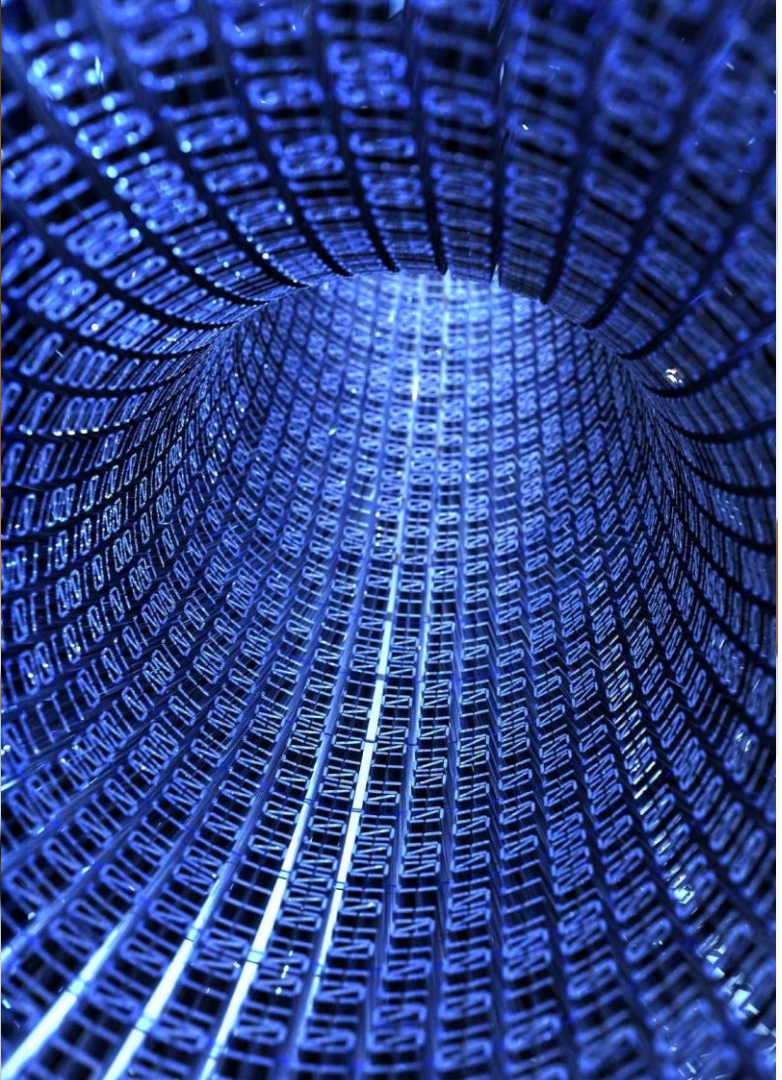


HEALTH INSIGHTS
REGIONAL ONE DAY EVENTS

HITACHI
Inspire the Next

Big Data or Data Tsunami - The Challenge of accessing meaningful clinical information.

Can we learn from other industries?

Nick Scholes
eHealth Solutions Specialist - EMEA

Hitachi Data Systems

© Hitachi Data Systems Corporation 2015. All rights reserved.

Hitachi Commitment to Healthcare

HITACHI
Inspire the Next

Compute & Data Infrastructure: Reliable, efficient storage, computing blades & converged platforms designed for clinical applications to provide Information at point of care

Hitachi Data Systems

Control and monitor access to buildings, equipment and confidential patient records: Hitachi VeinID biometrics

Hitachi High Technologies

Maintaining a clean, constant environment

Hitachi Air Conditioning

Training and presenting to staff, digital signage, ultrathin displays, projectors & Hitachi Starboard

Hitachi Software Engineering

Viewing activity within the brain: Optical topography

Hitachi Optical Topography

Advanced cancer treatment

Hitachi proton beam therapy

Hitachi Medical Systems

Testing and analyzing in the laboratory and surgery

Hitachi Plant Technologies, Ltd.

Advanced diagnostics:
Hitachi MR, CT and ultrasound
Specialist solutions for elastography & sonography

Hitachi Medical Systems

Advice on management, and change in the organization

Hitachi Consulting

Track, trace & monitor with wearables & RFID

Hitachi RFID

© Hitachi Data Systems Corporation 2015. All rights reserved.

UK National Programme
NHS Connecting for Health (2003)

HITACHI
Inspire the Next

Zero Data Loss & Availability Guarantees

Central Data Store an early ‘Cloud’

