



Innovation

IMPACT

IMPACT

Intelligence based clinical workflow optimization

ITEA Award of Excellence 2022 ceremony
15 September 2022
Robert Hofsink, Philips



ITEA 4 is the Eureka Cluster on software innovation



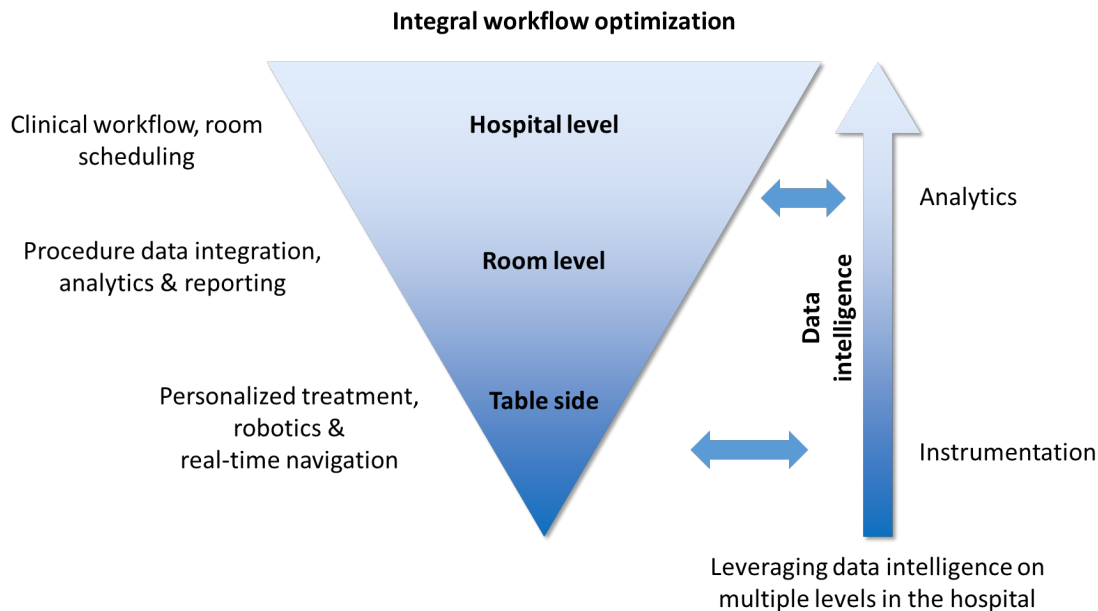
Rationale

- Complex workflows in image guided clinical procedures
- Data overload
- Treatment outcome
- Staff burden

