HIMSS18 Eurasia

EMRAM Educational Conference & Health IT Exhibition

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Republic of Turkey Ministry of Health

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IoT adoption strategy in a hospital environment

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25-27 October 2018
Pullman Hotel Yenibosna
ISTANBUL, TURKEY

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Humanitas: 9 Hospitals (+8 outpatient centers) in Italy

- IRCCS Istituto Clinico Humanitas
  Rozzano (MI) - Flagship
- Humanitas San Pio X
  Milano
- Humanitas Gavazzeni, Clinica Castelli
  Bergamo
- Humanitas Mater Domini
  Castellanza (VA)
- 3 Hospitals in Torino
- Humanitas Centro Catanese di Oncologia
  Catania

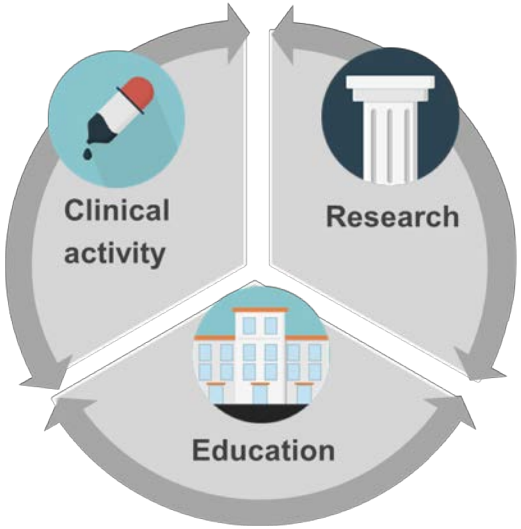
Humanitas: Mission

Improve our patients' lives by offering increasingly effective treatments based on an innovative and sustainable organization

Invest in research that creates real impact on the progress of Medicine

Train a new generation of professionals with a model that unifies the clinic, research facilities, and the University

HUMANITAS SUCCESS MODEL



Elderly and chronically ill outlook in Italy

In Italy there are 169 elderly people for every 100 young people

ISTAT, 2018

23% of the Italian population (13.5 million) is over 65 years of age, a percentage that is constantly increasing

La Repubblica, 2017

By 2060, the number of Europeans over 65 years of age will increase from 88 million to 152 million

Insalute News, 2018

Italy is the European country with the highest life expectancy

Il Messaggero, 2018

In Italy, 4 out of 10 citizens (23.6 million) are affected by chronic diseases

La Repubblica, 2017

20.7% of the population is affected by two or more chronic diseases

ISTAT, 2017

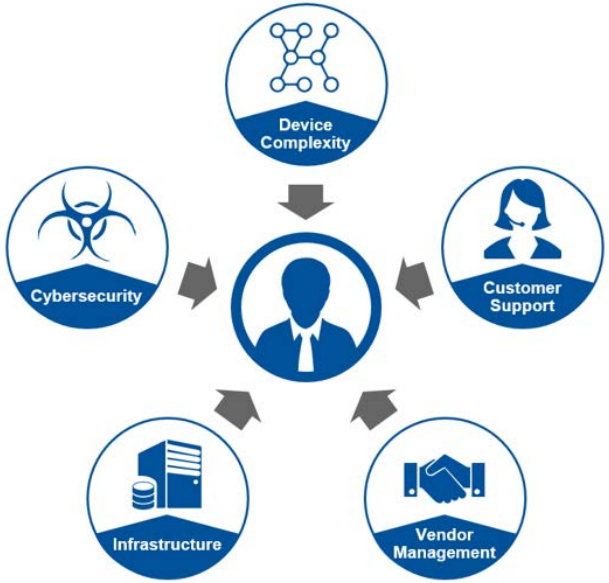
These are the most common chronic diseases: hypertension (17.4%), arthrosis/arthritis (15.9%), allergic diseases (10.7%), osteoporosis (7.6%), chronic bronchitis and bronchial asthma (5.8%), diabetes (5.3%)

ISTAT, 2017

IoT adoption challenges

- The IoT offers the **benefit** of significantly increased situational **awareness** surrounding the **patient** and **hospital operations**
- IoT solutions can **change the state of a digital environment**, in addition to generating a significant amount of data
- IoT technologies are entering the healthcare provider environment outside of the CIO's purview, due to the **lack of a centralized or enterprise wide device** or IoT strategy
- **IoT vendors** approach security, device maintenance and software patching from **proprietary perspectives**, which creates for the CIO's teams additional burdens, such as in network engineering, security and IT operations

