Data! Key to Unraveling your body’s secrets
Preventive
• Methods and treatments to avoid, reduce and monitor the risk of developing certain diseases

Predictive
• Identification of individual risks of developing certain diseases based on the person’s genetic profile and other personal information

Personalized
• Clinical interventions based on the unique genetic, medical and environmental characteristics of each patient and genomic profile of his/her diseases

Participatory
• Citizens are fully engaged in personal health management

New Paradigm of Healthcare

Data
Digital healthcare services

**So far**

Shallow connection

- [Image of a telemedicine setup]
- [Image of a smartphone application]
- [Image of a patient looking through a medical device]
- [Image of medical professionals working]

**Now and Future**

Deep connection and Data Oriented

- [Image of a digital health dashboard]
- [Image of a medical graph and data visualization]
- [Image of a digital patient record system]
- [Image of medical imaging]
Data can be gathered and analyzed thanks to the innovation of technologies... then what?

4 Building blocks for Digital Healthcare

- **IoT Devices**
- **Computing Power**
- **Connectivity**
- **Big Data Analytics**

What kind of data should I collect?

What is the objective?

How many data point I need?

How to interpret these data?
Yacht Service Example

We quantifies and visualize yacht’s movement and environmental factors such as wind & current, in order to help coaches to better guide players.

**Sensors**
- GPS Sensor
- Accel. / Gyro Sensor
- Geomagnetic Sensor
- Action CAM
- Anemometer
- Current Sensor

**Platform**

**Collected Data Set (Raw Data)**
- GPS Coordinates
- Acceleration
- Gyro (Pitch, Yaw, Roll)
- Geomagnetic Data
- Video of Athlete
- Wind Speed / Direction
- Speed/Direction of Current

**Data collected from onboard sensors**

**Data collected from environment sensors**

**Stored Data (Processed Data)**

**<Yacht Status Data>**
- Path / Crossing Pt.
- Distance / Velocity
- Heading Angle
- Roll Angle of Yacht
- Wind Speed / Direction
- Speed / Direction of Current

**<Environment Data>**

**User Interface** (Left: Onsite UI / Right: Web UI)

- **Onsite Dashboard UI tracks 2 yachts**
- **helps review at a later time**

- **Control UI for Current Sensor**

- **Current review at a given waters**

This project had been funded by Ministry of Science ICT and future Planning and National Internet Agency.
Try to understand how human body works based on data
We are more interested in genomic and exogenous data to identify the causes of developing diseases to predict future outcomes.
What kt is doing related to genomic data?

“NGeneBio”

- Specialized in bioinformatics
- Developing genomic data processing software and analytic algorithm
- Operate Genome platform

Source: FDA
We are focusing on effectively collecting and processing data generated from various wearables, devices and apps.
Collecting data from healthcare services developed in Daegu city last year

< General Healthcare APP & Exercise Band >

< Emergency Alert APP >

< Chronic Disease Mgmt. APP & Glucose/BP Readers>

< Int’l Collaborative Diagnosis APP >

< Adolescent Obesity Mgmt. APP & Tracker Band >

< Fatigue Recovery Chamber for an Air-force pilot>

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Our Business Focus

**Phase I**

1. Sensors/Devices
   - 24/7 Tracking
     (inside home & appliance)

2. Data Transfer
   - Medical Resources

3. Healthcare Platform
   - Health Info Management

**Phase II**

4. Big Data Platform
   - Data Visualization

5. Big Data Analytics
   - Predictive Analysis

Track & Visualize Healthcare Data

Extract insights from data analysis