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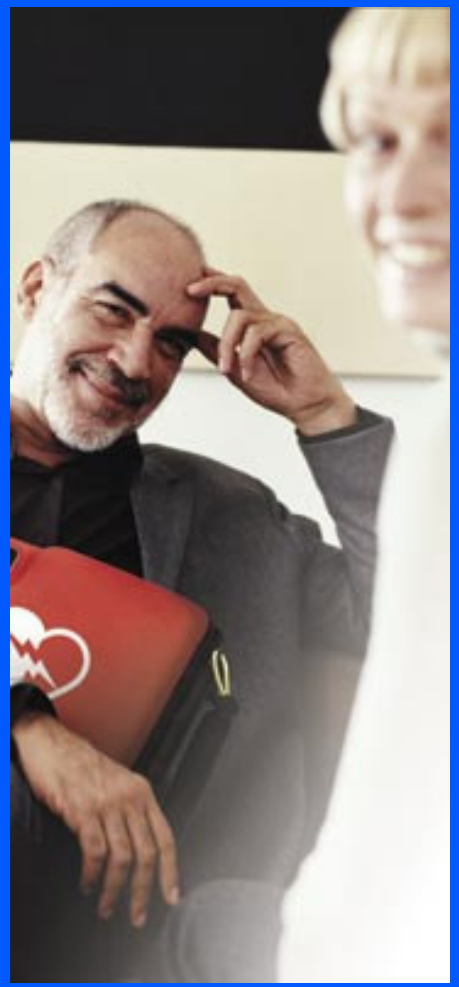
Personal Healthcare

Technology for Living (More) Healthy

Joerg Habetha



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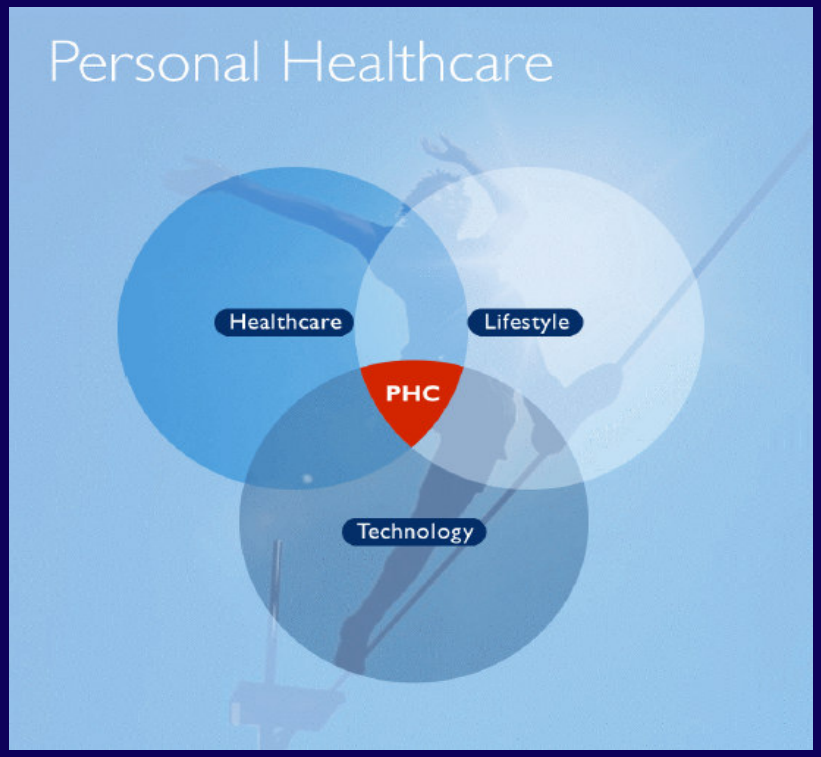
Personal Health Care
Central Element of the new Philips Strategy!



Definition:

Products and services to improve health status and personal performance outside institutional points of care

Gerard Kleisterlee:

... Philips is to become a Lifestyle and Healthcare Company, it‘s purpose being to improve quality of life. No more, no less.

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Living (more) healthy means...