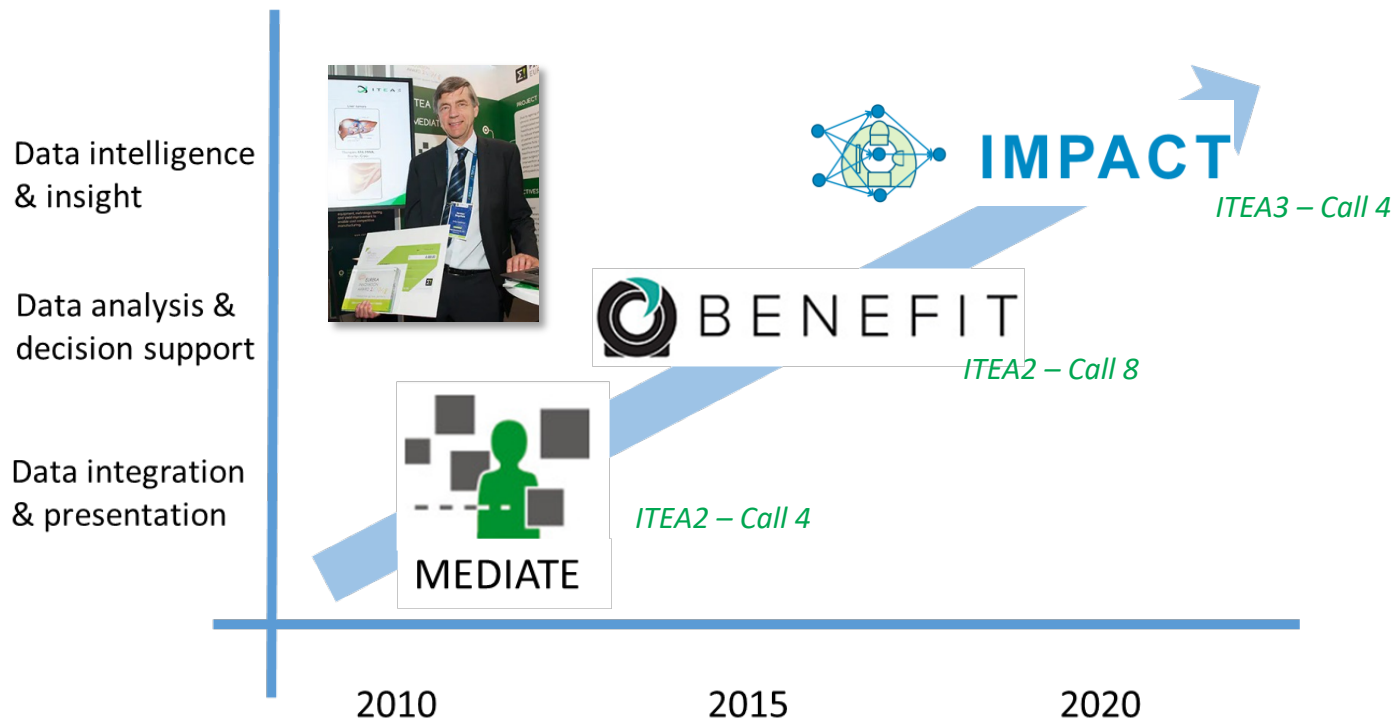


The IMPACT project

Intelligence based **i**mprovement of **P**ersonalized treatment **A**nd
Clinical workflow support**T**



