Delivering innovation that matters – using cyber physical systems
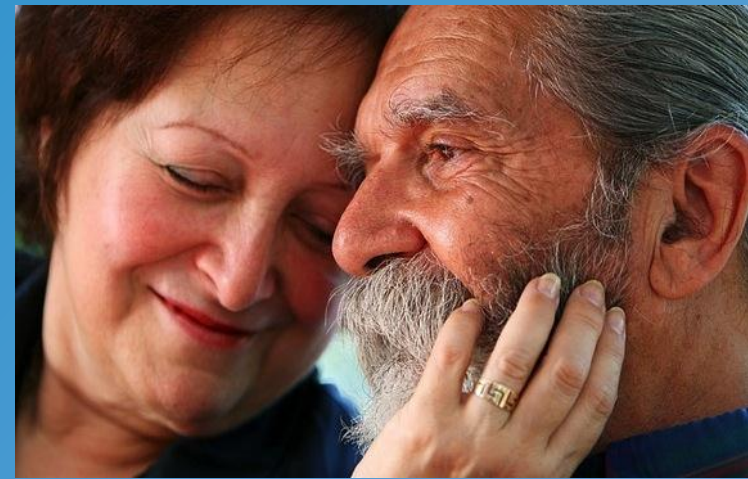
Co-summit speakers corner March 2015 – Philips (R. Begeer & C. Garos)

Berlin March 9, 2015

innovation ✦ you

PHILIPS

A new dynamic

- People are living longer with continuous chronic diseases, creating the need for more specialized care, in both the hospital and the home

- Healthcare systems are challenged to improve access and quality of care, manage resources, and treat patients in lower cost settings

- Empowered consumers are increasingly seeking new ways to take control of their health

- Digital tools and data-driven capabilities are driving increased collaboration between patients and clinicians across the health continuum

The time is right for new thinking and partnerships

Your needs today, and tomorrow

We need to improve patient and physician satisfaction

We need to better leverage our data to improve clinical outcomes and operational efficiency

We need to reduce our readmissions by 20%

How can we deliver better care to more people at a lower cost?

We must find better ways to manage patients with chronic disease

We are missing an integrated, holistic approach from hospital to home

PHILIPS

We're getting older and sicker
By 2050, 50% of the developed world is projected to be chronically ill.

We don't take good care of ourselves

Obesity, heart disease and cancer are global health issues
that are worsened by the way we live.

Demand for care is growing

There are simply not enough nurses and doctors to cope with our growing (and aging) population. Rising healthcare costs are unsustainable.

Healthcare is evolving. Dramatically.

"**Healthcare will soon become more patient-friendly and tailored… the greatest progress is being made where governments are accelerating innovation and seeking public-private partnerships around outcomes-based care.**"
HealthCast 2010, PWC Health Research Institute

How can electronic components and systems contribute to the necessary innovation of healthcare ?

PHILIPS

Three Classes of Healthcare
(ECSEL MASP 2014)