- … maintaining a healthy lifestyle
- … managing your risk factors throughout your life
- … detecting developing diseases early
- … taking early countermeasures against developing diseases
- … managing diagnosed diseases
- … stabilizing chronic diseases

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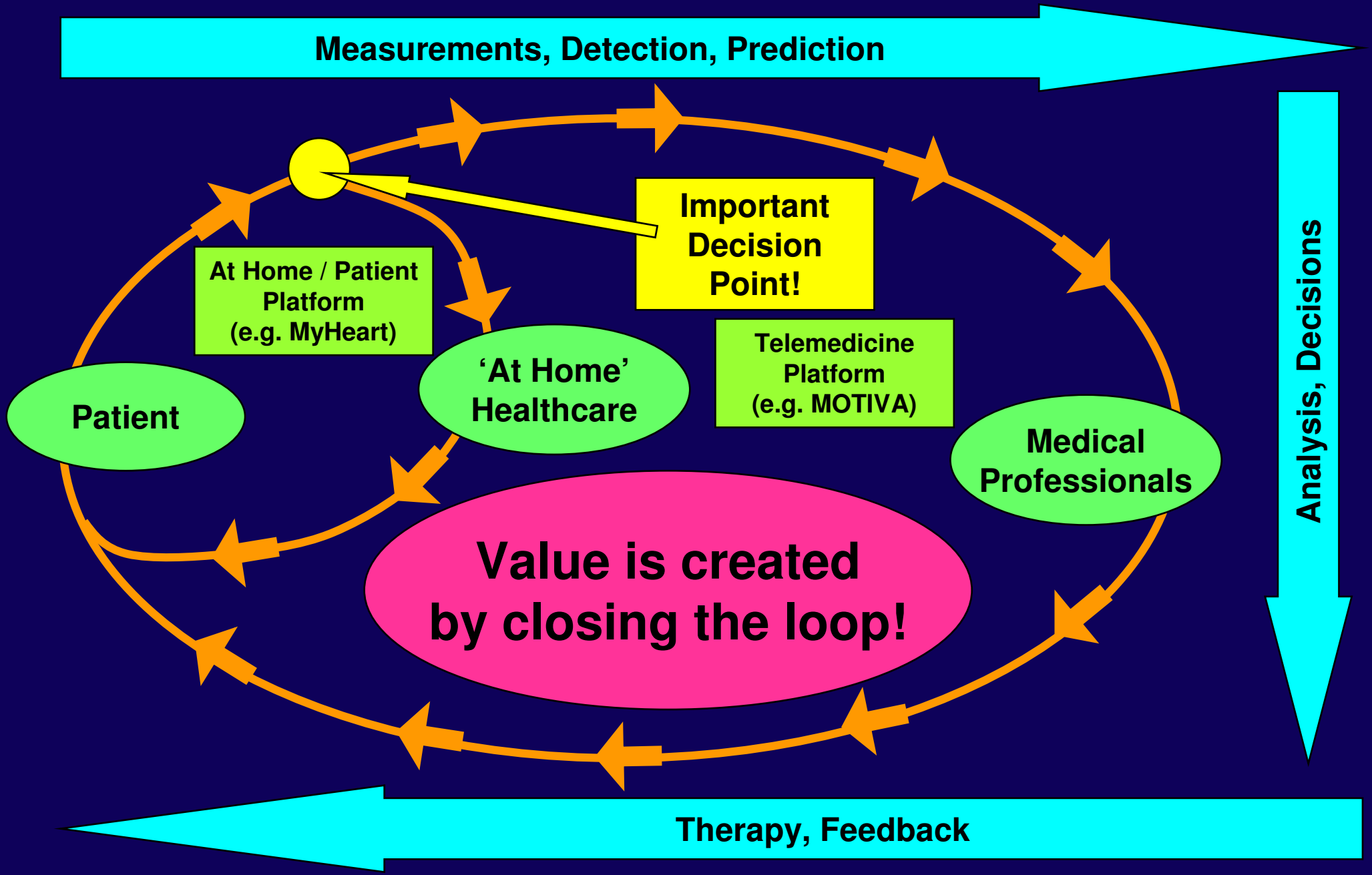
The Feedback Loop of Personal Healthcare



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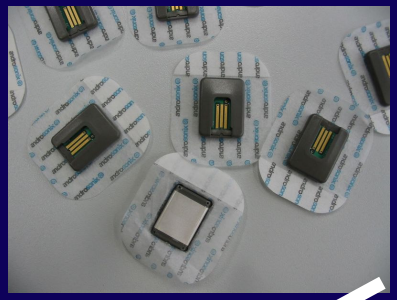
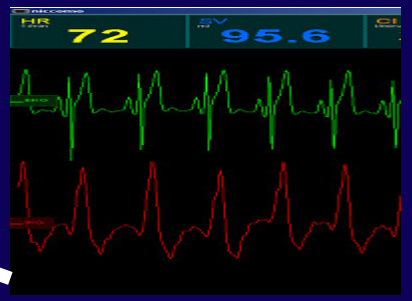
Current & Future Research on Personal Healthcare