Healthcare CIOs faces the realities of IoT



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IoT adoption challenges

Opportunity

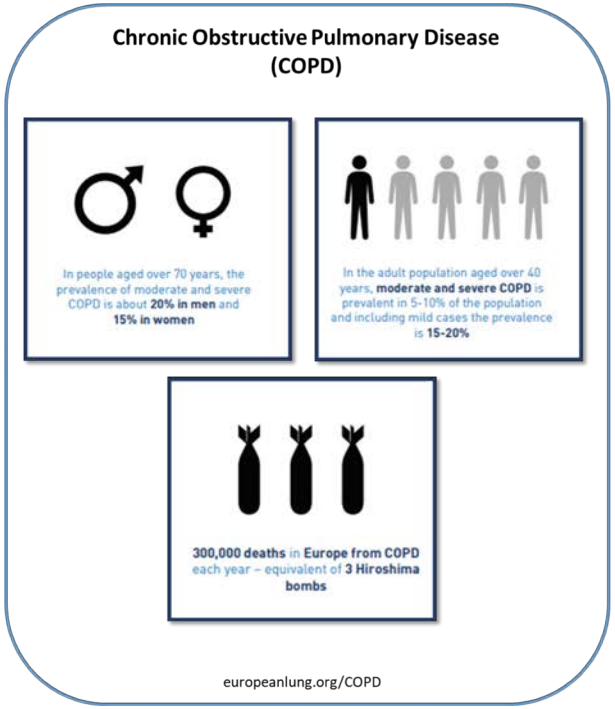
- Cost reduction, revenue growth and '**increased quality of care**' are fundamental business drivers of IoT

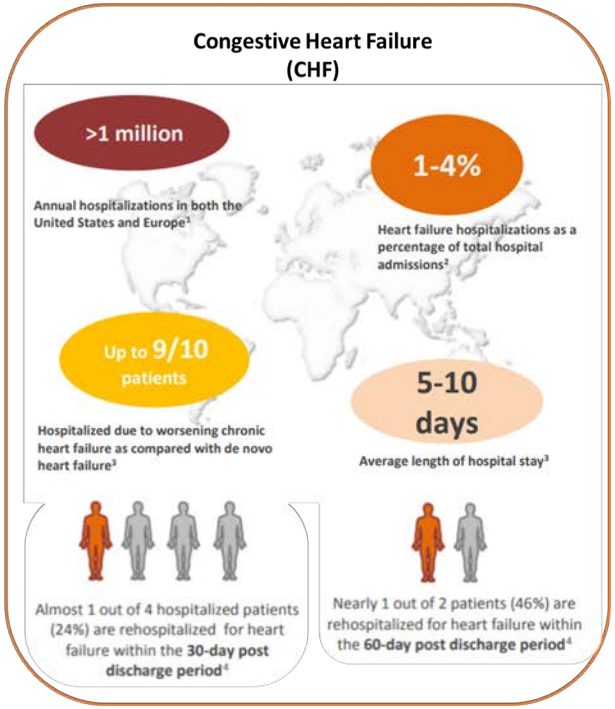
- Develop the IT strategy for the **real-time health system** - from data siloed to a *patient data centered* architecture

Constraints

- New and unfamiliar **cybersecurity risks**

Example cases:





State of the art approach

The Patient is Sick and Passive

Heart Diseases And Monitoring

- Electrocardiogram (ECG) 24/48h Holter

Sleep Disorders

- Sleep Staging
- Obstructive Sleep Apnea (OSA)
- Restless Legs Syndrome (RLS)
  - Polysomnography (PSG)
  - Electroencephalography (EEG)
  - Electrooculography (EOG)
  - Electromyography (EMG)

The aim: curing sickness -> life optimization

Disrupting Healthcare: Relevant diagnostics + Habits Modification + Enhancing Efficiency

- Prevention of diseases
- Daily activity measure
- Sleep quality
- Understanding clients' daily habits
- Understanding clients utilization of their bodies (postures, alignments, ...)
- Understanding clients level of stress or relaxation
- Evaluating their efficiency
- Analyzing clients in their working environment
- Analyzing clients in their social interactions
- Capture data during client's intense exercises (fitness)

L.I.F.E.

Measuring daily activity with medical grade accuracy

L.I.F.E.

