

## Innovation Mission: Emerging Technologies in Health

October 23-28 2022

Key R&D needs and associated technical challenges in the Boston health ecosystem will be identified and matched with Dutch expertise to help solve those challenges. Participants will engage with, and showcase their expertise to, relevant prospective partners in research, development, and industry. Dutch and American stakeholders of diverse sectoral and technical expertise, resources, and needs will be brought together mixed to stimulate innovative thinking, problem-solving, and partnership-building. Actors will come together in working sessions focused on each stop in the value chain: building and driving the innovation ecosystem, breakthrough fundamental research, producing cost-effective solutions, and continued innovation in corporate to care to manufacturing settings.

### **Objectives**

- Put diverse actors in scenarios where, through collaborative sessions, they're (a) able to showcase their value to one another as potential future partners and (b) create the space for preliminary solutions to begin to emerge, leading to longer term R&D collaboration
- Broadly stimulate or renew crossover (across sectors, resources, expertise, goals, methodologies) thinking in participating Dutch and Boston actors.
- Showcase expertise and technologies from the Netherlands that meet the needs of partners in Boston.

### **Target audience**

Engineers, researchers, clinicians, strategists, designers: working at scale-ups, midsize companies, research institutes, research hospitals and start-ups that possess exceptional expertise in a certain technology.

### **Design Challenge, October 27-28**

Partners in the greater Boston area range from fundamental research to industry. All partners will be asked to join the design challenge.

### **Challenges in the Boston Life Sciences & Healthcare Ecosystem**

This is a preliminary set of challenges identified by Boston area research institutes, universities, corporates (medical device manufacturers, pharma), venture funds, hospitals, and clinicians. The next step in program development is refining these challenges so that they are tailored to the expertise of Dutch and American participants.

### Oncology and Biotech Research (e.g. organ-on-a-chip, organoids, regenerative medicine, personalized medicine, AI, photonics, sensors, nano technologies)

- How can new technologies in precision medicine minimize damage to healthy tissue in treating cancer?  
What will be new and robust preclinical models of the future for cancer treatments?
- What is the next step in understanding individual patient's system's biology?
- What will be the next clinical applications of engineered human tissues, and what technologies are required for safe and viable production?
- What medical imaging technologies can support diagnostics in oncology?

### Surgery and Medical Treatment (e.g. robotics, photonics, sensors, AI, nano technologies)

- What will the next advance in minimally invasive and / or precision surgery look like?
- How can AI in assistive robotics improve surgical outcomes in the operating room?
- What assistive technology can accelerate patient recovery and rehabilitation?
- What technologies can improve administration of medication (e.g. technologies for long term drug delivery)?
- How can AI assist in the design and manufacturing of precision medical devices?

Sensing, Imaging, and Diagnostics (e.g. photonics, sensors, AI)

- What will be the next advance in employing sensing, imaging, and AI for early diagnosis (e.g. for neurological and cardiovascular conditions, oncology).
- What will be the next applications of AI and sensing in (remote) patient monitoring and administration of medication?