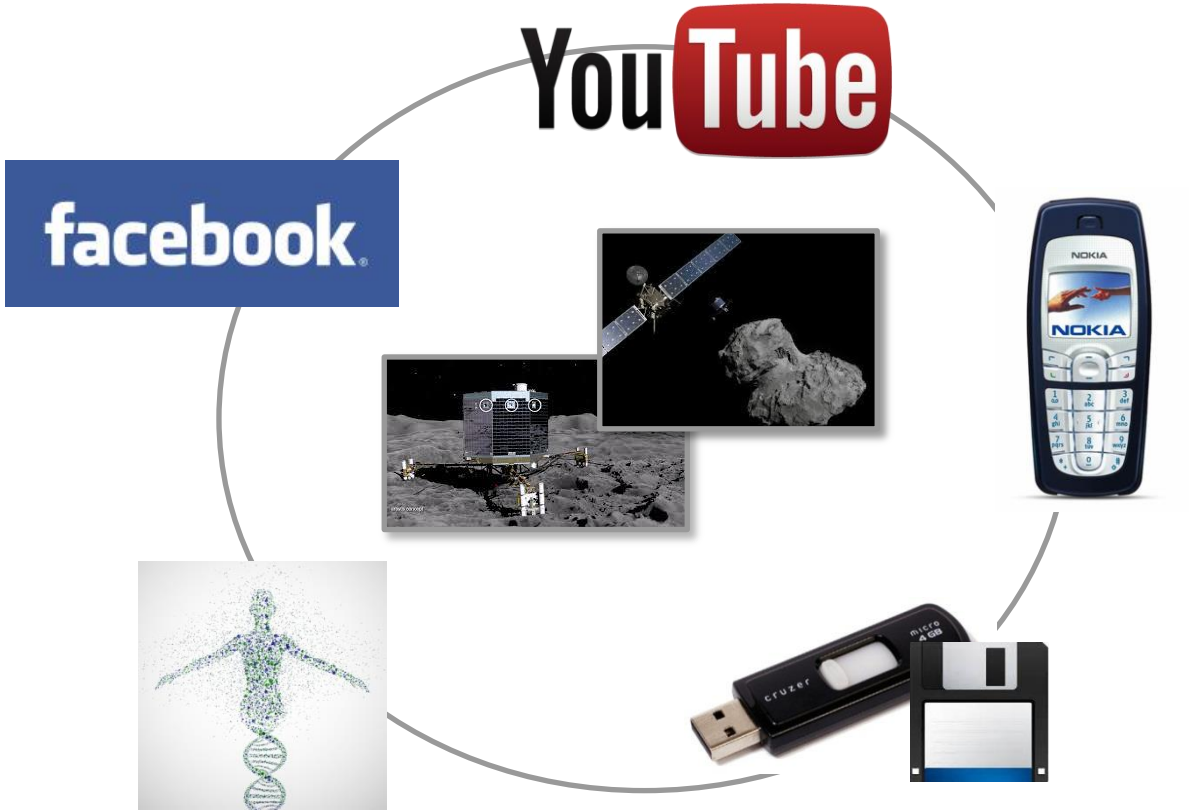
Usage based licencing models (as-a-Service)

Data outlives the technical architecture (10+ yrs)

© Hitachi Data Systems Corporation 2015. All rights reserved.

Technology in 2003

HITACHI
Inspire the Next



© Hitachi Data Systems Corporation 2015. All rights reserved.

Data Growth in One Minute

50x more data by 2020

HITACHI
Inspire the Next

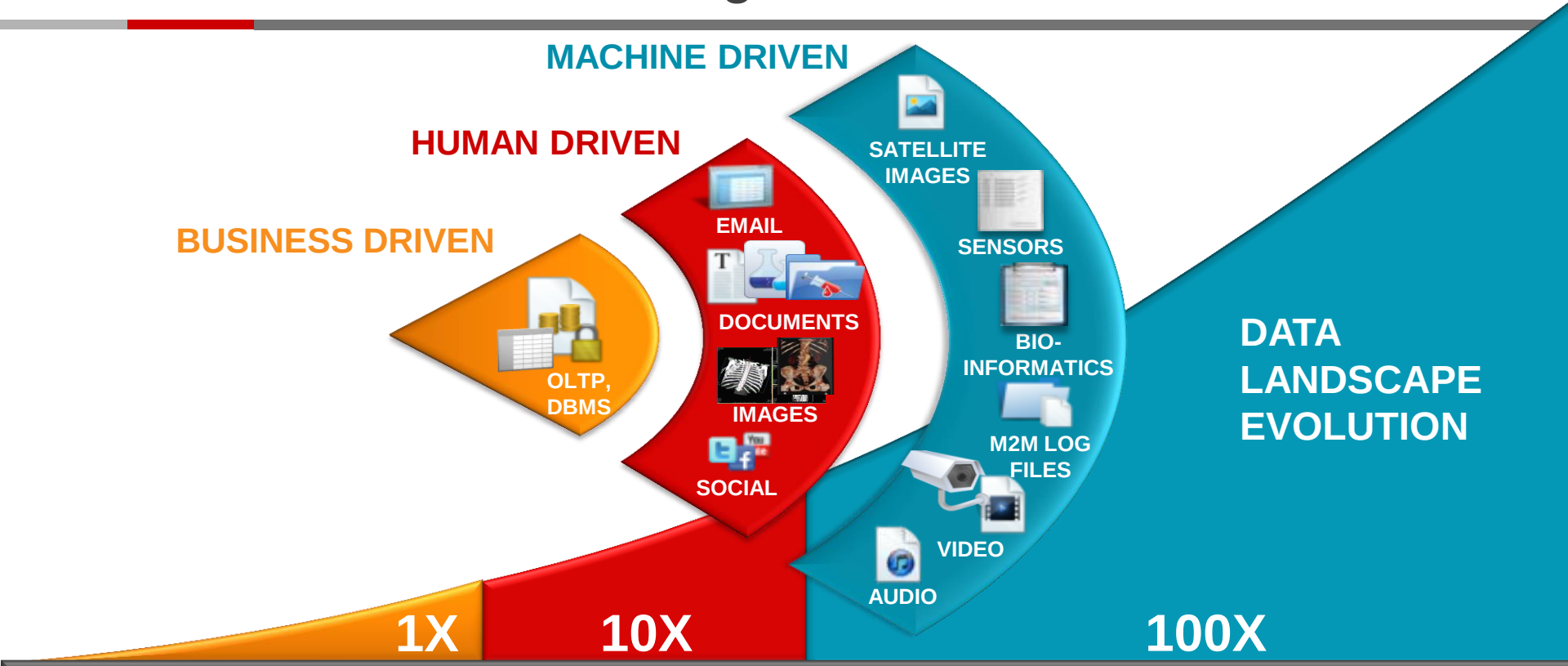
- Facebook users share nearly 2.5 million pieces of content
- Twitter users tweet nearly 300,000 times
- Instagram users post nearly 220,000 new photos
- YouTube users upload 72 hours of new video content
- Apple users download nearly 50,000 apps