Home Healthcare
Improving the **quality of life** for at-risk individuals while easing the burden on the healthcare system and **lowering the overall cost of care**
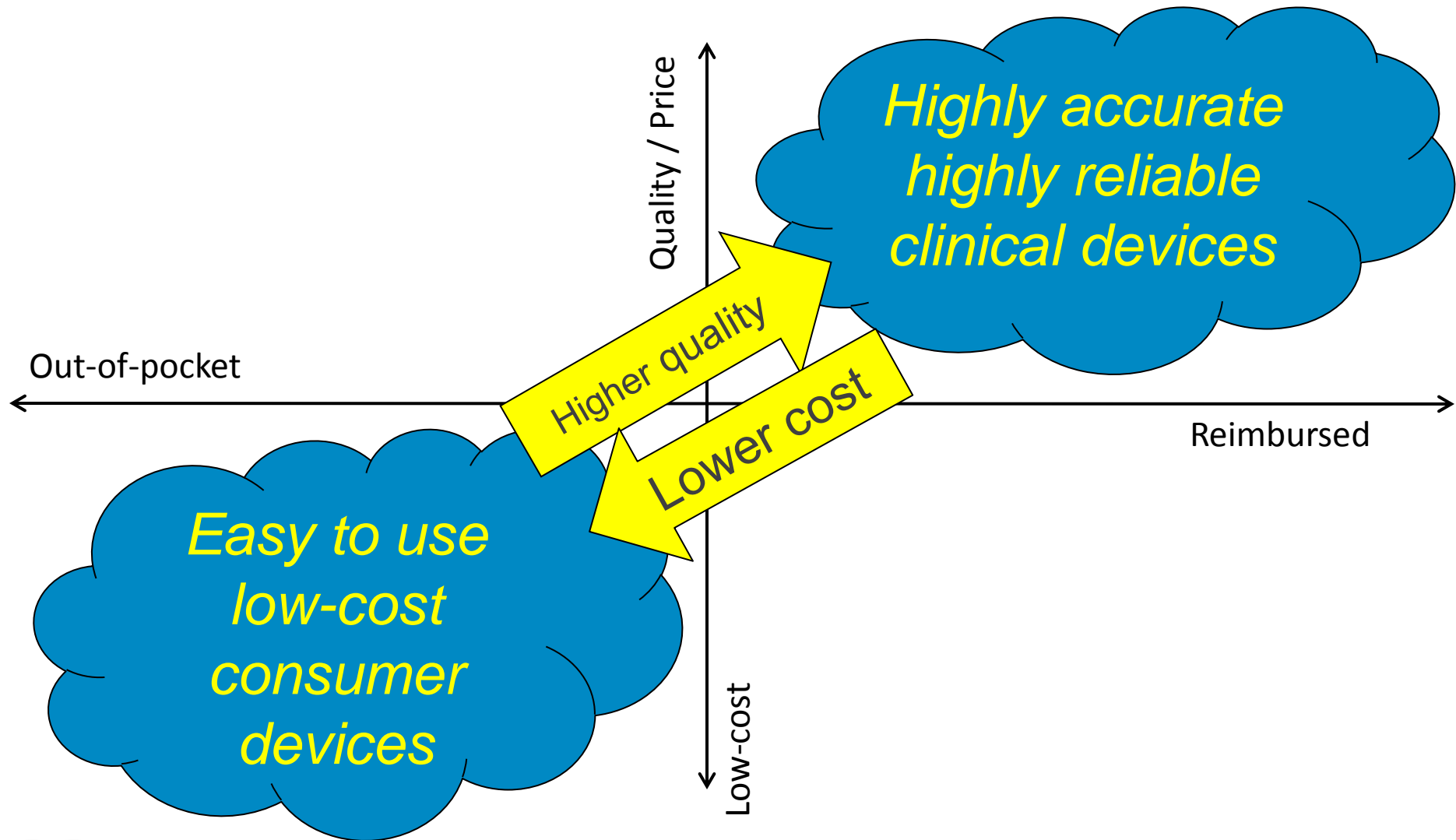
Hospital Healthcare
Solving most critical and pressing healthcare issues that require a.o. complex **diagnostics** through advanced imaging, minimal invasive **interventions** and cost-effective **therapy**

Heuristic Healthcare
Increasing the speed of pharmaceutical development and body fluid **sample analysis** though advanced **analysis tools** that allow **rapid screening** of chemical compounds, real-time response measurements with **multi-parameter bio-sensors**

Changing digital health landscape requires a fundamentally different informatics approach

- Enabling **population health management, including Healthy Living and Prevention**

- **Patient centric solutions**, with built in **collaboration** models across the health continuum

- **Integrating data from disparate point solutions** across hospitals, physician practices, insurance, consumer homes

- Providing **actionable and context sensitive information** to clinicians, patients and care givers

PHILIPS

CPS important to contribute in trend from the hospital room to the living room

Healthy Living

We support people to live a healthy life based on personal hygiene and nutrition in a healthy home environment.