Physiological Data Secure Platform

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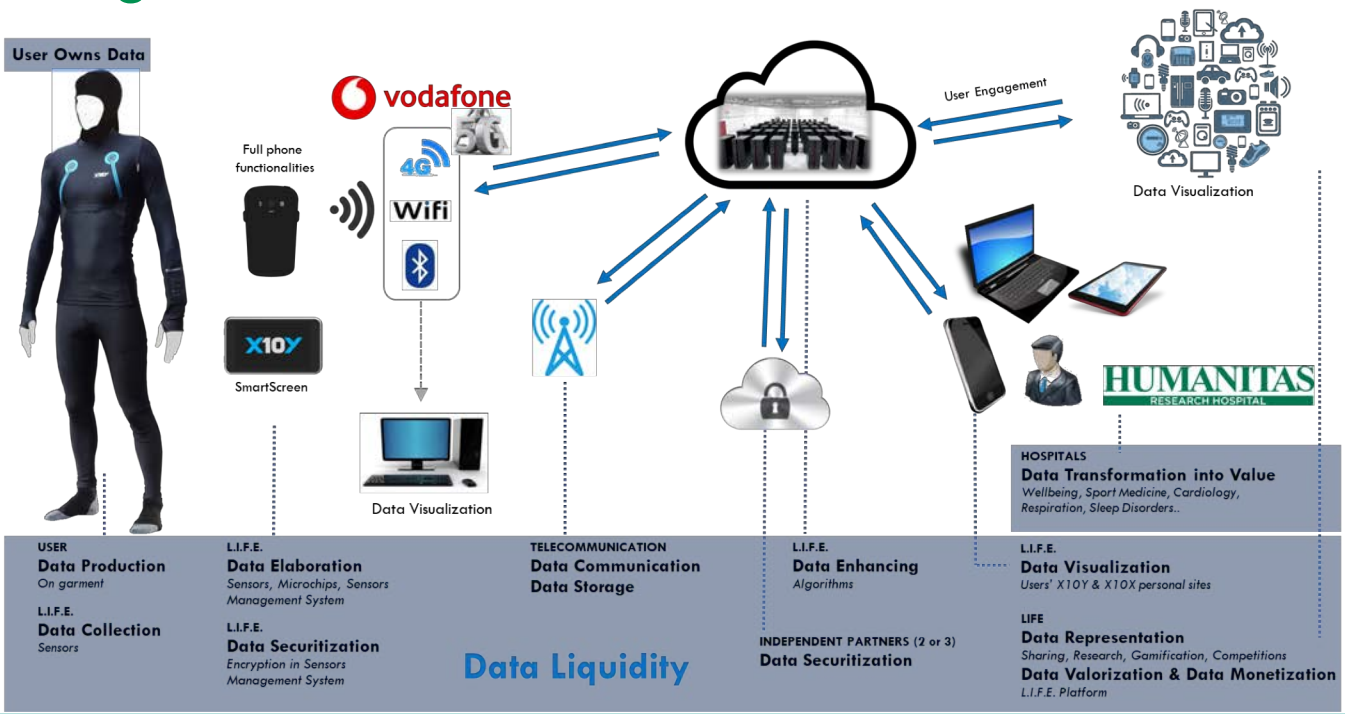

L.I.F.E.

Dear Sir, Madam..

CARO SIGNORE/A...

QUESTA SERA PRIMA DI ANDARE A DORMIRE SI RICORDI DI:

1 **INDOSSARE** LA CANULA NASALE (1) INSERENDO I DUE TUBICINI **NEL NASO**

E **FACENDO PASSARE** I TUBICINI **DIETRO LE ORECCHIE,** INFINE **STRINGERE** IL FERMATUBO (2)

2 **COLLEGARE** IL PULSOSSIMETRO DELLA NONIN AL BRACCIALE

E **INSERIRE** IL SENSORE IN UN DITO DELLA **MANO DESTRA (DITO A SCELTA TRA INDICE, MEDIO, ANULARE)**

3 **INDOSSARE** IL PULSOSSIMETRO CHE PROVIENE DAL POLISONNIGRAFO, SULLA **MANO SINISTRA (DITO A SCELTA TRA INDICE, MEDIO, ANULARE)**

4 ANDARE A DORMIRE COME SUA ABITUDINE, **SENZA** DOVER SCHIACCIARE NESSUN TASTO, PARTIRÀ TUTTO IN AUTOMATICO

...BUONA NOTTE

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Lessons learned…

- Achieving **operational efficiencies i**s the most important success criterion
- Lack of **know-how and expertise** is the major reason for the failure of IoT projects
- **Security** is the most important technical barrier to success
- **IoT will grow and change over time** and will number the greatest outside the boundary of the hospital, mostly centered on patients and their homes
- Define an **enterprise IoT strategy**, understand how to exploit IoT benefits and manage its new capabilities

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Thank you!

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