



# NextD

NEXT-GENERATION INTEGRATED PLATFORM FOR INSTANT  
PROTEIN DIAGNOSTICS

**PHILIPS**



 Universität Bremen

 HyTest Ltd

**TU/e**



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## NEXTDX

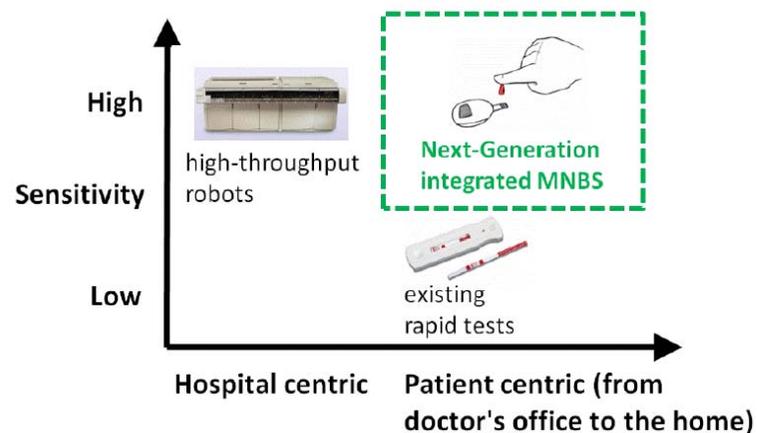
- **Philips (NL)**. Coordinator. Cardiac care & biosensing  
com
- **Imec (BE)**. Optical integration technologies  
inst
- **PolyAn (DE)**. Molecular surface engineering  
com
- **TU/e (NL)**. Protein engineering & Molecular biophysics  
univ
- **HyTest (FI)**. Biotech reagents  
com
- **UBremen (DE)**. Optical particle characterization  
univ

December 2012 – December 2015



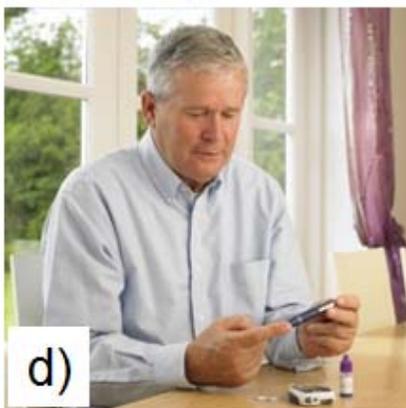
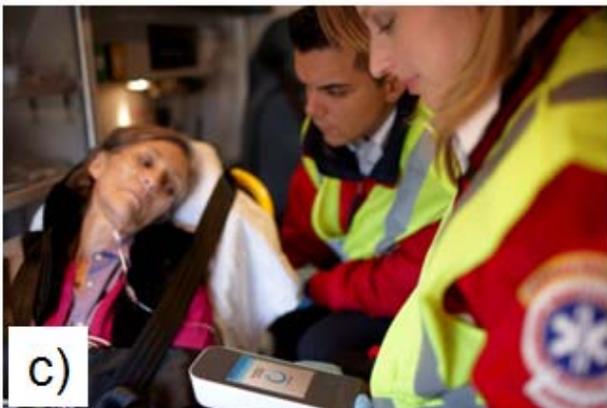
# NEXTDX

- **Highly sensitive blood tests**
  - ▶ For protein diagnostics
  - ▶ Directly in blood plasma
- **Instant diagnostics**
  - ▶ Near the patient
  - ▶ To support on-the-spot decisions
- **Fully integrated system**
  - ▶ Cost-effective miniaturized plastic cartridge
  - ▶ Technology for a compact analyzer





# INTEGRATED TECHNOLOGY FOR ON-THE-SPOT DECISIONS





# UNIQUE VALUES FOR THE MEDICAL DOCTOR AND THE PATIENT

- Analytical performance
  - ▶ As in the central laboratory
- Time to result
  - ▶ Minute timescale, matching the doctor-patient or nurse-patient interaction or use in the home environment
- Ease of use
  - ▶ Small sample volume, for finger prick
  - ▶ System suited for less-specialized personnel or even patients themselves