Prevention

We provide digital solutions to measure, monitor, and motivate people to manage their own health.

Diagnosis

We drive definitive diagnosis, ensuring the right diagnosis is delivered the first time.

Treatment

We create new clinical procedures for safer and more effective adaptive therapies.

Recovery

We support recovery through ubiquitous monitoring that improves health quality at a lower cost.

Home Care

We connect hospital to home to support transitions, independent living and aging in place.

PHILIPS

Creating a healthier tomorrow

Healthy living **Prevention** **Diagnosis** **Treatment** **Recovery** **Home care**

Personal health	Aging in place
	Hospital to home
	Sleep
	Acute care
	Imaging diagnostics and intervention
	Healthcare operations
	HealthSuite Digital Platform—enabling solutions

PHILIPS
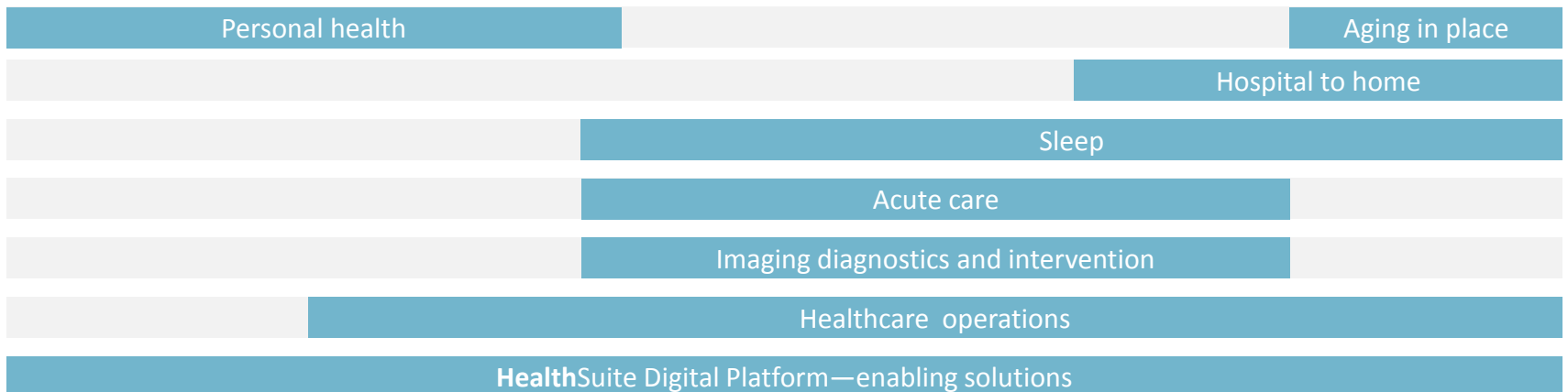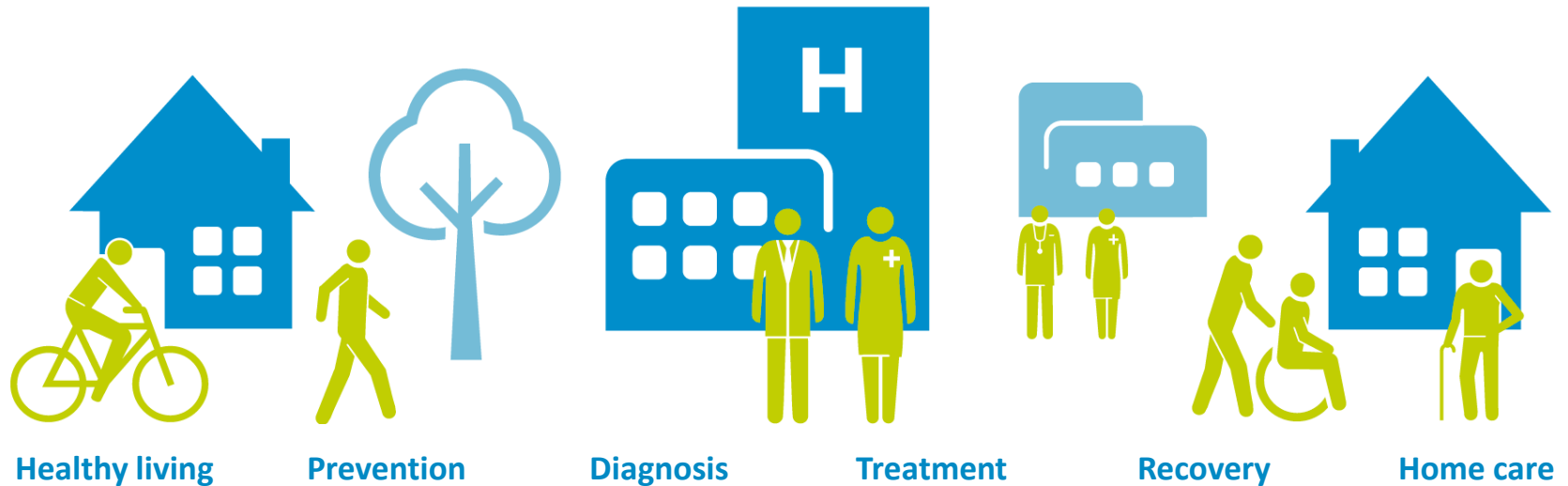
The information exists, but is not very usable