IMPACT family of projects



IMPACT consortium

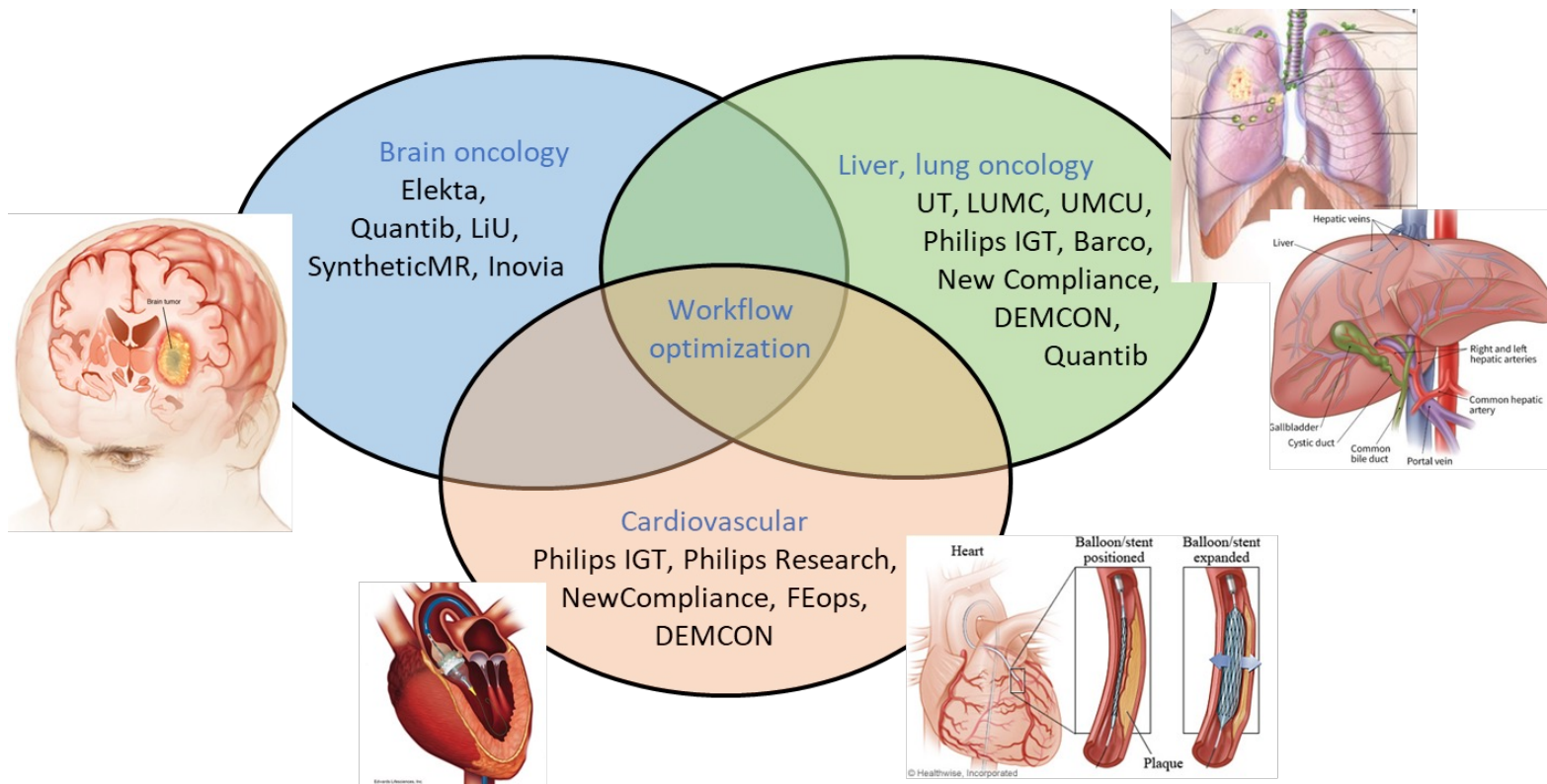
- 4 large industry
- 5 SMEs
- 4 universities/hospitals
- Oct 2018 – Sep 2021



IMPACT innovation areas

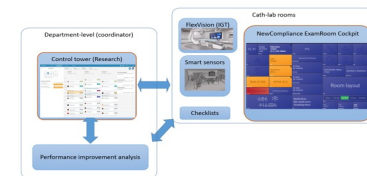
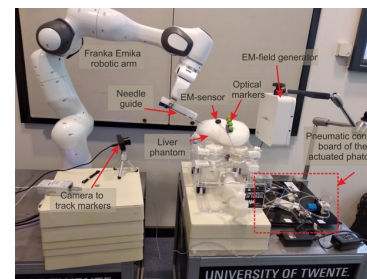
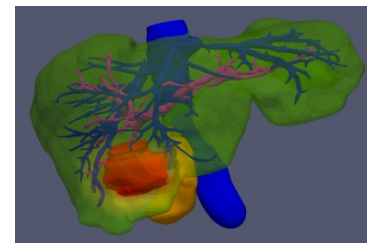
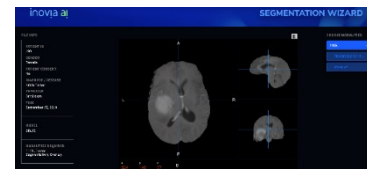
- Personalized diagnosis and treatment planning
- Minimally invasive & robotic assisted surgery
- Workflow optimization
- Data intelligence

IMPACT collaboration in clinical use cases



IMPACT's main achievements

- Brain segmentation
 - Automation and extreme procedure time reduction for 3D brain tumour segmentation and treatment planning
- Liver segmentation
 - Automation, improved tumour safety margin and procedure time reduction
- Robotic needle control
 - First time right motion compensated needle positioning
- Workflow dashboards
 - Cross-department and in-lab dashboards to streamline data flow and optimize operational efficiency



