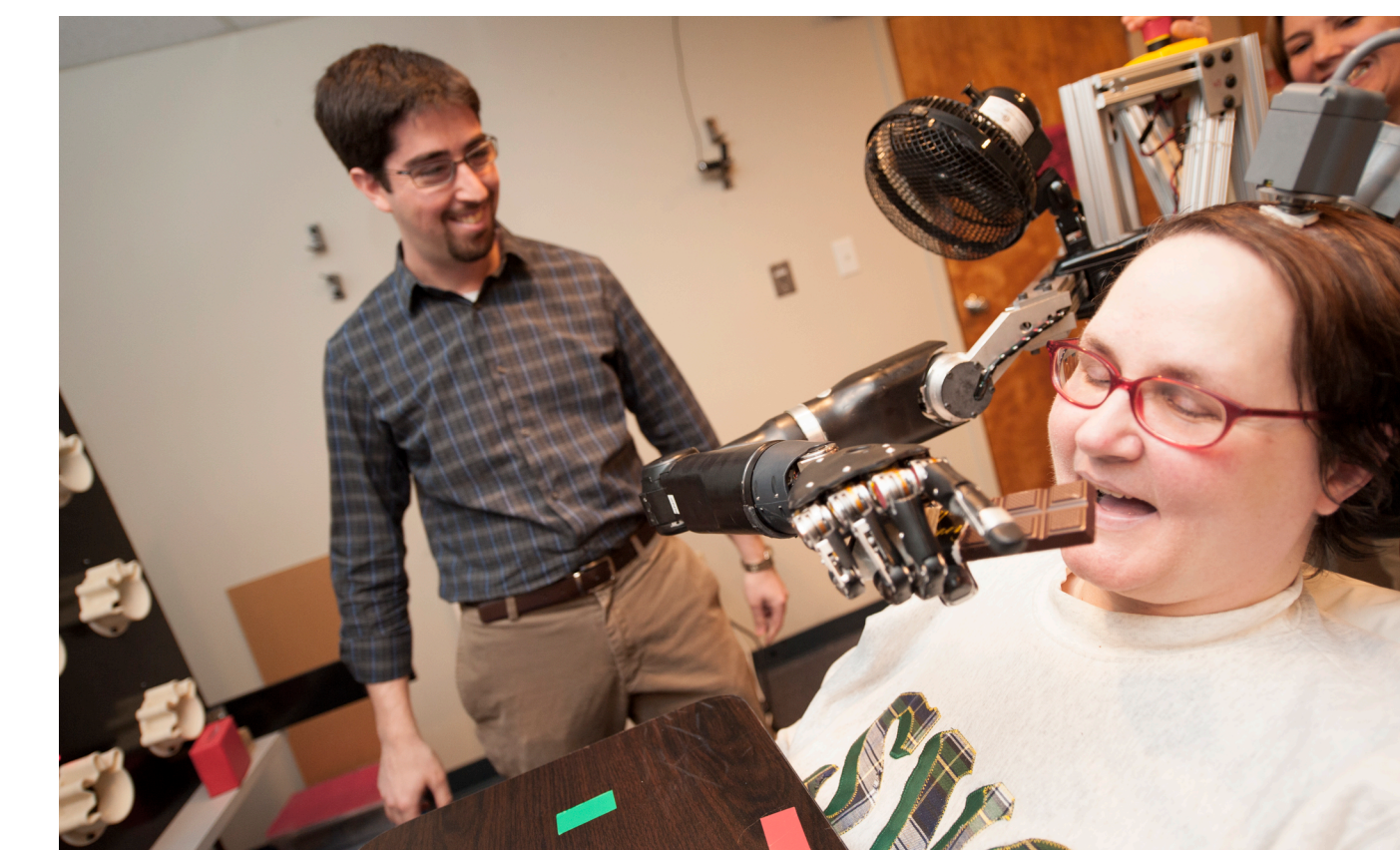


ETHICAL, LEGAL, AND SOCIAL CHALLENGES OF BRAIN-COMPUTER INTERFACES: COMPARING EXPERT AND PUBLIC PERSPECTIVES

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WHY BRAIN-COMPUTER INTERFACES?

Brain-computer interface (BCI) devices establish an artificial connection between the brain and its surroundings. Researchers are interested in applying these “neuroprosthetics” to address a range of neurological disorders, including locked-in syndrome and paraplegia (Shih et al 2012). These applications depend not only on their technical efficacy but also on their acceptance by potential users and by society at large. Scholars