- Email users send over 200 million messages
- Google receives over 2 million queries
- Over 600 websites are created
- A Boeing 787 generates 333Gb of logs
- Google's self driving car generates 60 Gb of logs

© Hitachi Data Systems Corporation 2015. All rights reserved.

Big Data: Where's It All Coming From?

HITACHI
Inspire the Next

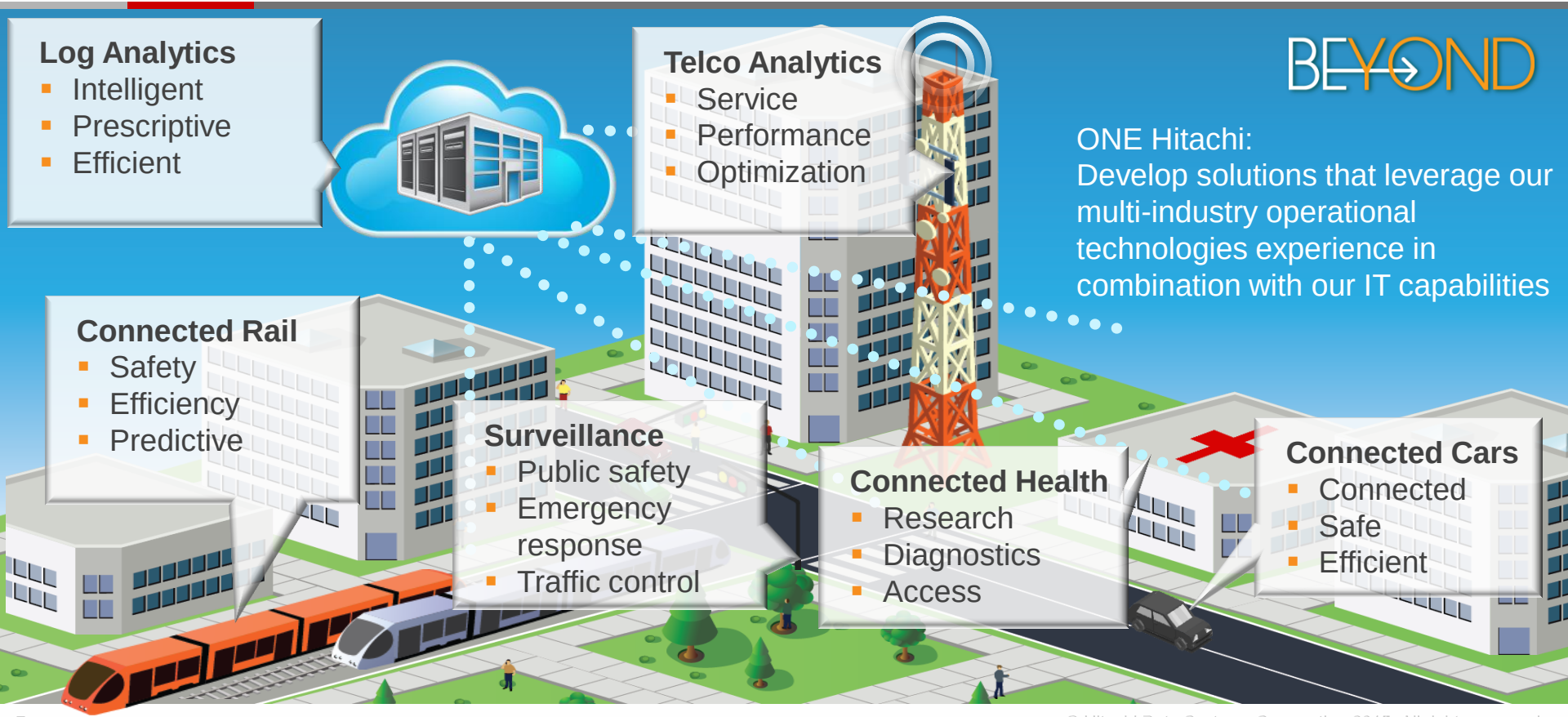


I.T. MUST MANAGE, GOVERN AND ANALYZE MORE DATA WITH MORE COMPLEX RELATIONSHIPS IN REAL TIME AT SCALE

Hitachi Social Innovation Strategy

Our solutions enable the connected world of today and of tomorrow

HITACHI
Inspire the Next



© Hitachi Data Systems Corporation 2015. All rights reserved.