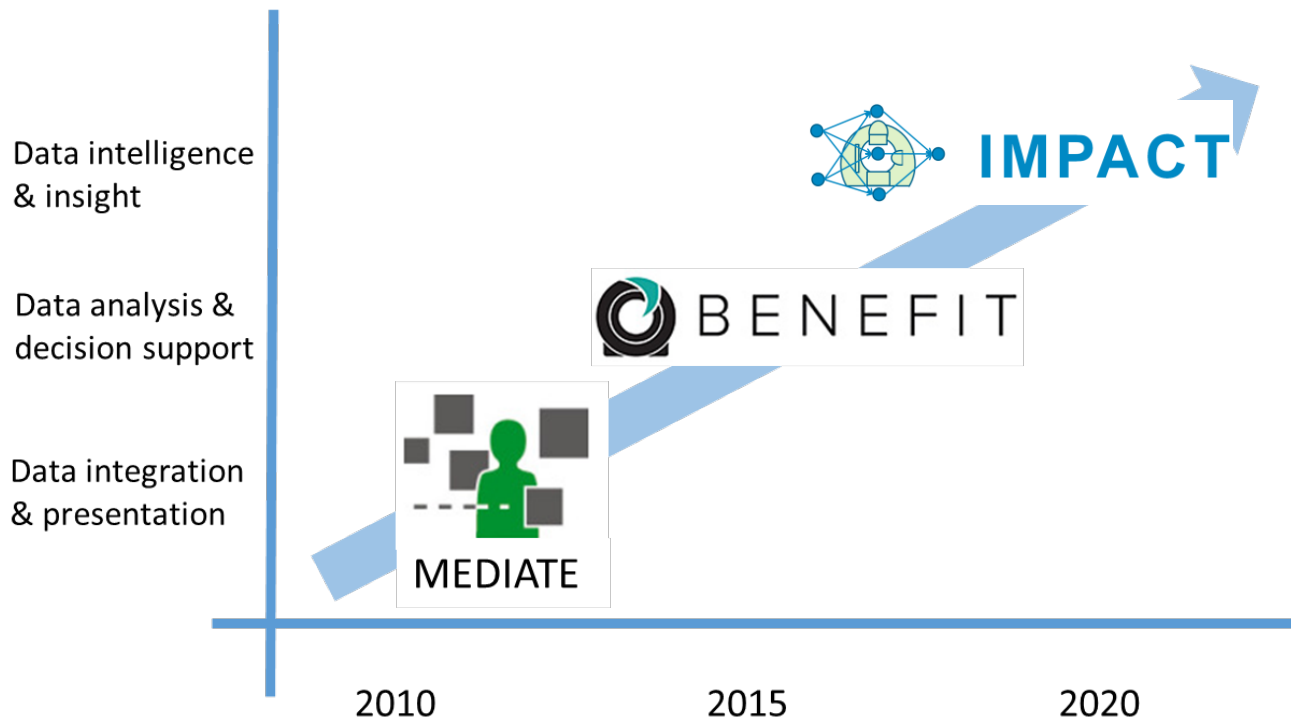
IMPACT quantified

- 30% LAAO procedure time reduction
- Diffusion MRI scan time reduced from 12 to 6 min
- Quantitative MRI protocol time reduced from 60 to 6 min
- Brain metastases segmentation from 30 to 15 min
- 20% tumour excision margin reduction