Applications & Decision Support

Sensors



Signal Processing



Platforms & Communication Technology

User Experience

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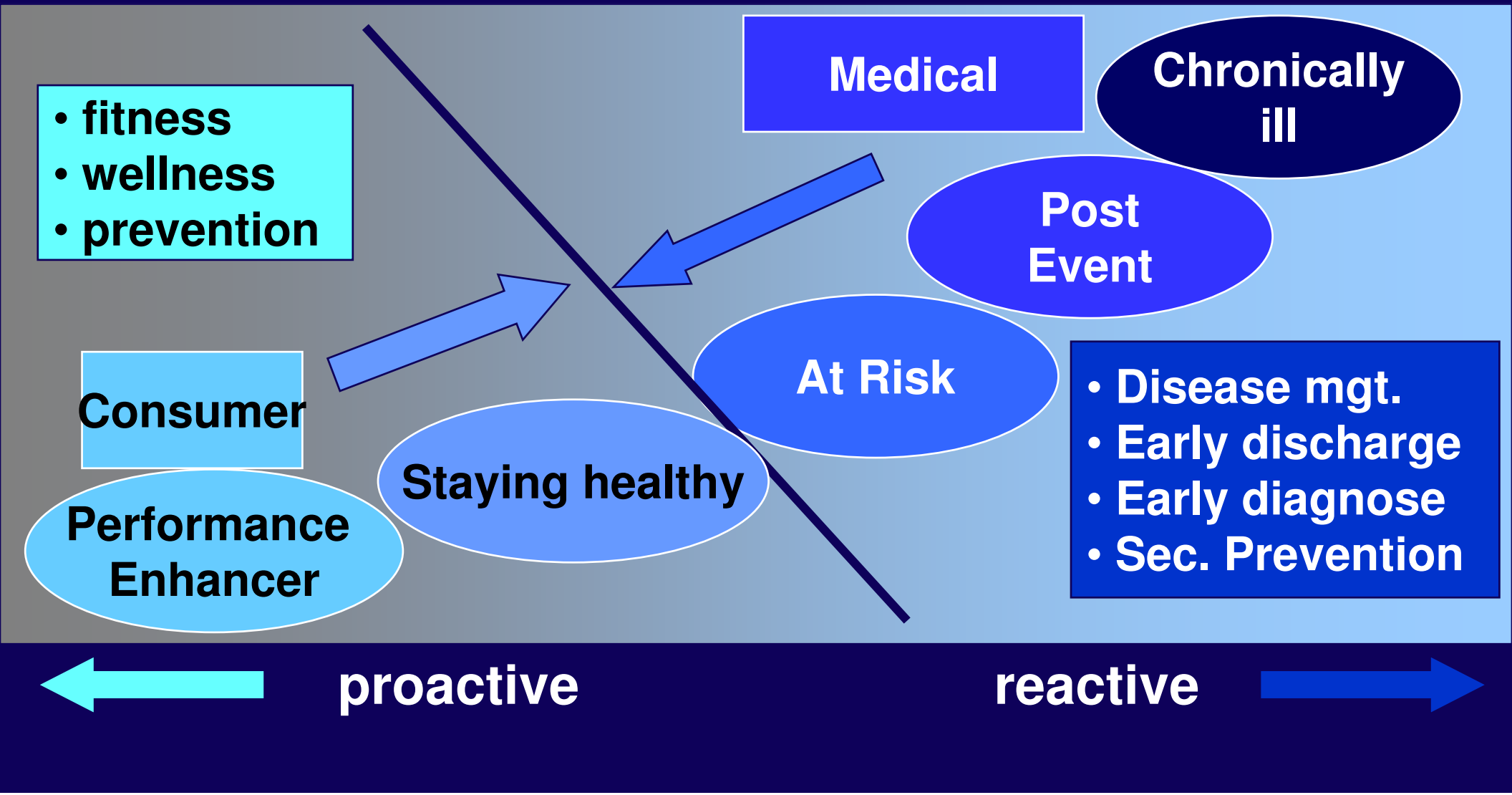
Personal Health Care Applications



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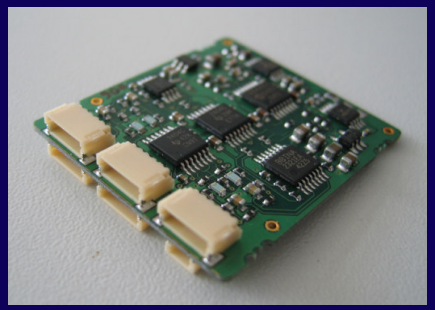
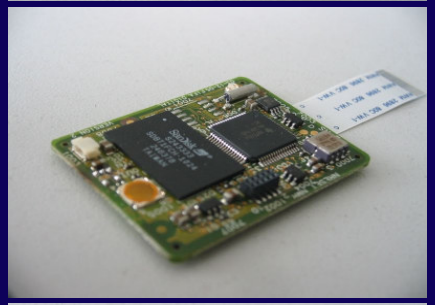
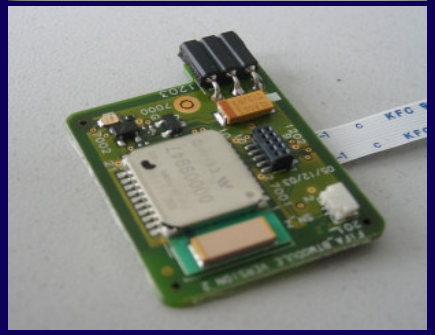
Wearable Packages and Hardware Modules







