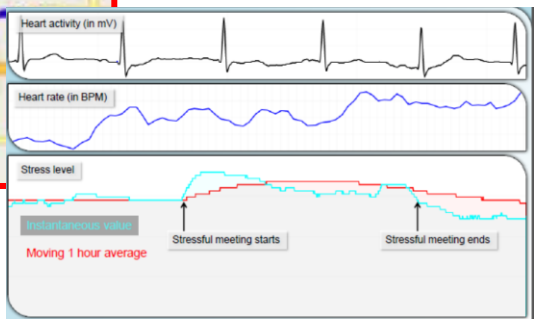
Mobile continuous stress management services

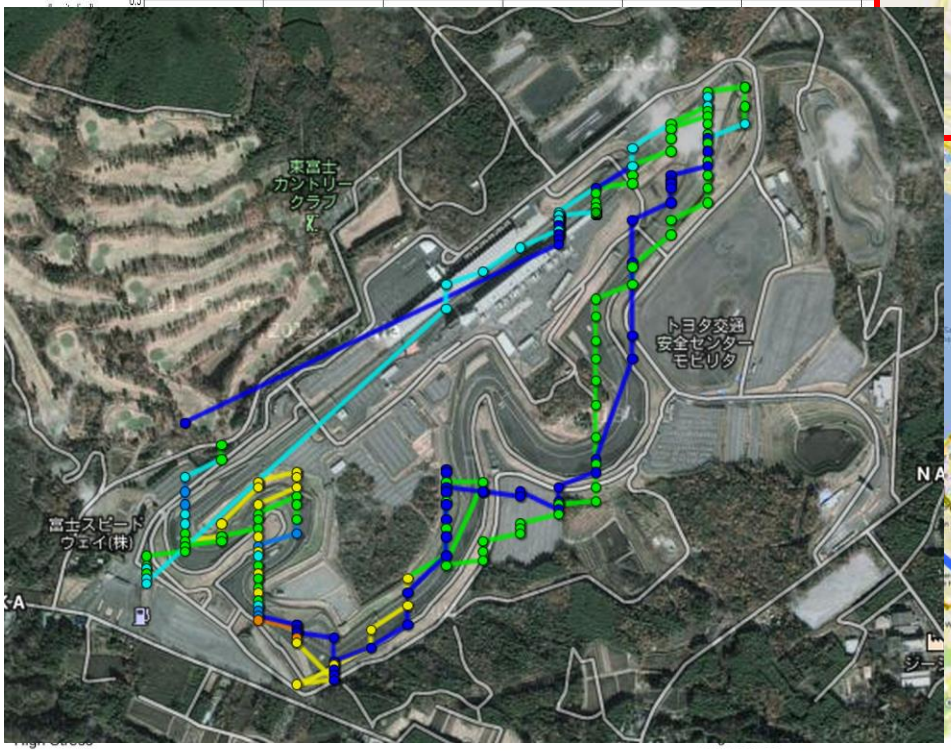
Some examples of Sprout apps

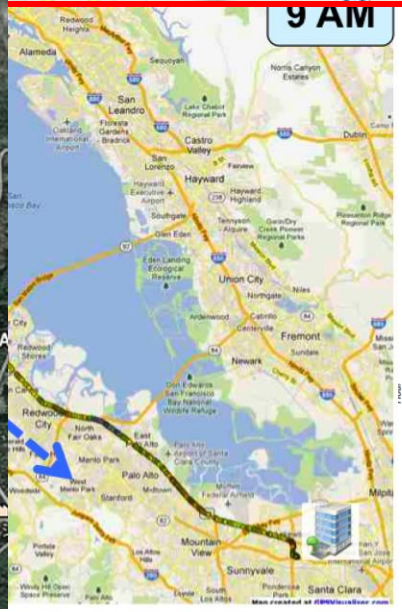
FUJITSU

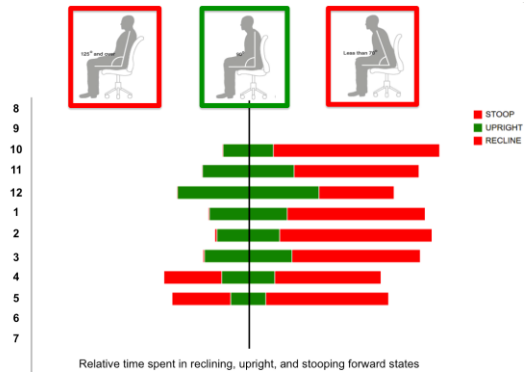






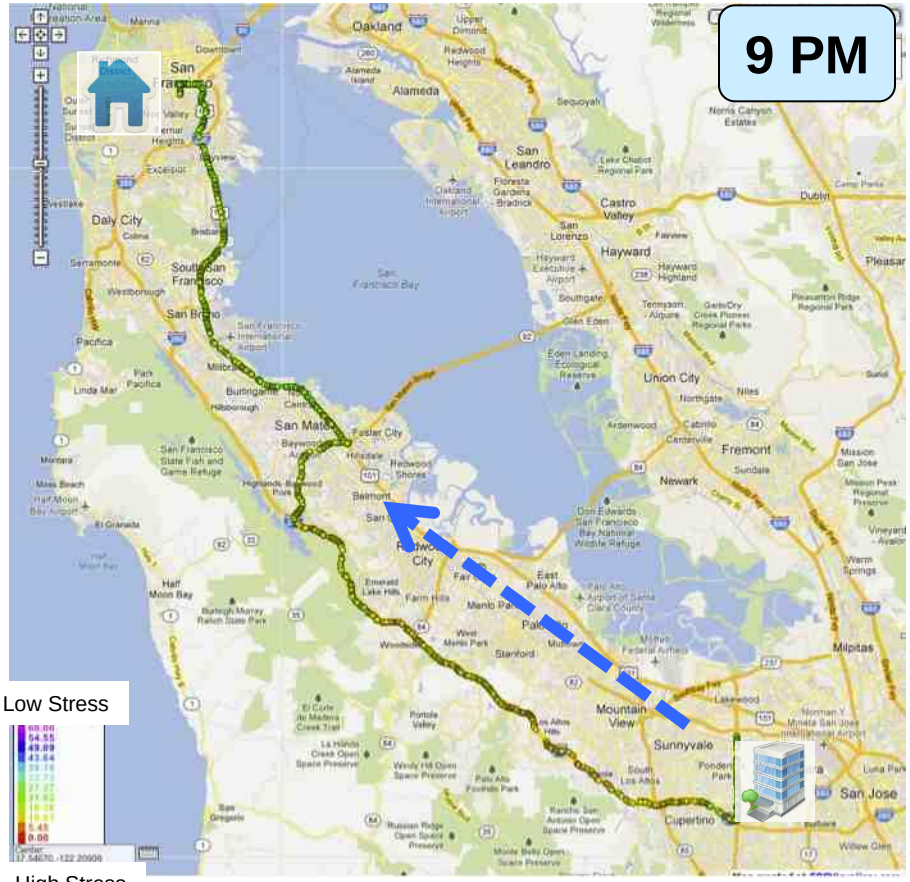


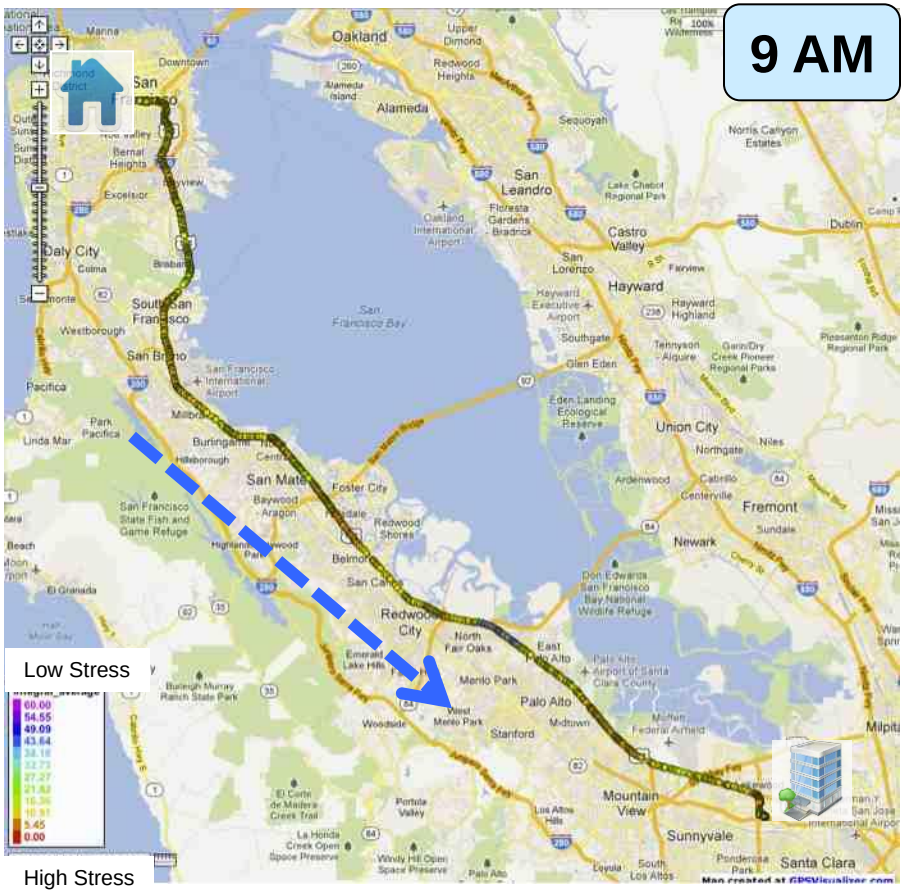




“Me”-centric maps

- Tracking our own stress using chest strap and Fujitsu analytics
- Tracking Location using GPS
- Mashing-up

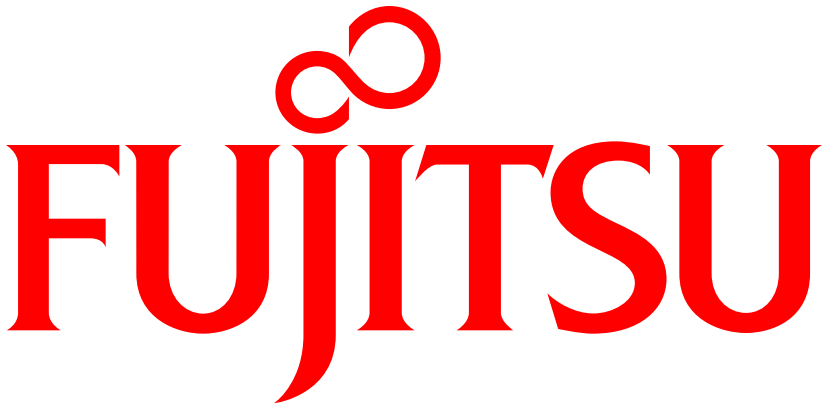




- Drive home:
  - Stressed for 1st ½ of drive
- Drive to work:
  - Unexpected stress pattern

Come experience it – Booth # 11

FUJITSU



shaping tomorrow with you

Summary of FLA's technologies

FUJITSU

