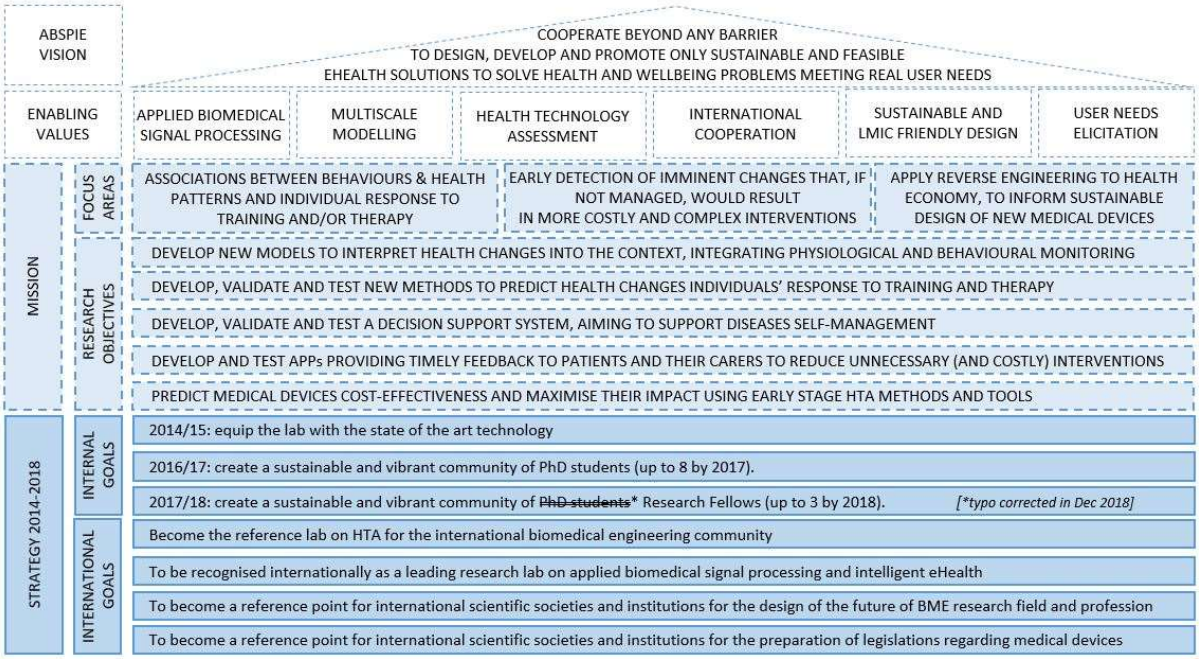
Report of performance against ABSPIE Vision, Mission and objectives 2014-2020

This post reports on the ABSPIE vision and mission for the period 2014-2018, which finally was extended to the Academic year 2019/2020 due to the COVID-19 pandemic.



Objectives and goals, after 5 years

The lab achieved the 90% of the objectives and goals set in 2014. Those objectives are still relevant and, after a required exemplification and update, have been reformulated in the 2020-2023 mission.

Research Projects

This was possible thanks to the significant number of granted research projects (total value £30 millions circa) with a total research income for our University of more than £3 millions including UK/EU competitive grants proposals and consultancies. Here the list of the most representative grants awarded in this period:

1. **Leveraging AI based technology to transform the future of health care delivery in Leading Hospitals in Europe (ODIN)**, Funded by: H2020 , Smart Hosptial and AI call (H2020-DT-2020-1), Project Start Date 01-03-2021 - Project End Date 31-08-2024
2. **Hypoglycaemia detection via ECG and Artificial Intelligence in diabetic patients**, Funded by: *EPSRC IAA*, Project Start Date 01-08-2020 - Project End Date 31-07-2021