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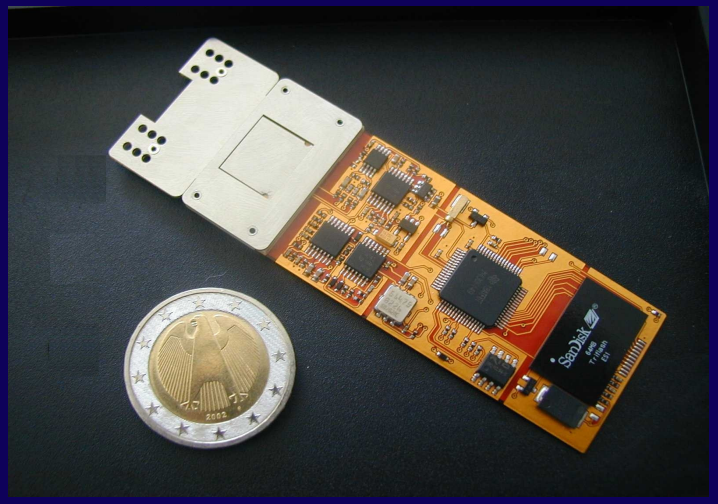
MyHeart

Fighting cardiovascular disease
by preventive lifestyle & early diagnosis

EU IST E-health (6th framework)



- Start: 31.12.2003
- Duration: 45 month
- Partners: 33 (10 countries)
- Total manpower: 75
- Total budget: 33 M€
- EC-funding: 16 M€
  (+3M€ from Switzerland)

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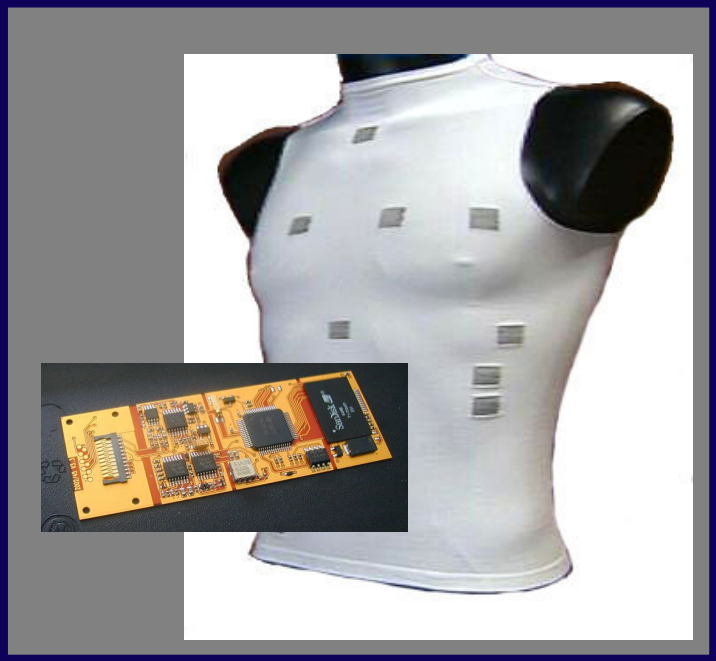
Overview MyHeart system

Solutions for prevention & early diagnosis:



mobile

home

Service center

Monitoring

Diagnosis

Therapy

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Phases of MyHeart

Phase 1: Concept **18 months**

- Filling the application segmentation matrix
- Building early demonstrators and mock-ups
- Assessing customer/stakeholder reaction
- Selecting the most attractive concepts + business plans