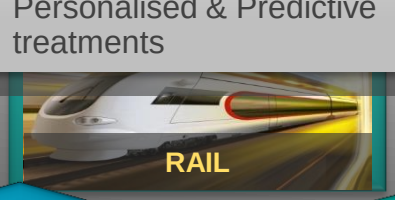
Social Innovation Business

Opportunity is everywhere

HITACHI
Inspire the Next

Improve Quality and Service

- Improved clinical pathway
- Reduced cost & complexity of ICT
- Personalised & Predictive treatments



MACHINE DATA | **HUMAN DATA** | **BUSINESS DATA**

Infrastructure → **Content** → **Information Intelligence**

s reserved.

How We Achieve Social Innovation Through Big Data

Machine data is in our DNA. We think like users because we are users.

HITACHI
Inspire the Next

WIND TURBINES

I.T. INFRASTRUCTURE

AUTOMOTIVE SYSTEMS

MEDICAL IMAGING

WATER TREATMENT

GAS TURBINES

SOCIAL INFRASTRUCTURE

SENSORS

PROGRAMMABLE CONTROLS

WEARABLES

ROBOTICS

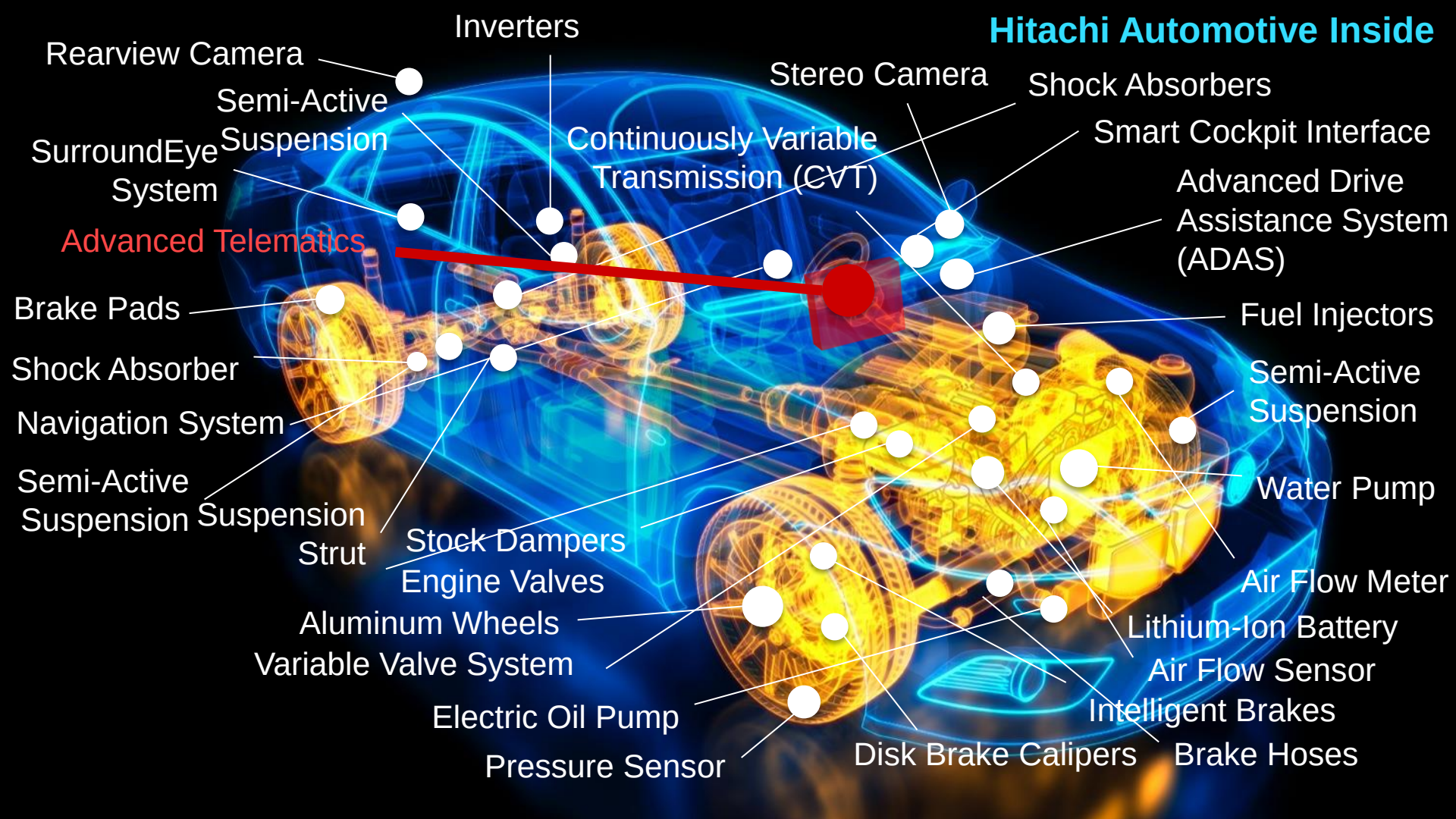
MINING EQUIPMENT

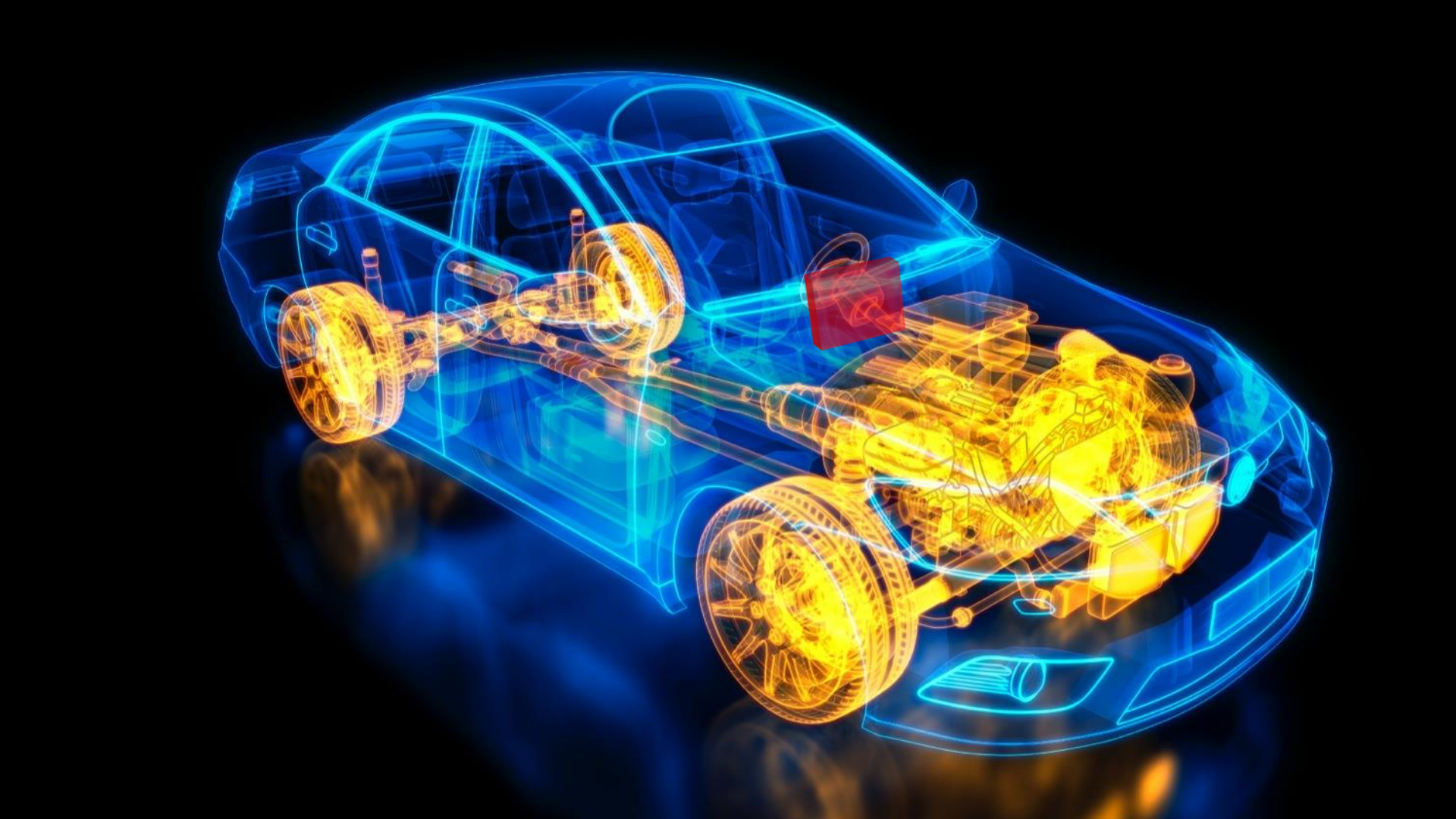
MEDICAL DIAGNOSTICS

PUBLIC SAFETY

BATTERY SYSTEMS

RAILWAY CONTROL SYSTEMS AND TRAINS


Hitachi Automotive Inside
Inverters
Rearview Camera
Semi-Active Suspension
SurroundEye System
Advanced Telematics
Continuously Variable Transmission (CVT)
Stereo Camera
Shock Absorbers
Smart Cockpit Interface
Advanced Drive Assistance System (ADAS)
Brake Pads
Shock Absorber
Navigation System
Semi-Active Suspension
Suspension Strut
Stock Dampers
Engine Valves
Aluminum Wheels
Variable Valve System
Electric Oil Pump
Pressure Sensor
Fuel Injectors
Semi-Active Suspension