Today we find a disconnected landscape of rich information – whether in hospitals, clinics or the home
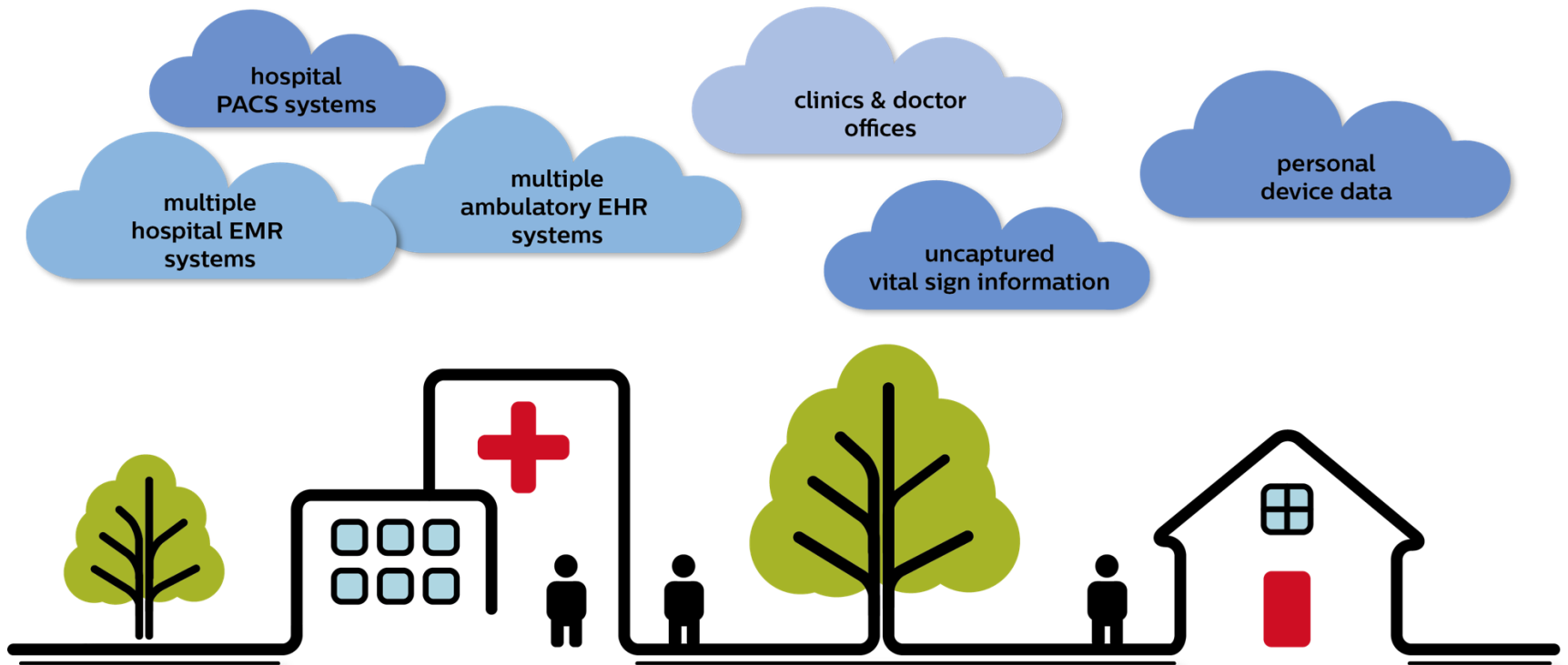
PHILIPS