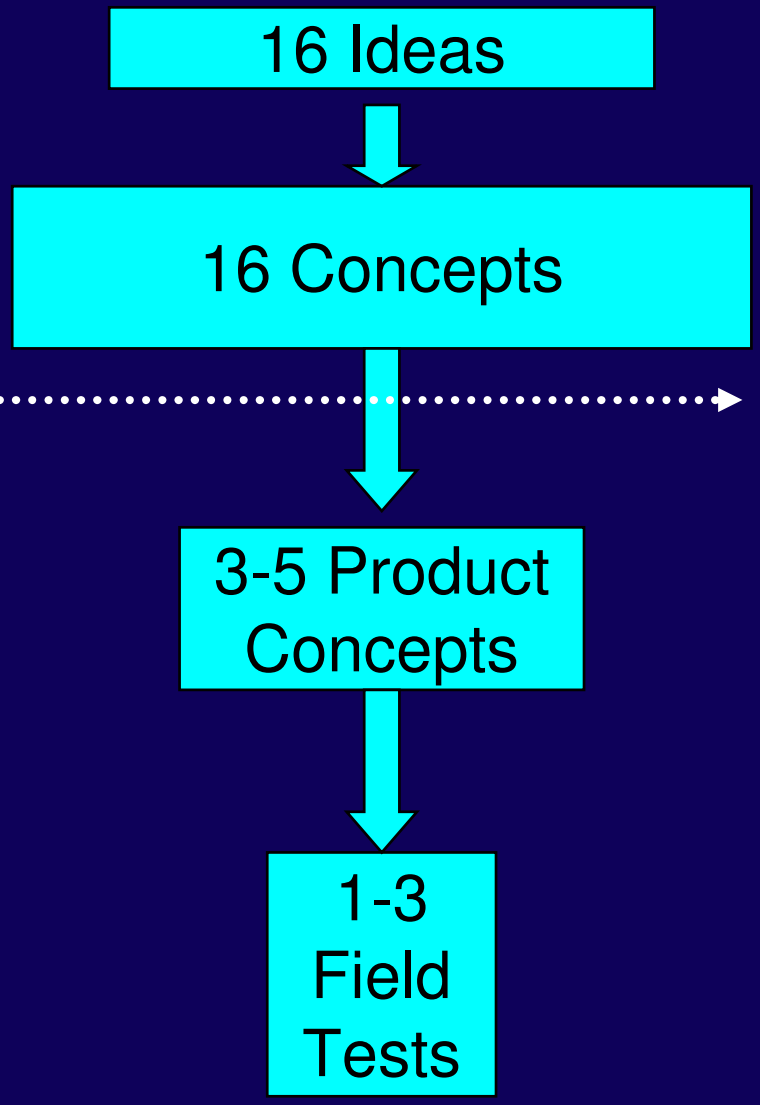
Phase 2: Implementation **12 months**

- Realising the most attractive concepts
- Defining reference architecture for prevention
- Clinical/medical panel testing

Phase 3: Validation **15 months**

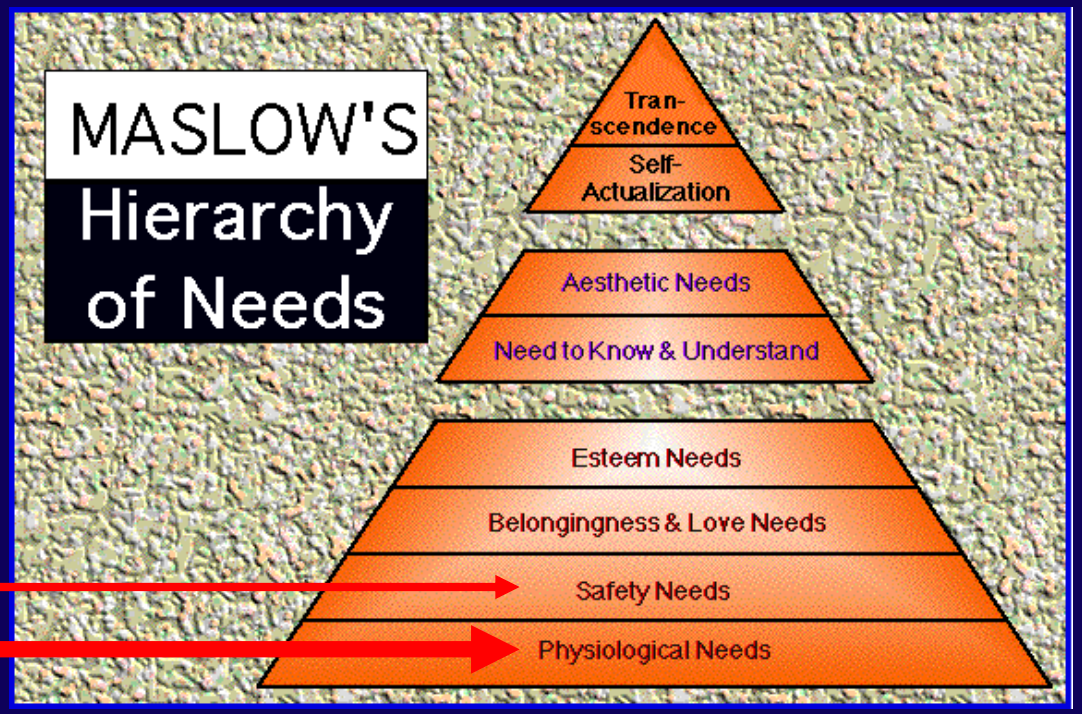
- Demonstrating technical/medical feasibility (trials & panels)
- Building partnerships for business exploitation
- Dissemination