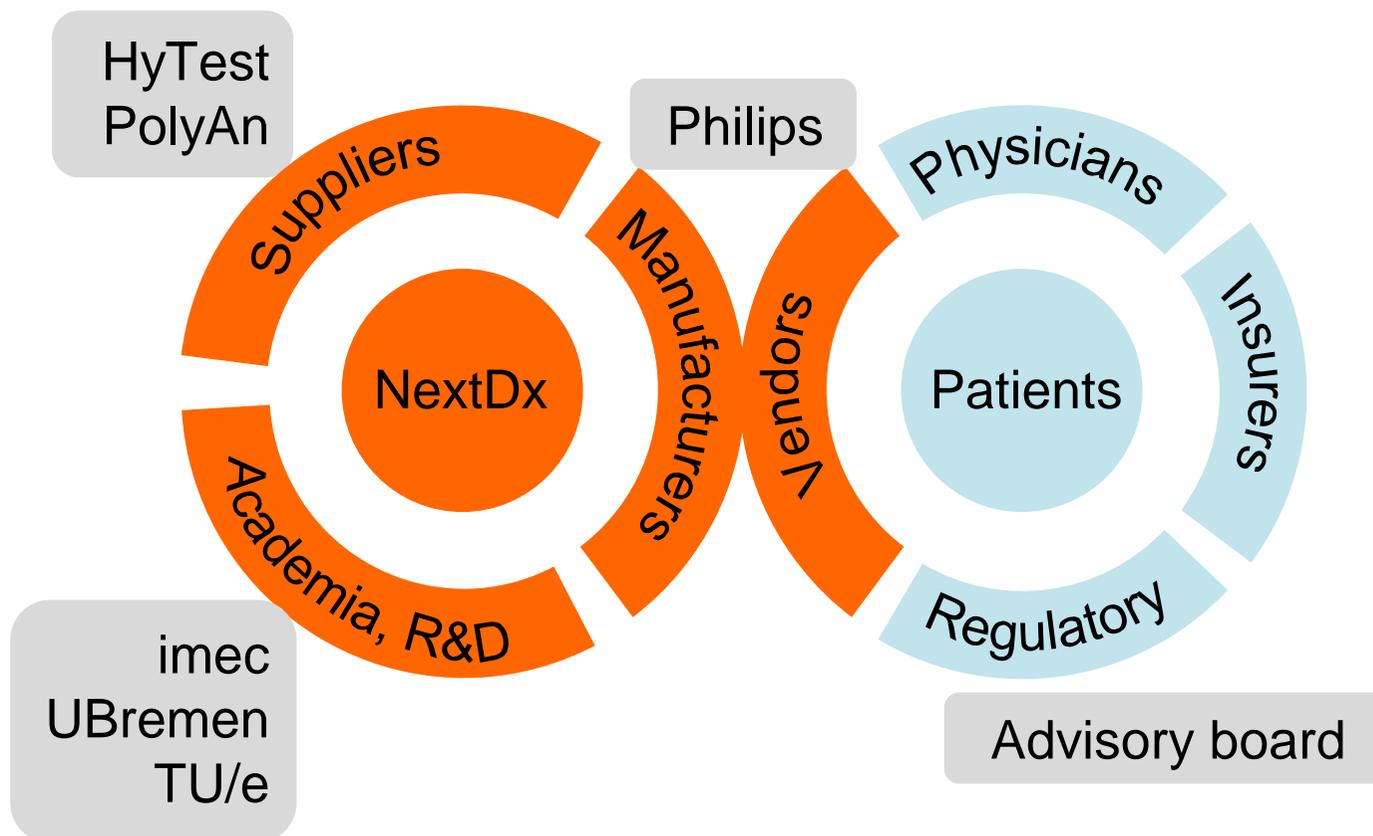


# COLLECTING USER NEEDS

- **NextDx Project**
  - ▶ Advisory Board, set up at project start
  - ▶ Start project with requirements document and incorporate input from Advisory Board
  - ▶ Yearly updates with Advisory Board
  
- **Existing business within Philips**
  - ▶ User need specialists
  - ▶ Dedicated Advisory Boards
  
- **Existing research activities within Philips**
  - ▶ E.g. national collaborations including clinical partners



# NEXTDX AND ADVISORY BOARD





# NEXTDX ADVISORY BOARD

Stakeholders from various disciplines:

- ▶ Patient organization
- ▶ Clinician
- ▶ Clinical chemist
- ▶ Health insurance specialist
- ▶ Government regulatory expert



# NEXTDX EXPLOITATION

- Philips (IND)
- IMEC (RES INST)
- Hytest (SME)
- PolyAn (SME)



# NEXTDX EXPLOITATION

- Philips (IND)
  - ▶ Has established a Handheld Diagnostics business group ([www.philips.com/magnotech](http://www.philips.com/magnotech)), which is the main outlet for the project results, fitting with the users targeted by the NextDx project.
  
- IMEC (RES INST)
  - ▶ Is interested in direct technology transfer to the industrial partners in the project, by patent application (possibly shared with the industrial partners) and licensing, and in creating spin-off activities.



# NEXTDX EXPLOITATION

- Hytest (SME)
  - ▶ Aims to develop knowledge on antibody requirements for point-of-care biosensing and magnetic particle assays, in order to expand the product portfolio
  
- PolyAn (SME)
  - ▶ High performance surfaces for coupling of antibodies that achieve a higher signal-to-noise ratio are in the core of the business interest



# STEPS TO MARKET – DX SYSTEM

- Proof of separate principles
- Proof of principle for integrated prototype
  - ▶ Targeted status at the end of NextDx
- Business plan and commitment
- Development of integrated system and manufacturing
- System verification
- System validation
  - ▶ Performance evaluation in targeted use environment for registration with authorities



# STEPS TO MARKET – DX SYSTEM

- Expertise required on
  - ▶ End-user needs and usability
  - ▶ Diagnostic system development
  - ▶ Diagnostic system manufacturing
  - ▶ Clinical testing
  - ▶ Regulatory aspects
  - ▶ Business and marketing knowledge
  
- Philips dedicated business group has required expertise in-house



## SUMMARY

- Multidisciplinary project focused on technology integration and demonstration on real samples (blood plasma). Balanced academic-industrial efforts.
- Appropriate Advisory Board and early-on definition of Requirements safeguard future compatibility of prototype with User Needs
- Coordinator is a large healthcare industrial party. Strong experience and infrastructure in the development and manufacturing of diagnostic platforms, including end-user insights, clinical contacts and regulatory and business knowledge.
- SME's and research institute provide additional exploitation routes aimed at specific users



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