Water Pump
Air Flow Meter
Lithium-Ion Battery
Air Flow Sensor
Intelligent Brakes
Disk Brake Calipers
Brake Hoses



Connected Intelligence: Hitachi Visualization

HITACHI
Inspire the Next

Public Safety

Computer-Aided Dispatch

Similar Face Search

Smart Phones

Satellite Data

Video

Radar

License Plate Recognition

VIDEO ANALYTICS | **BIG DATA ANALYTICS** | **EVIDENCE MANGEMENT**

OUTCOMES

- Use live situational awareness and tactical intelligence
- Collaborate more easily among agencies
- Reduce labour and increased effectiveness

SOLUTION

- Centralize real-time analysis and visualization
- Adaptable to ingest numerous data sources
  - Video, social media, sensors, GPS
- Evidence management from ingest to analysis

© Hitachi Data Systems Corporation 2015. All rights reserved.

Connected Communications: Hitachi Live Insight for Telecom

HITACHI
Inspire the Next

OUTCOMES

- Dramatically improve network visibility and efficiency, while lowering costs
- Improve service assurance, quality and end-customer loyalty
- Create new revenue streams, such as premium data services

SOLUTION

- Carrier class analytics uniquely designed for real-time analysis and adaptive learning
- Benefits in network operations and business opportunities
- Huge ROI and improved customer experience

© Hitachi Data Systems Corporation 2015. All rights reserved.