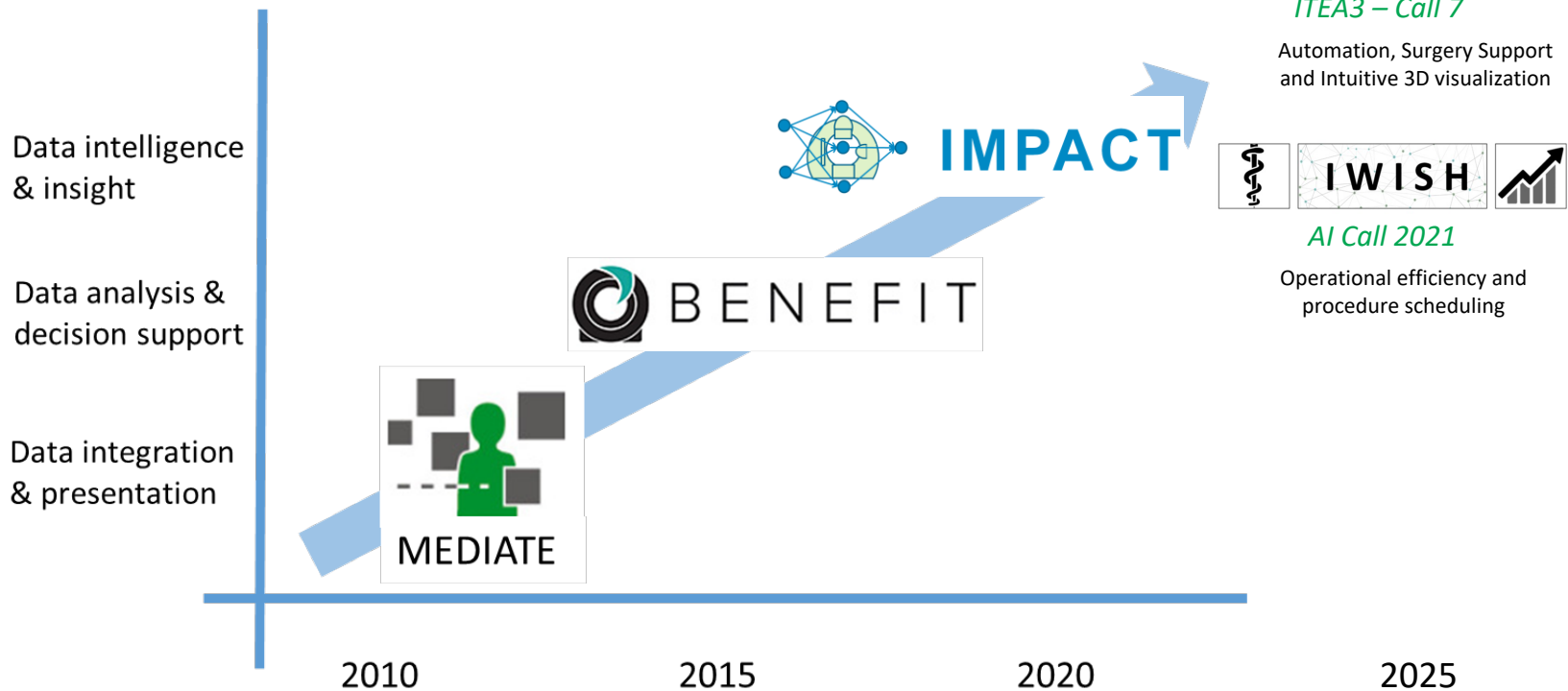
IMPACT main exploitable results

- New products
 - HEARTGuide procedure planning tool for LAAO
 - Leksell Gamma Knife Inverse planner for radiotherapy planning
 - SyMRI software for fast MR quantification
 - Cathlab cockpit for operational efficiency
 - Microbleeds CE certified for vascular bleeding detection
 - Multi-modal image processing pipeline
- 3 patent applications
- Spin-off company Quantib-U

IMPACT follow up



IMPACT follow up



Conclusions

Team and cooperation

- Strong cooperation within teams
- Valuable involvement of clinical partners

Innovations

- Impressive achievements: automation, speed, accuracy, confidence
- Integrated demonstrators in all use cases

Intelligence based **iM**provement of **P**ersonalized treatment **A**nd
Clinical workflow support**T**

Overall conclusion

Objectives achieved: Project results lead to significant
IMProvements in clinical **A**ccuracy, **C**onfidence and **T**ime !!



ITEA is the Eureka Cluster on software innovation

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<https://www.eurekanetwork.org>

Thank you