Sum: **45 months**



Personal Healthcare: Trends

- Health is <u>always</u> a top priority!
  - Maslow's hierarchy of needs **(Abraham Maslow, 1908-1970)**



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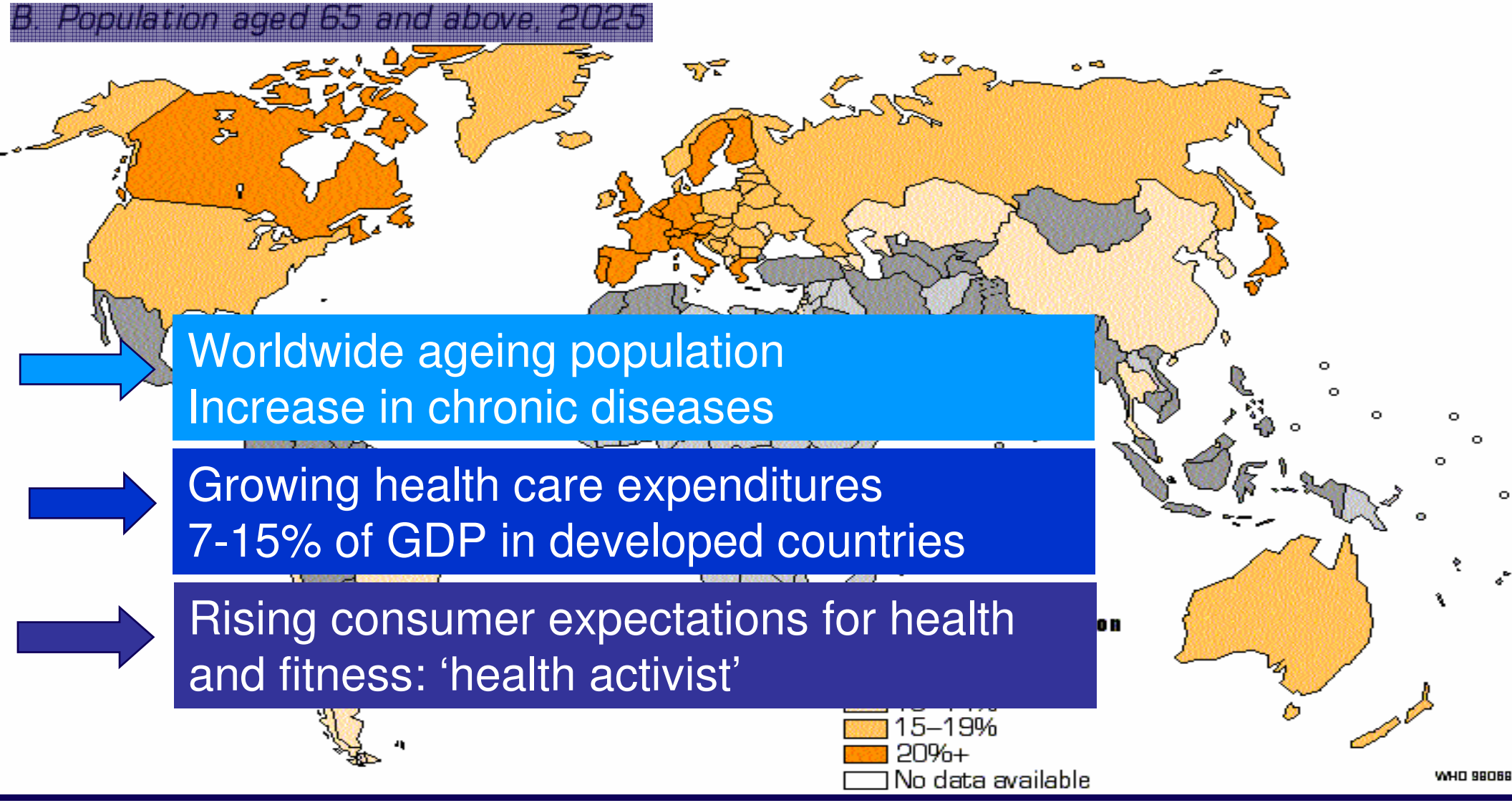
Trends: Good news life expectancy increases



- Worldwide ageing population
  Increase in chronic diseases
- Growing health care expenditures
  7-15% of GDP in developed countries
- Rising consumer expectations for health and fitness: ‘health activist’