- "Sprout" platform for mobile, real-time, multisensor data based services
  - Synchronizes sensor data streams from any number of sources
  - Designed to handle fast velocity data streams, e.g, live EKG
  - Has an API for building real-time multisensor data analytics and services
  - Real-time cloud integration, e.g, with EHRs
- Platform available on lab-built custom hardware ("hard" Sprout) as well as on Android devices ("soft" Sprout)

- Robust, mobile stress analytic
  - Outperforms state-of-the-art analytics in accuracy, resilience to noise, performance, and work across people of varied health conditions

RelaxTube: Stress Management through Personalized Media Consumption

Fujitsu Laboratories of America (FLA), Ubiquitous Business Strategy Unit

5 - Operational Trial

New Exhibit

Effective, Personalized Stress Management

Stress is a causal factor in many chronic illnesses, but discerning and addressing one's own stress is difficult. Through technology that estimates and displays stress levels in real time, methods of reducing stress that are tailored to an individual's characteristics and circumstances can be provided, enabling appropriate stress management.

Key Features

- **Fast, accurate, real-time stress estimation and display**
  Heart-rate data is measured by a sensor and sent to a smartphone. Using that data, stress is estimated and displayed in real time. Stress estimation algorithms were developed using data from clinical trials conducted with medical institutions.