HealthSuite **DigitalPlatform**

To capture and integrate patient information regardless of location, source or vendor through a common user experience
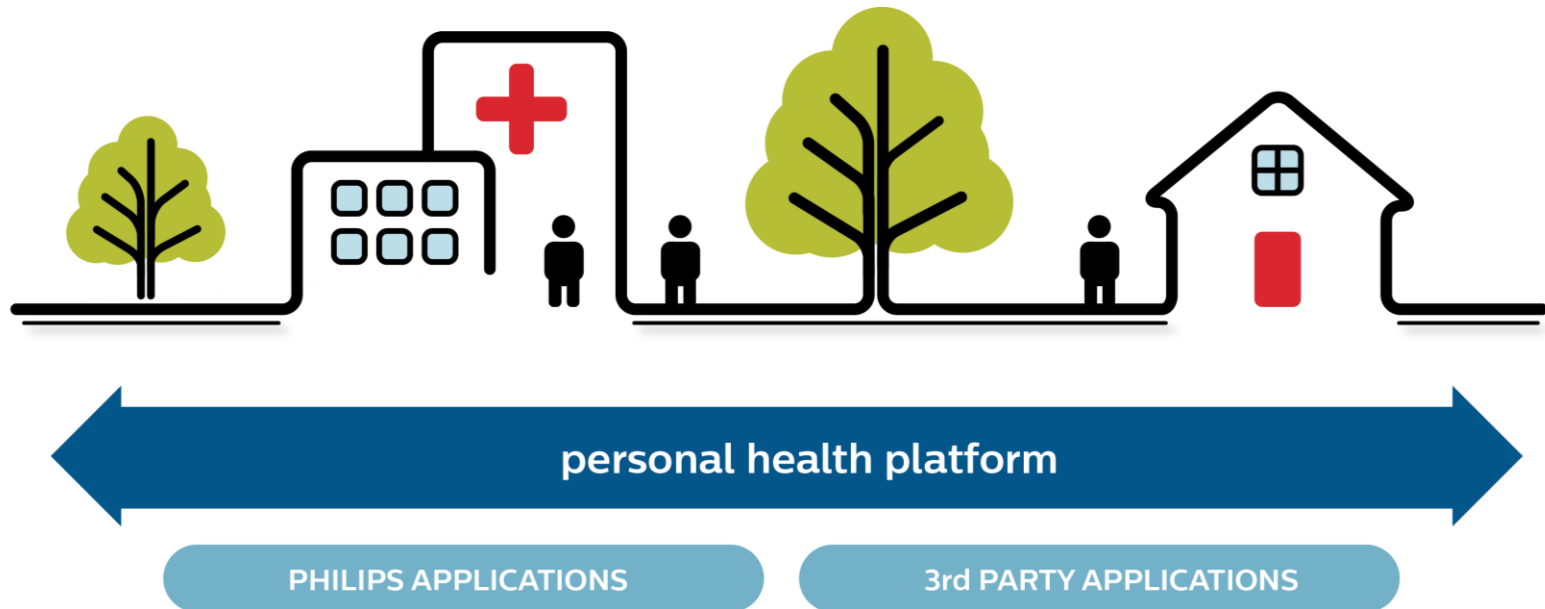
a people-centric, open platform for the development of Philips and 3rd party specialized applications