3. **Covid-19 pandemic Social and Healthcare dynamic impact in Benin**, Funded by: *Warwick Global Research Priority on Health and Technology*, Project Start Date 01-05-2020 - Project End Date 31-12-2020
4. **Nocturnal Hypoglycaemia detection via ECG and Artificial Intelligence in diabetic patients**, Funded by: *Wellcome Trust* Translational Partnership, Project Start Date 01-06-2018 - Project End Date 31-03-2022
5. **GATEKEEPER: Smart living homes – whole interventions demonstrator for people at health and social risks**, Funded by: *Horizon2020*, Project Start Date 01-10-2019 - Project End Date 31-03-2023 Link
6. **EPSRC Cyclops Grand Challenge Workshop**, Funded by: *EPSRC*, Project Start Date 01-05-2018 - Project End Date 31-07-2019
7. **Supporting the harmonisation of regulations on medical devices and medical locations among Sub-Saharan African Regions and Europe**, Funded by: *CGRF*, Project Start Date 03-09-2018 - Project End Date 31-03-2020
8. **Health Technology Assessment of Medical Devices in low and middle income countries**, Funded by: *EPSRC* IAA, Project Start Date 01-03-2017 - Project End Date 31-03-2020
9. **European network for innovative uses of EMFs in biomedical applications (EMF-MED)** Action BM1309 Funded by: European Cooperation in Science and Technology (*COST*), Project Start Date 15-11-2013 - Project End Date 14-11-2017
10. **Sleep quality, Centre-of-Pressure sway and standing hypotension to estimate the risk of falling and predict accidental falls**, Funded by: *Royal Society*, Project Start Date 10-03-2015 - Project End Date 09-03-2016

Scientific papers

During this period, the lab was also extremely prolific in publishing more than 40 scientific research papers on top journals, with 10 more currently under revision. The full list is available at the PI Scholar account: link.

Impact

The lab became a reference for the international community of biomedical engineering and medical device. Further details can be read here

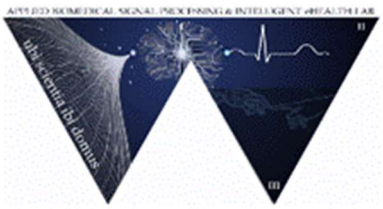
Internal goals

2014/15: equip the lab with the state of the art technology

The lab is now equipped with the state of the art technology for acquiring, processing and assessing the majority of biomedical signals for continuous long-time acquisitions (i.e., 24h for 2 weeks) also in real-life.

- Biopotential (ECG, EEG, EOC, EMG...)
- Body temperature and skin resistance/conductance
- Actigraphy
- Breathing rate
- Blood pressure, SpO2, plethysmography
- Complex combinations of the above (e.g., polysomnogr

Moreover, the lab is equipped the state of the art equipment for testing the majority of medical devices against the main international standards



- Electric Safety analyzer
- Defibrillators analyzer
- Electrobistury analyzer
- Infusion pumps analyzer
- Gas flow analyzers
- Patient Simulators

2016/17: create a sustainable and vibrant community of PhD students (up to 8 by 2017)

The lab has been successful in attracting brilliant PhD students. Since 2014, the lab been host for 10 PhD students, 3 of which completing their PhD in the past years:

- **Dr Rossana Castaldo** (2014-2018)
- **Dr Luis Montesinos Silva** (2015-2019)
- **Dr Mihaela Porumb** (2016-2020)
- **Mr Tim Wan** (2016-2021)
- **Mr Carlo Federici** (2017-2021)
- **Mr Davide Piaggio** (2017-2021)
- **Mrs Busola Oronti** (2018-2022)
- **Miss Martina Andellini** (2018-2022)
- **Miss Katy Stokes** (2020-2024)
- **Miss Hardip Boparai** (2020-2026)

2017/18: create a sustainable and vibrant community of Research Fellows (up to 3 by 2018).

The project listed above, have supported the creation a vibrant community of Research Fellow and Senior Research Fellows, including:

- Dr Rossana Castaldo
- Dr Silvio Pagliara
- Dr Muhammad Salman Haleem
- Dr Alessia Maccaro
- Dr Kallirroi Stavrianou