Anticipated Customers and Services

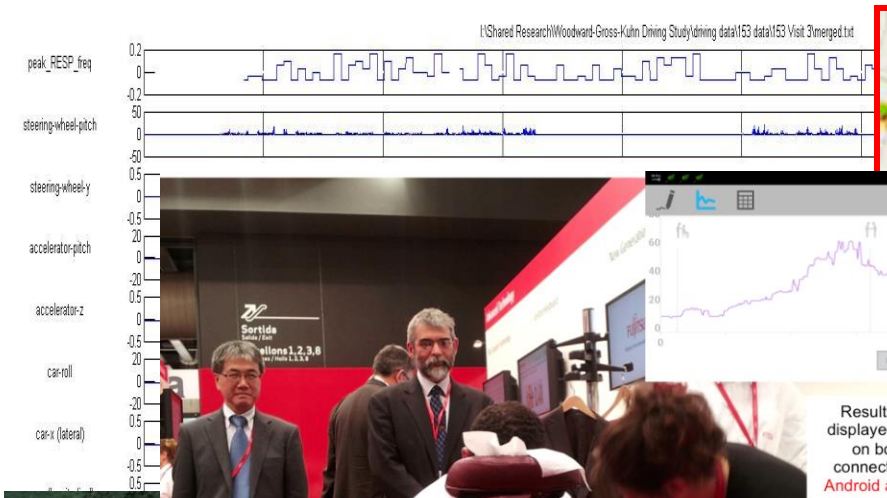
- For smartphone users, continuous stress monitoring and mobile services for contextual and personalized stress reduction
- For businesses, measuring the stress created by certain tasks and activities, and providing services for reducing stress to increase safety and employee health

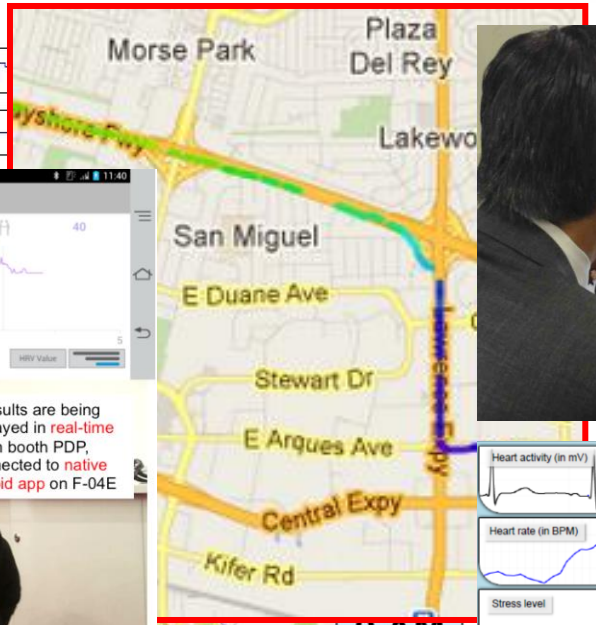
Anticipated Availability

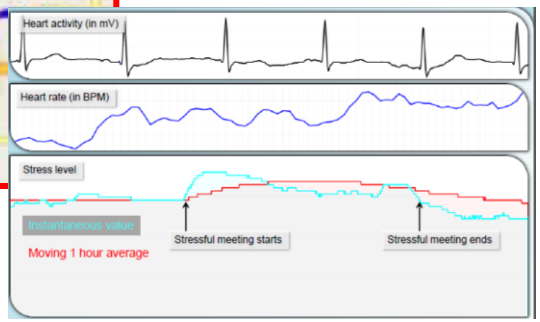
- **Mobile services:** Aim to launch services during fiscal 2014
- **Corporate wellness services:** Now conducting field tests with entertainment and insurance companies (October 2013). Aim to launch services during fiscal 2014