PHILIPS

Designed to enhance decision-making

For both healthcare professionals and consumers by incorporating advanced visualization and decision support analytics

decision support

decision support

personal health platform

PHILIPS APPLICATIONS

3rd PARTY APPLICATIONS

PHILIPS
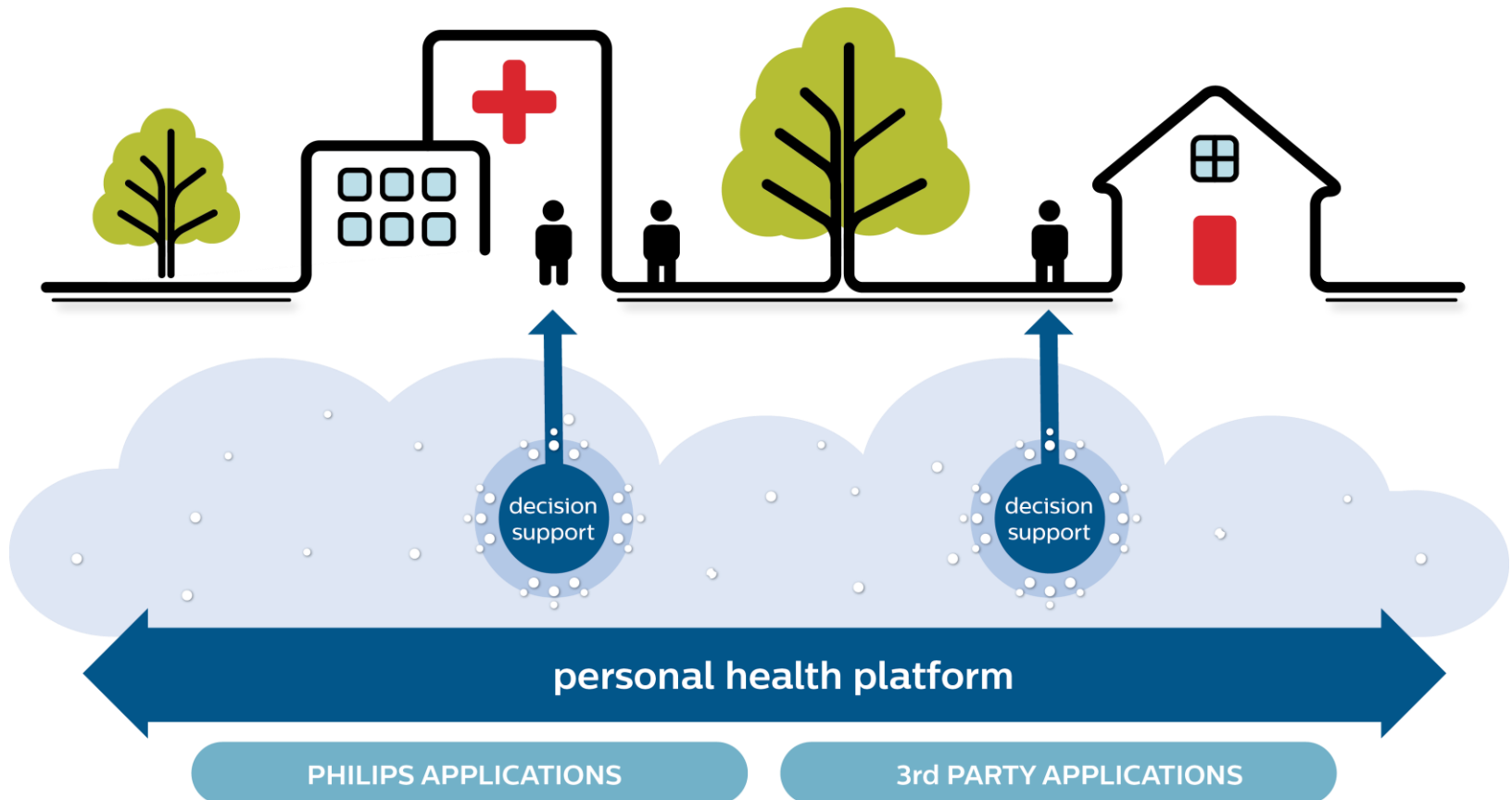
Built to be flexible, scalable and cost effective