UK - Intercity Express Program (IEP)*

HITACHI
Inspire the Next

- Hitachi Social Innovation
  - Multiple Hitachi divisions: Social benefits for UK society including technology, environment, better access to major cities etc.
- **BIG DATA** Innovation Model: **Train-as-a-Service**
  - The UK Network Rail System will only pay Hitachi for “on service time” (Hitachi owns and maintain the trains)
  - **Real-time analytics process**

**** $8.8 billion contract***

© Hitachi Data Systems Corporation 2015. All rights reserved.

The Foundation for Connected Healthcare: Hitachi Clinical Repository

HITACHI
Inspire the Next

Clinical Data Exchange

AGGREGATED DATA | BIG DATA ANALYTICS | EVIDENCE BASED MEDICINE

OUTCOMES

- Improved treatments & detection of chronic disease
- Reduce healthcare costs
- Provide better patient outcomes

SOLUTION

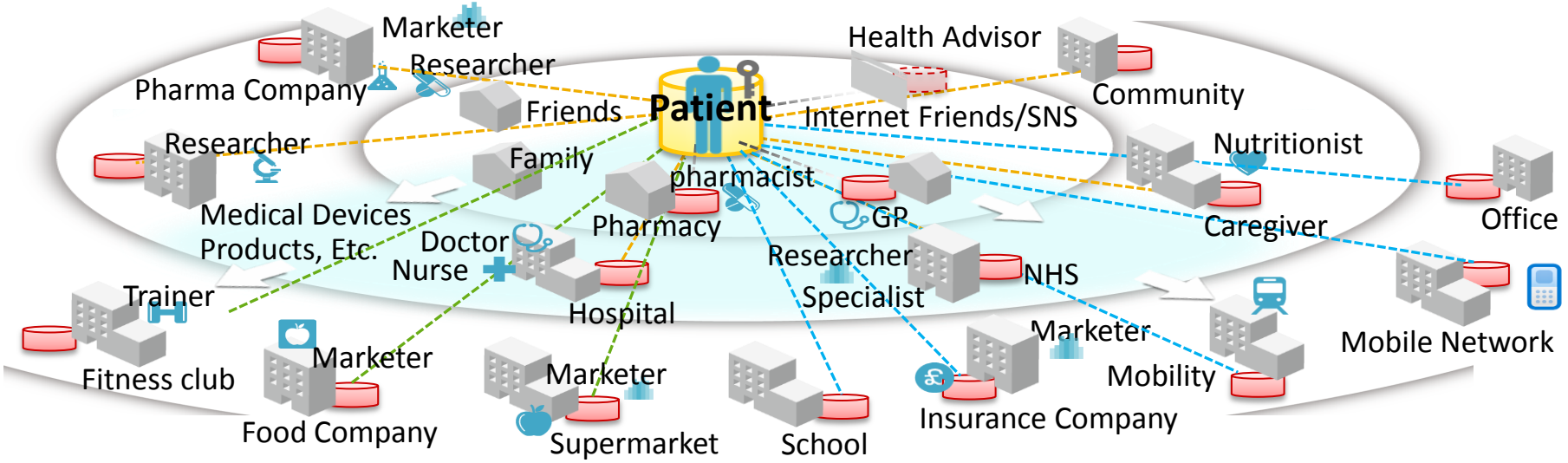
- Aggregation of unstructured patient content
- Enriched with metadata, standards-based workflow
- Highly scalable, long-term, active archive

© Hitachi Data Systems Corporation 2015. All rights reserved.

Hitachi & NHS Manchester MOU

HITACHI
Inspire the Next

Create a Connected Health Ecosystem



Improve patients quality of life by leveraging their healthcare related data
Expand the outreach to the complete continuum of caregivers

© Hitachi Data Systems Corporation 2015. All rights reserved.

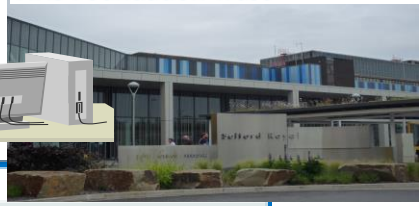
Life Style Improvement Program
Diabetes Prevention Service