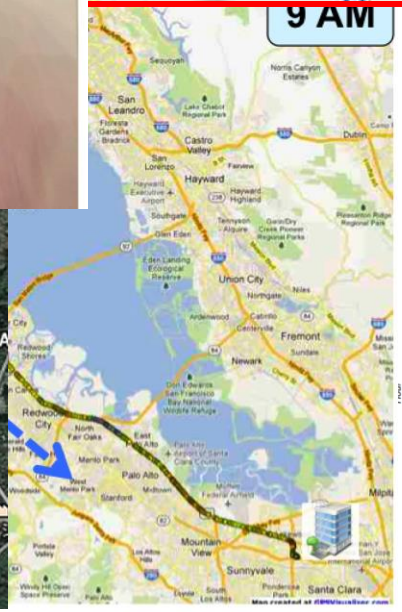
Some examples of Sprout apps

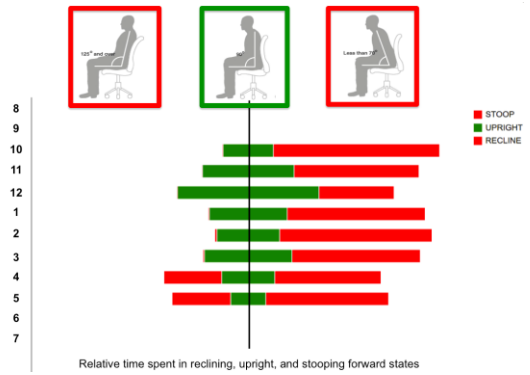
FUJITSU





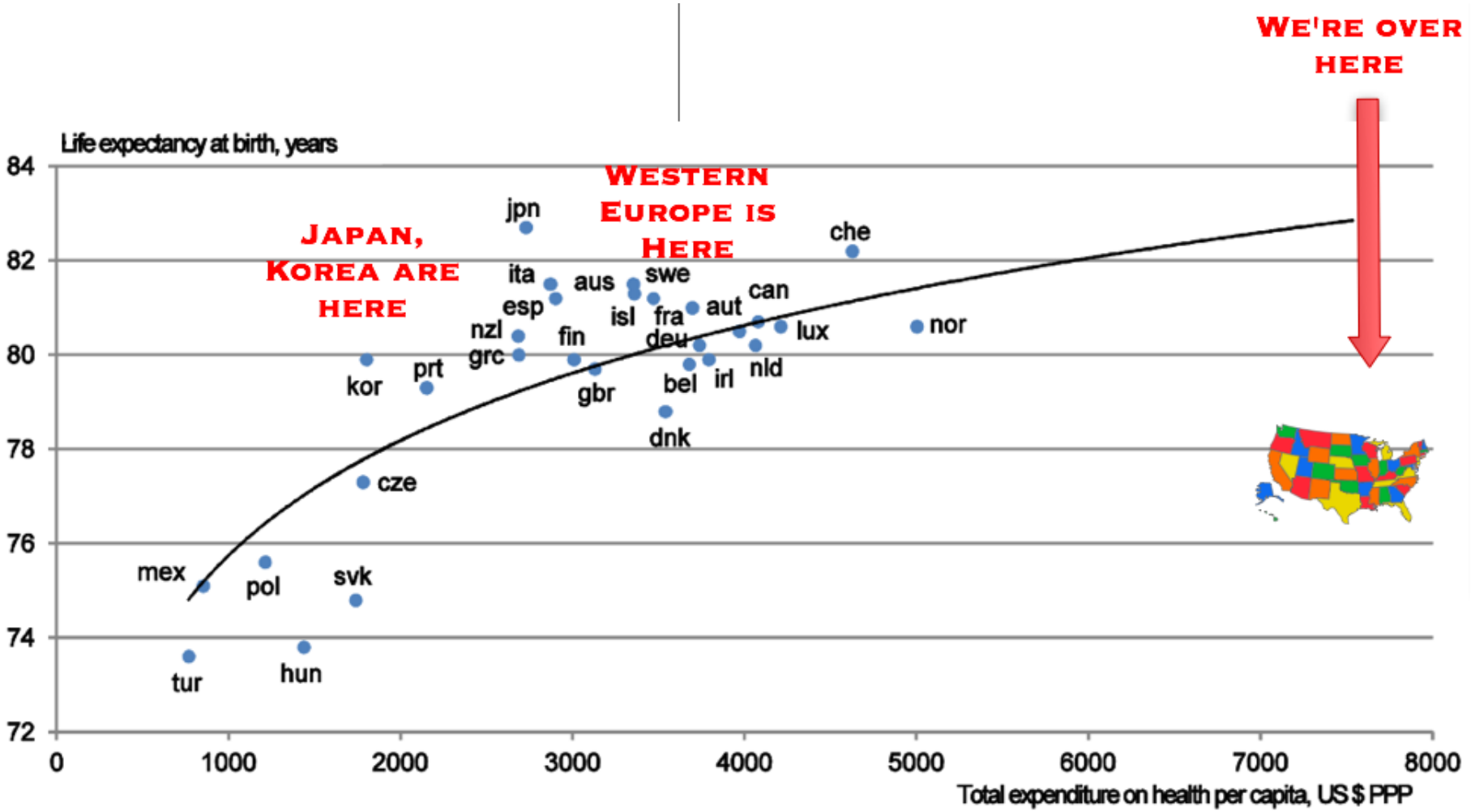