decision support

decision support

PHILIPS APPLICATIONS

3rd PARTY APPLICATIONS

shared user experience (UX)

professional healthcare functionality (API)
(HL7, DICOM, Image processing, HIPA, healthcare data, etc.)

consumer health functionality (API)
(analytics, visualization, community)

collaboration cloud
- Message routing
- Collaboration & social integration
- Metering & billing
- Master patient index
- Workflow support

connected device cloud
- Discovery & registration
- Provisioning
- Diagnositics
- Firmware upgrades
- Security

secure data cloud
- Data interfaces
- Data, image & video services
- Image processing
- Machine learning & analytics
- Archiving

Key takeaways

- New solutions for **population health and support for the Health Continuum**, grounded in big data, social and mobile technologies

- The cloud based **Health**Suite **Digital Platform** is the foundation for all connected health devices and informatics products

- It is the foundation for an **open ecosystem** that will **drive rapid innovation** to deal with the challenges along the Health Continuum

- **Engage with you** so together we can create the future of healthcare

PHILIPS

HealthSuite device cloud

Our portfolio of services

Device connectivity

Device Remote Control services

Firmware download services

Device Pairing Services

Monitoring & alerting

device cloud

Product & User registration

Data Collection services

Key Provisioning Services

Call Center Support

Remote diagnostics

Automatic firmware updates

Remote control of connected devices

Data collection and analytics

Monitoring, diagnostics and reporting

10+ years connectivity experience

PHILIPS

HealthSuite device cloud

The device cloud is composed by 5 major components (see below).
The **Enabling Platform** is the main component, it contains a group of functional **logically grouped** building blocks (see Functional Blueprint slide) that can be independently deployed **anywhere in the world**.