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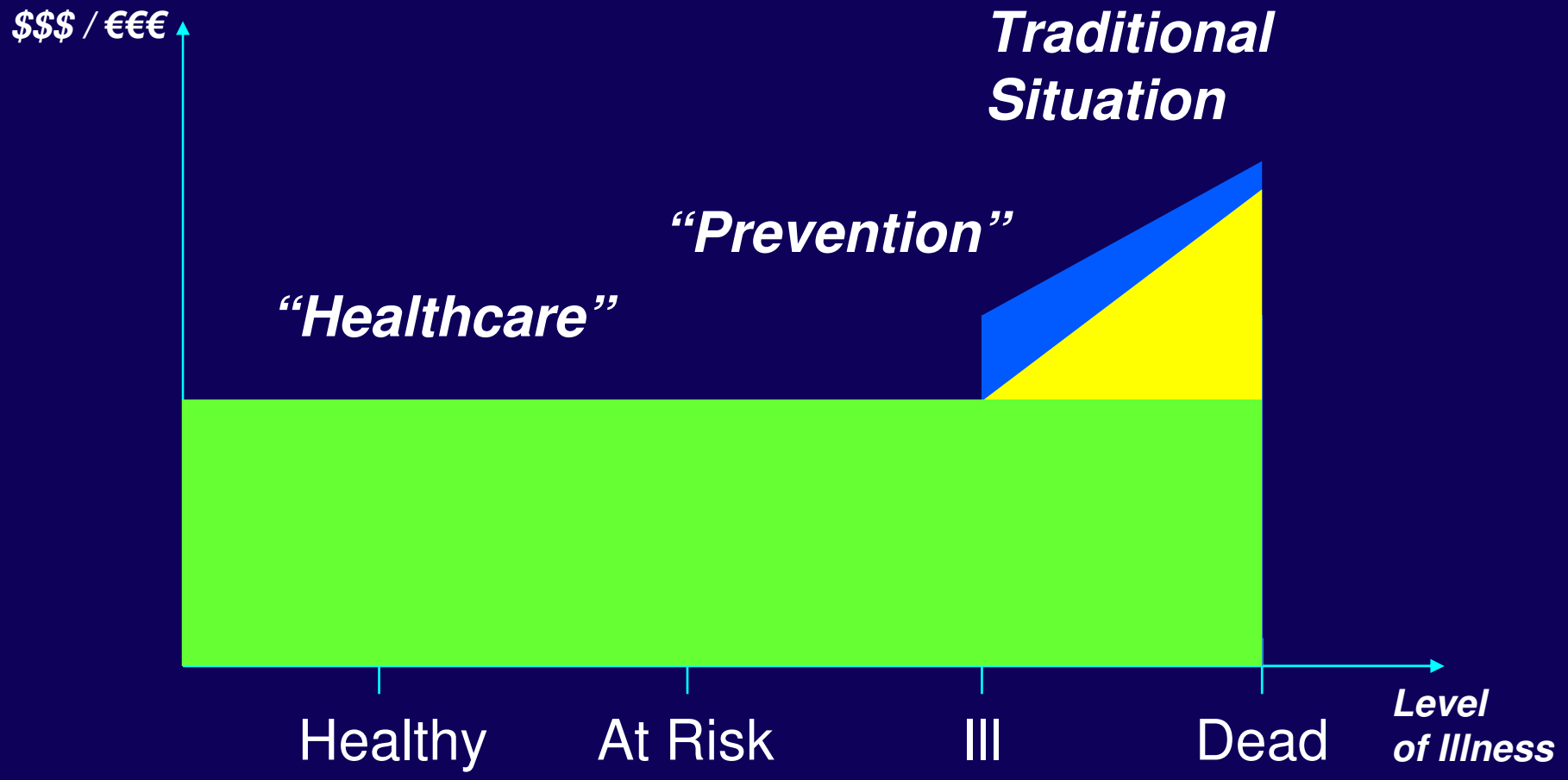
Personal Healthcare: Trends
→ "Healthcare" Spending



3 Primary Trends ('evident' trends)

1. Age: ↑ (Diseases: ↑)
   - Improved medical care
2. Lifestyle Diseases: ↑ (e.g. Diabetes)
   - Wrong and too much food; too little movement
3. Cost Intense Healthcare Options: ↑
   - New technology offers (e.g. implantable electronics, advanced imaging)

Secondary Trend

Health insurances will ‘reward’ healthy living

- Risks that statistically happen with a too high likelihood are uninsurable
  - Age (and resulting diseases)