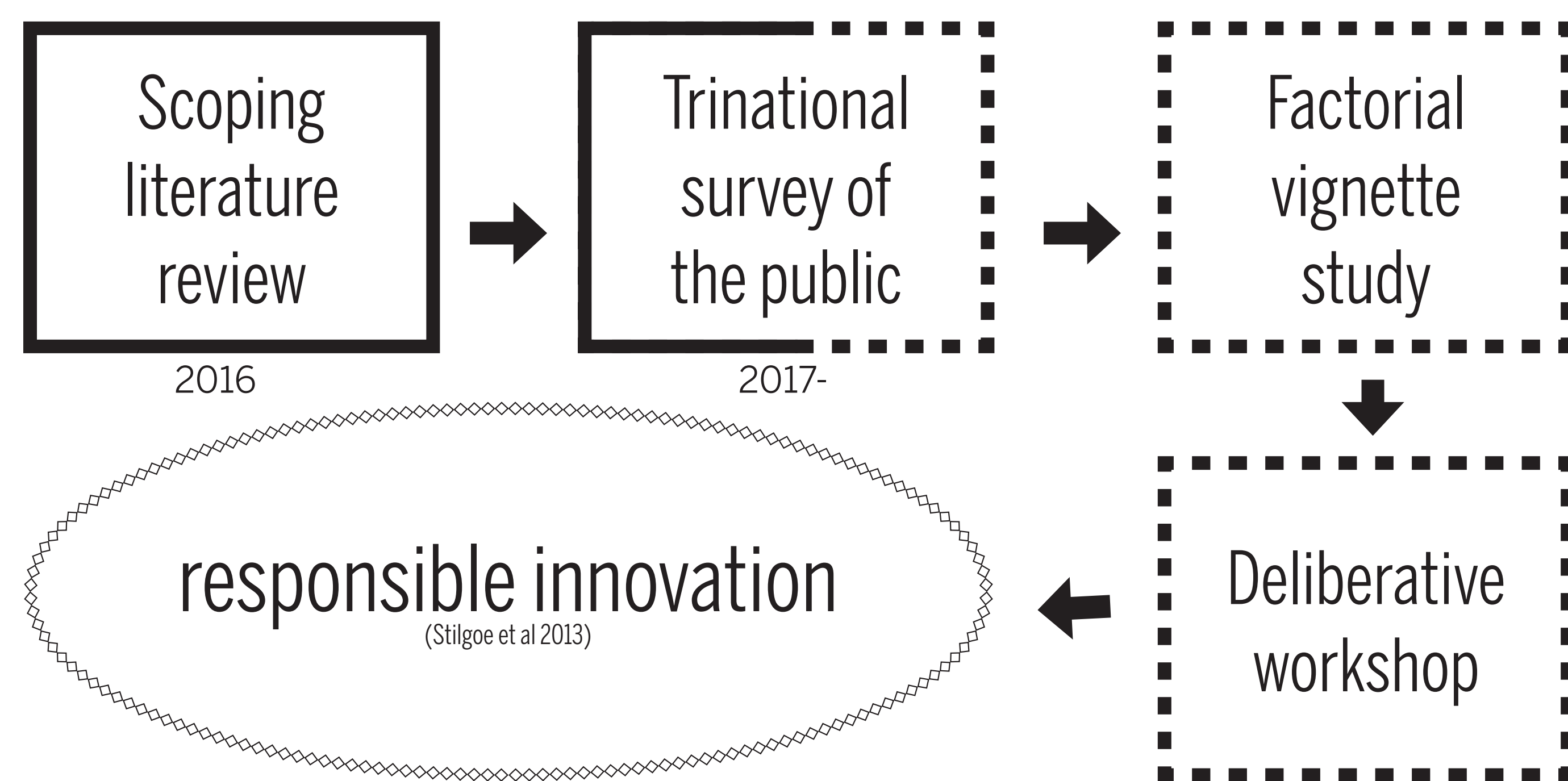


in neuroethics have speculated about the social, legal, and ethical challenges of these diverse applications (Klein et al 2015; Aas and Wasserman 2015), but the issues identified in that literature must also be validated empirically. image credit : UPMC

AIM: Connect expert ethical analysis with perspectives from members of the public, exhibiting convergences and differences.

PROJECT STAGES

This project spans empirical work and deliberative workshop events, providing a solid foundation for responsible innovation in the context of neural technology.



LITERATURE REVIEW

(i) We conducted a literature search of scholarly articles on the ethics of BCIs. This review determined the state of expert BCI ethics and highlighted dominant concerns asserted therein (Burwell et al in review).



TRINATIONAL SURVEY STUDY

(ii) We then created a survey instrument that explains each of these issues, asking respondents to evaluate them in terms of concern, in addition to providing basic demographics, attitudes towards science, and religiosity. 1500 study participants have been recruited from Canada, Spain, and Germany.



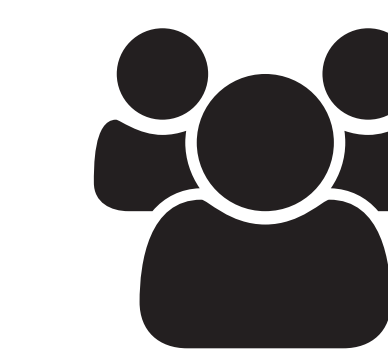
WHAT'S NEXT?



Data analysis of survey results, OLS and descriptive statistics will be used to provide comparative insight into the way BCIs might be understood in different national-cultural contexts.



Issues of particular concern for publics will inform a factorial vignette study, which will allow better understanding of how and why BCIs are ethically challenging.



Deliberative workshops in Montreal and Munich will be held with experts and stakeholders in order to process study findings and to make recommendations to improve the match between technology and society.

TO TAKE AWAY

- 1 Experts in BCI ethics have identified neural technology as a complex domain with a range of ethical concerns
- 2 It is still unclear what the public attitudes towards neural technology are and whether they reflect expert ethical insights
- 3 Biomedical scientists, engineers, and healthcare providers could use project findings to improve design and application of BCIs through an improved understanding of socio-cultural context.

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