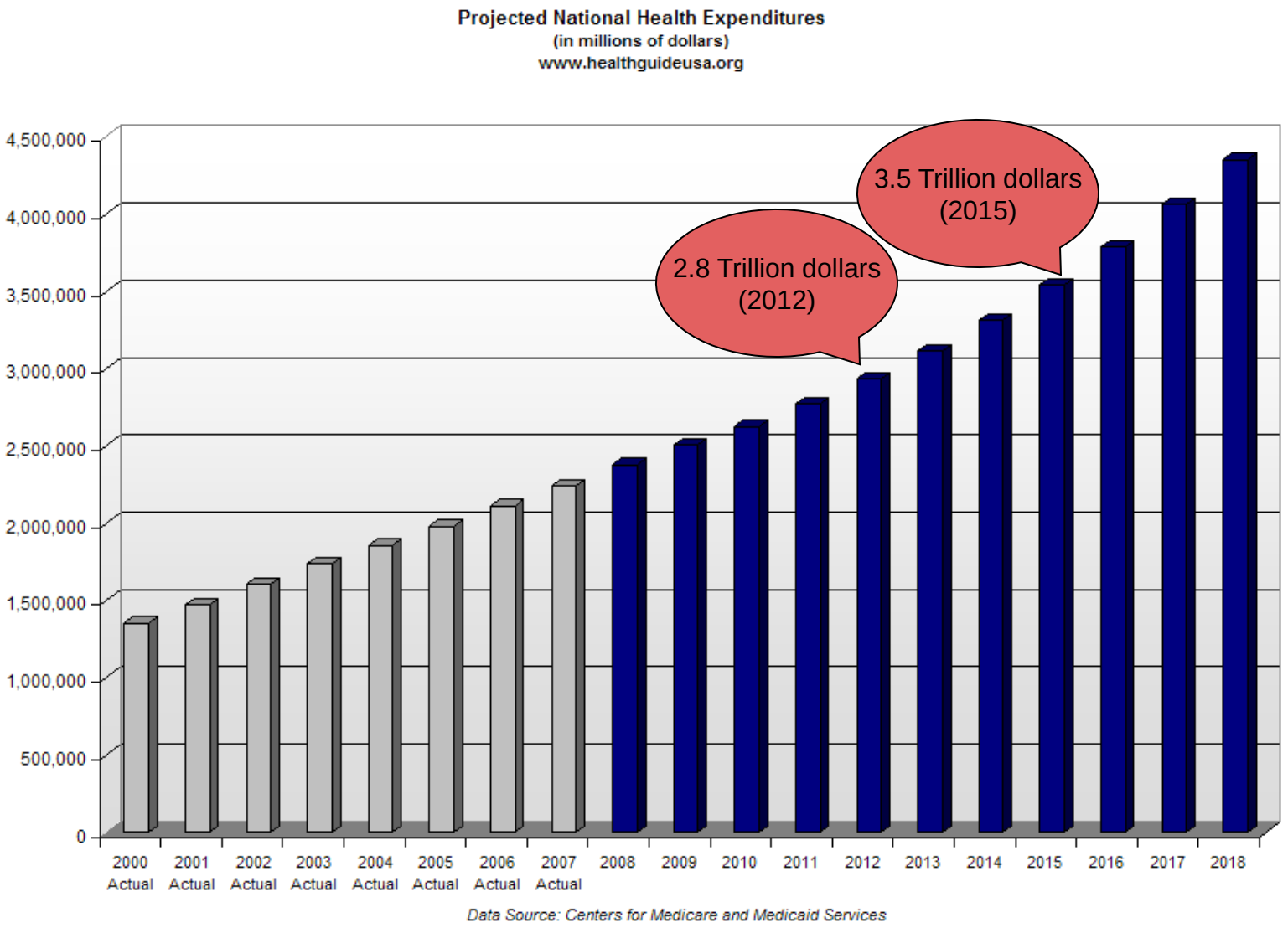


Global Healthcare: Costs vs. Benefits

FUJITSU



Market Driver: Unsustainable costs



Data Source: Centers for Medicare and Medicaid Services