⇒ Technology for health-related lifestyle monitoring (for insurance tariff validation) will become relevant
  - Regularly
  - At-home / in private environment
  - Personalized
  - Connected

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sense and simplicity

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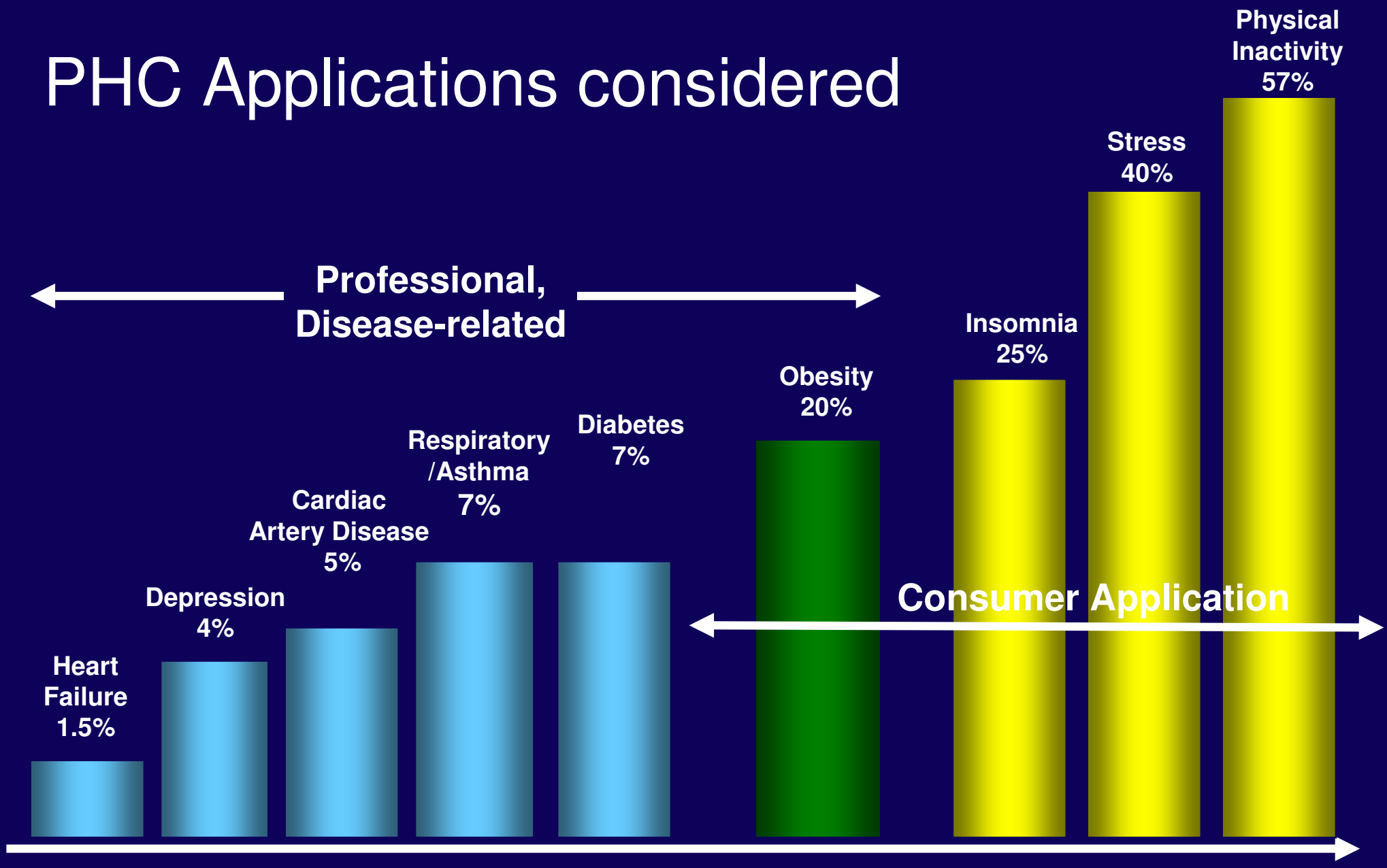
PHC Applications considered



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Personal Healthcare Sensor Portfolio

Parameter	Technology
Activity	Accelerometers, Motion detectors
Body Sounds	Body Microphones
Heart Rate	Electrical, optical, acoustic, radar detection
Diagnostic ECG	Medical grade electrical activity amplification
Body Composition	Bio-Impedance, Radar
Respiration	Textile strain gauge, impedance variation, Microphones
Blood Pressure	Pulse Transit Time
Sweating	Galvanic skin response
Weight	Load cells
Blood Composition	Optical spectroscopic methods
Body Fluid Tests (Saliva & Urine)	Biochips, Spectroscopic methods
Temperature	Thermistors