HITACHI
Inspire the Next

An effective and efficient self engagement support service to prevent diabetes

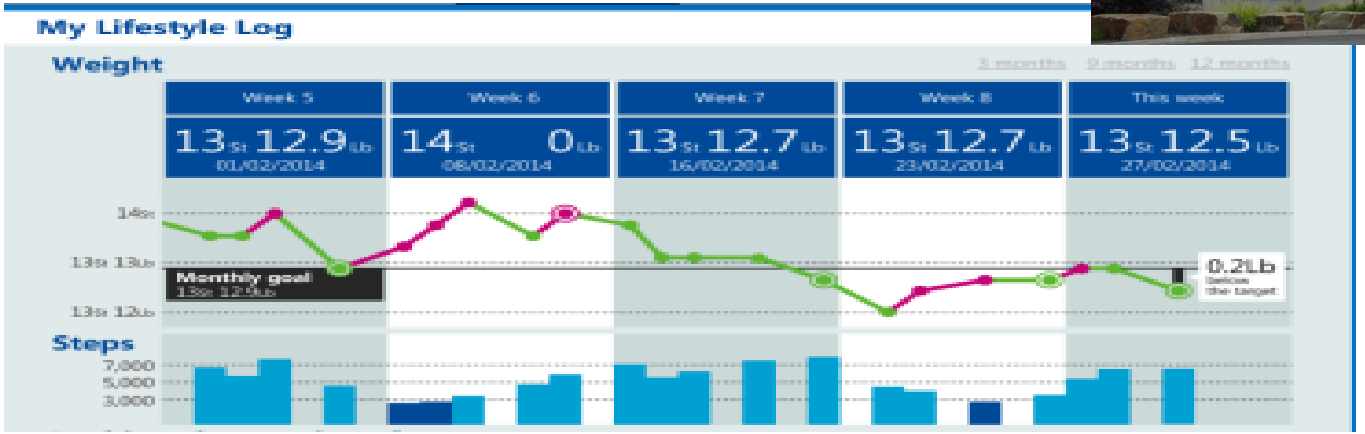
Patient Engaged Activity Tracking
Scored 8.4 / 10 by Trial Patients

Salford Royal NHS
NHS Foundation Trust



80,000 Diagnosed
Pre-Diabetics*

GP Referral
Program



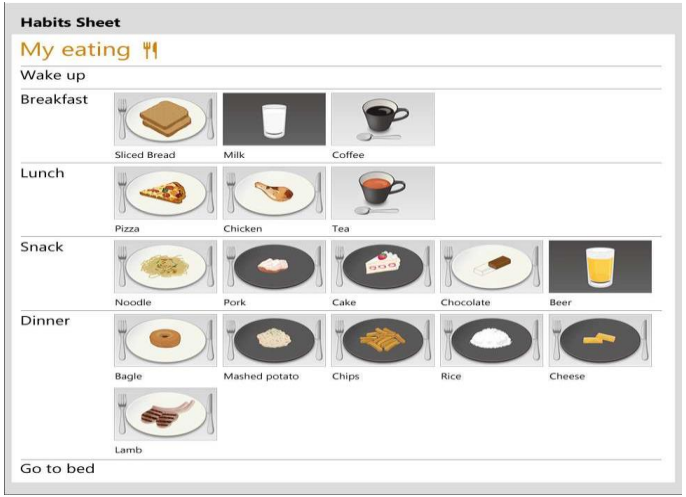
Clinical Expertise and Analytics **Personalized Decision Support Care**

33% Cost Reduction in Care Planning

*IGR: Impaired Glucose Regulation

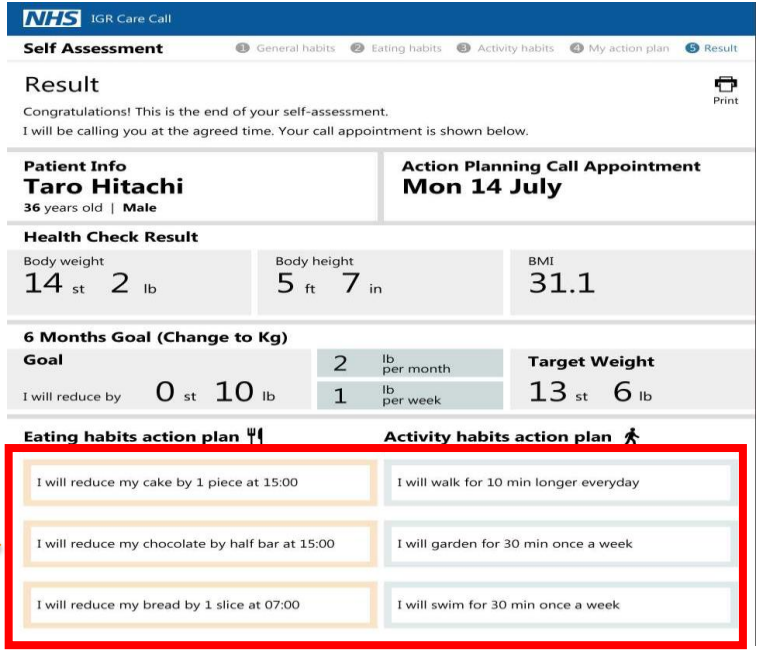
© Hitachi Data Systems Corporation 2015. All rights reserved.

Self-Assessment



Eating habits

The system suggests action plans to improve lifestyle



- ✓ Clinical knowledge applied to the patient's condition
- ✓ Evidence based medicine applied to decision support
- ✓ Personalized healthcare for each individual

© Hitachi Data Systems Corporation 2015. All rights reserved.

NHS Manchester, UK

Hitachi, Salford Royal FT, Salford CCG, and NWEH partnership to target diabetes

Submitted by administrator on 5 December 2014 - 10:42am

Treating type 2 diabetes costs the NHS £8.8bn each year and despite being largely preventable its prevalence continues to increase. In Salford, one in ten men over the age of sixty has diabetes. A major driver for the development of diabetes is obesity which markedly increases the risk of developing the disease.

In partnership with Hitachi, Salford Royal FT, and Salford Clinical Commissioning Group (CCG), NorthWest EHealth is set to deliver a game-changing telecare service across the Salford area that will target people at the pre-diabetes stage, when they present with impaired glucose regulation (IGR).

http://www.nweh.org.uk/news/hitachi-salford-royal-ft-salford-ccg-and-nweh-partnership-target-diabetes

© Hitachi Data Systems Corporation 2015. All rights reserved.