Any Device

Device Client

Any External Parties and/or Any (Philips) System

Device Cloud
Enabling Platform

Any Proposition Any Company

Device Cloud
Supporting Organization and Processes
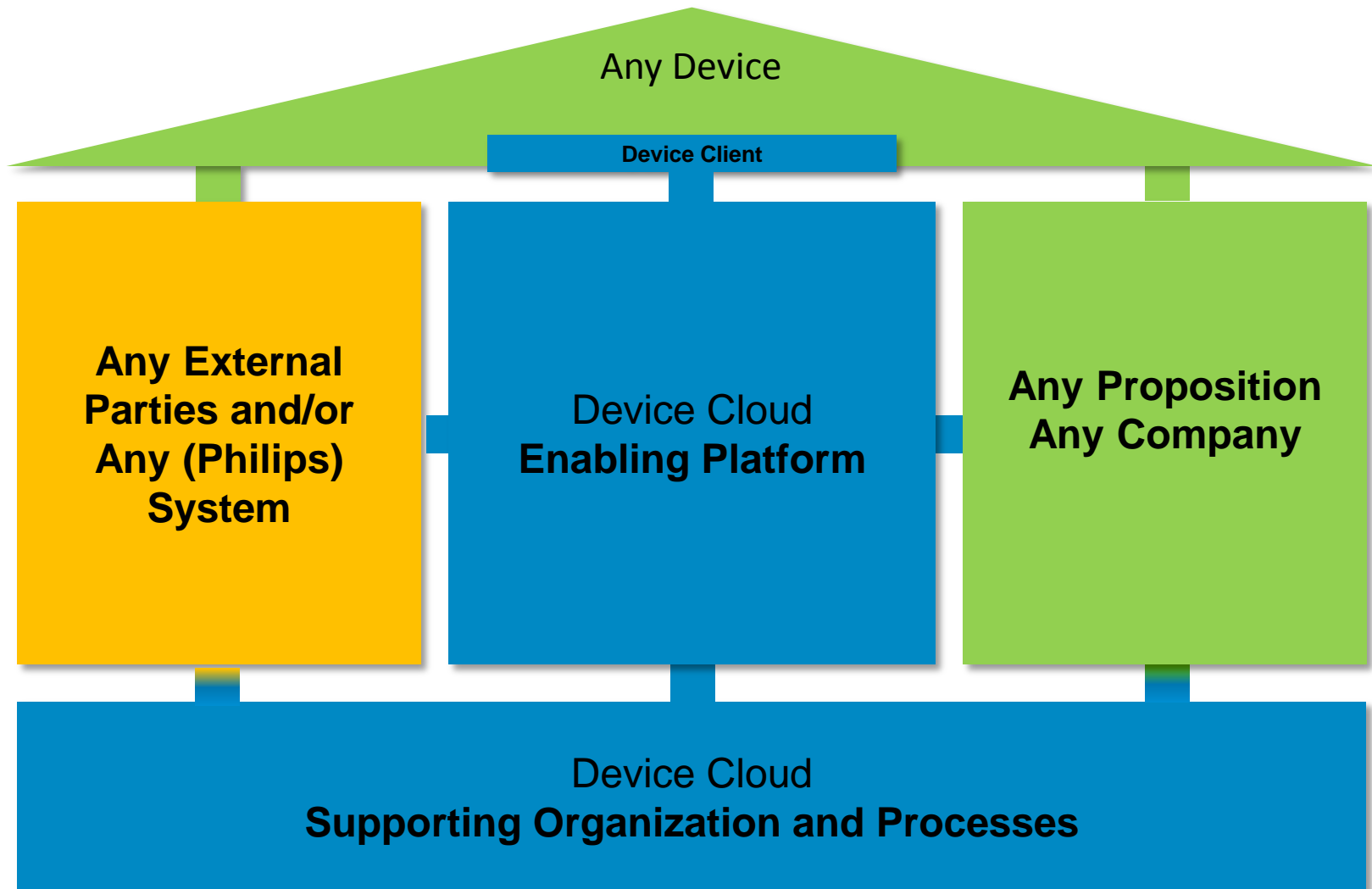
HealthSuite device cloud Functional blueprint

Consumer View (B2C)

Professional View (B2B)

Connected Product Clients

Device Client (SDK) — **PL Client(s)**

Device Cloud
Device Enabling Services

Web Sites
- Registration
- Device Management

- Device Remote Control & Heart Beat
- Pairing
- Diagnostics & Repair

- Firmware & Software
- Registration
- Asset Management

- Data Collection

Notification | Key Provisioning

Authentication & Security

Device Portal

Routing & Time serving

Examples of Data Collection
- Device Usage
- Sensorial data
- Any other data

- Portal Logging
- Data Warehouse

Customer / Business Specific Services (examples)

Smart Home
- Connected Air Purifier
- Male Grooming

Audio
- Internet Radio
- Music Services

Smart TV
- SmartTV Portal

Lighting
- Connected Lamps
- Retail Solutions

Healthcare
- Health Patch
- Hospital to Home

Personal Health
- Active Link

Device Cloud Back-office
- Diagnostics
- Configuration
- Key Generation & management
- Firmware / Software distribution
- Metrics & Reporting
- Monitoring & Alerting

Global Services
(Philips and/or any other company)
- Business Intelligence
- Consumer Care
- SAP
- CRM (.com, .shop)
- Salesforce

Device Cloud People & Processes
- Service Management
- Managed Operations
- Infrastructure & Hosting
- Privacy and Regulatory support

Employee/ Customer view