Focus in Europe
R&D and Big Data Centres

HITACHI
Inspire the Next

- ✓ Contribute to Hitachi's business growth.
- ✓ Reinforce the "customer-driven research".
- ✓ Use R&D activity as leverage for business incubation.
- ✓ Enable leading-edge physics to contribute to ICT innovation.

DK Big Data Lab.
NEW, from 5th Nov. 2014

Big Data for a Sustainable Society
(e.g. hospitals' logistics)

UK Big Data Laboratory

Since 2013
Healthcare
Big Data Analysis

Manchester
Cambridge
London
Copenhagen
Aachen
Munich
Sophia Antipolis

Hitachi Cambridge Laboratory

Since 1989
Leading-edge
Physics

ERD Headquarter and Hitachi Design Centre Europe

Since 1989
Experience Design
& Branding

Transportation, Energy & Environment Research Laboratory

Since 2005
Rail, Automotive
& Power

Hitachi Nuclear Research Center

Since 2014

FR Big Data Laboratory

Since 2000
ICT for Automotive &
Smart mobility

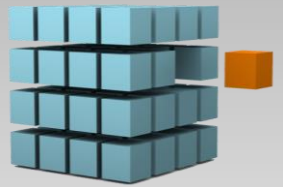
ation 2015. All rights reserved.

Hitachi Innovation & Industry Expertise

Leveraging Hitachi's multi-industry technologies and IT capabilities

HITACHI
Inspire the Next

Build and/or Manage Machines
that generate much of the machine data



Specific Industry and Analytics Expertise
analyzing and improving performance

IT Infrastructure and Cloud
building the technology foundations

Systems Integration and Consulting Services
for an end-to-end solution

Consolidate, Search & Correlate

Visualize

Predict

© Hitachi Data Systems Corpora erved.

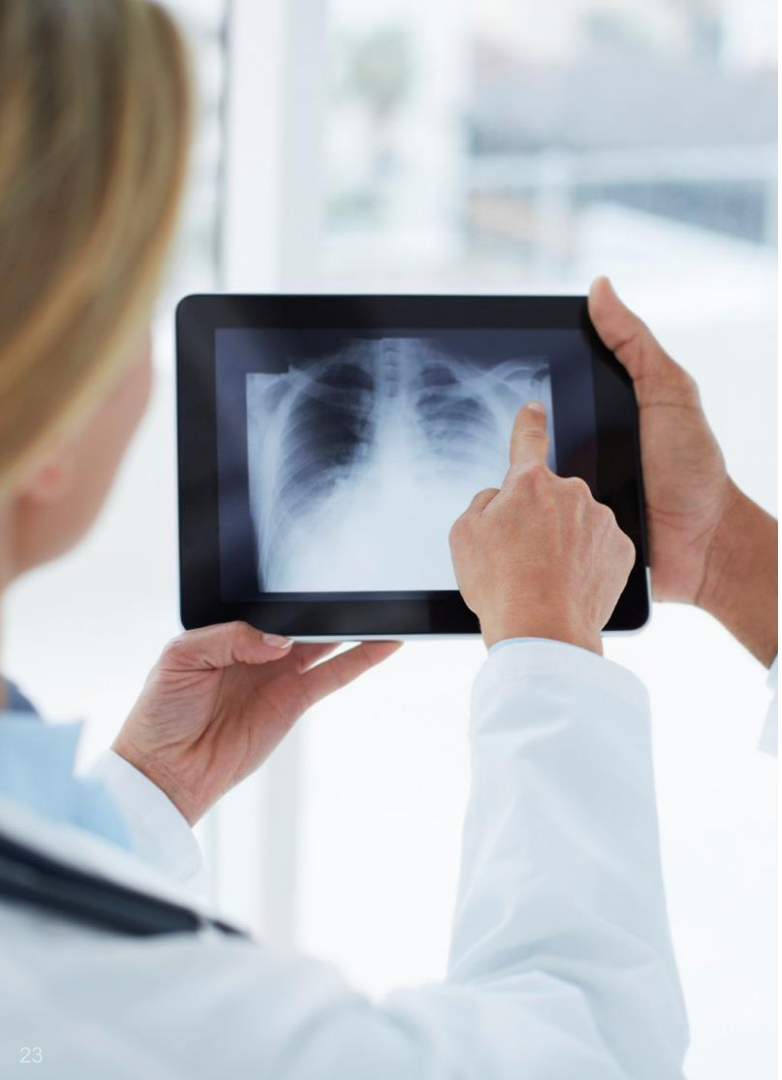
Hitachi Social Innovation

Addresses society´s challenges. Delivers value to all stakeholders

HITACHI
Inspire the Next

Hitachi contributes to Society Changes – "Creating Value for Many"

© Hitachi Data Systems Corporation 2015. All rights reserved.



HEALTH INSIGHTS
REGIONAL ONE DAY EVENTS

HITACHI
Inspire the Next

Nick Scholes
eHealth Solutions Specialist - EMEA
Nick.scholes@hds.com
+44 (0)7787 127058

Visit: www.hds.com/healthcare
Visit: social-innovation.hitachi.com

Hitachi Data Systems

© Hitachi Data Systems Corporation 2015. All rights reserved.

© Hitachi Data Systems Corporation 2015. All rights reserved.