



University of  
Bedfordshire



MIC

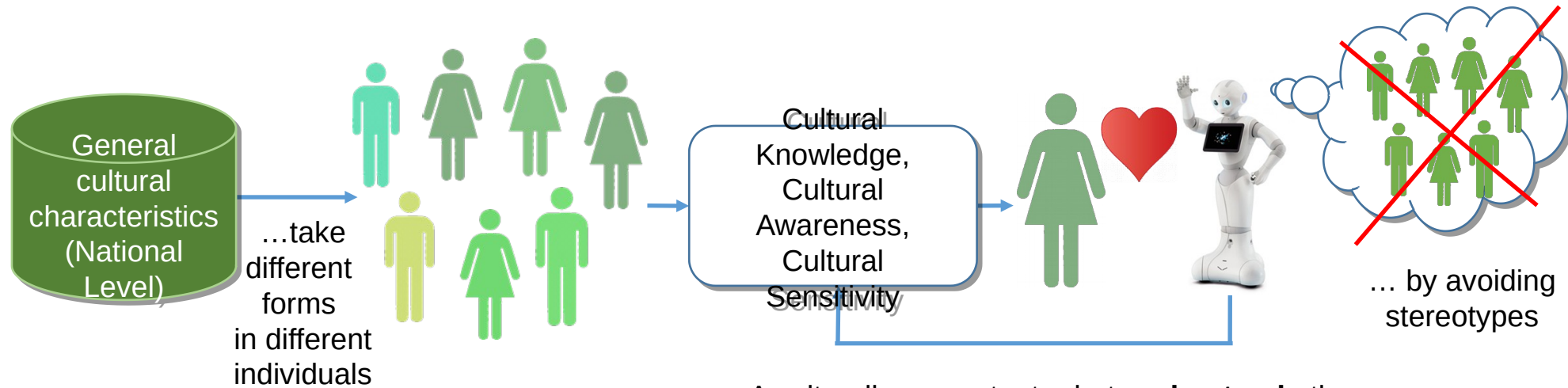
Ministry of Internal Affairs and Communications



**'CARESSES' (Culture-Aware Robots and Environmental Sensor Systems for Elderly Support) – an EU-Japanese funded study**

Dr Chris Papadopoulos, University of Bedfordshire

We consider **personal robots** that are physically identical, but we make them **act and communicate** in different ways **to match the culture, customs, and etiquette** of the person they are assisting.



A culturally competent robot **understands** the form taken by general characteristics in each individual and **acts accordingly**...

## The idea



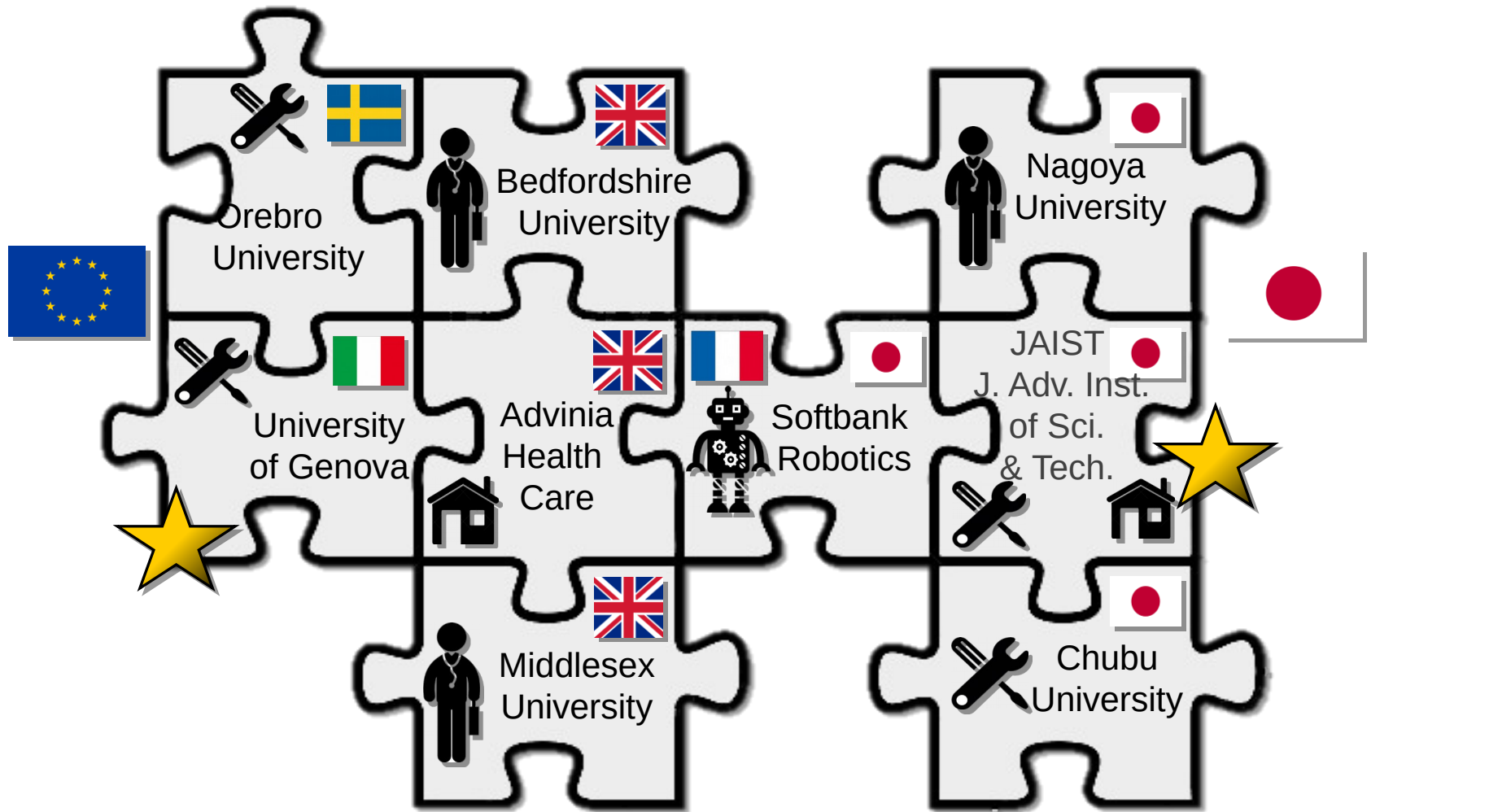
## Overall aim and idea behind the CARESSES project:

- The idea is that the robot will start with cultural assumptions extracted from best evidence on national-level cultural values but then, during interactions with patients, learn about the individual's own cultural values and preferences and provide care and support accordingly, providing a much more personalised experience.
- Built on the premise that cultural competence among nursing staff is associated with better patient outcomes.

## The idea

---





Health & user evaluation



Robot technology



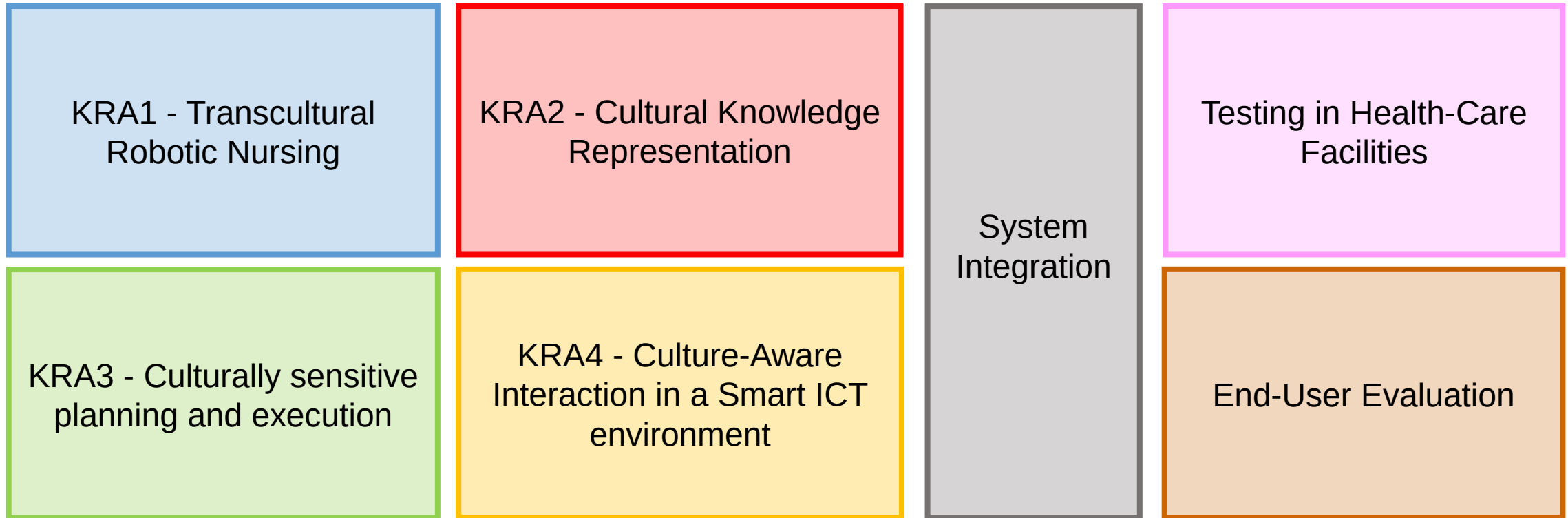
Technical development



Testing facility

# The consortium





Study began in January 2017 and will be completed in January 2020

**Methodology: key research areas, integration, testing and evaluation**



# Testing methodology - overview

Testing in care homes	White-English group	Indian group	Japanese group
Number of clients	15	15	15
Number of informal caregivers	15-30	15-30	15-30
Domicile	Advinia (UK)	Advinia (UK)	HISUISI (JP)
Client & informal caregiver language	English	English	Japanese
Additional Eligibility criteria	<ul style="list-style-type: none"> <li>• Clients are unlikely to express aggression towards themselves, the robot, and/or the researcher</li> <li>• Clients possess sufficient cognitive ability to participate in the study</li> </ul>		
<b>Testing procedure</b>			
Duration of robot interaction testing period	<ul style="list-style-type: none"> <li>• 2 weeks:</li> <li>• Week 1: 3 days, 2 hours per day (rotated) - WITH TRAINING</li> <li>• Week 2: 3 days, 4 hours per day (rotated) - WITH SUPPORT ON STANDBY</li> </ul>		
Testing sequence	<ol style="list-style-type: none"> <li>1. Experimental arm (clients allocated to culturally aware Pepper robot)</li> <li>2. Control arm 1 (clients allocated to non-culturally aware Pepper robot)</li> <li>2. Control arm 2 (care as usual i.e. no Pepper robot)</li> </ol>		
Number of clients in control arms	5 (Control arm 1) 5 (Control arm 2)	5 (Control arm 1) 5 (Control arm 2)	5 (Control arm 1) 5 (Control arm 2)
Number of clients in experimental arm	5	5	5



## Evaluation goals:

- To quantitatively assess differences in outcomes between the experimental intervention compared to control groups 1 & 2 in relation to improvements in **quality of life** (using SF-36) of users and their caregivers, **caregiver burden** (ZBI).
- Also to examine differences in: user satisfaction of Pepper (**QUIS**), perceptions of Pepper's cultural competence (**Adapted CCATool**), changes in attitudes towards care robots (**TBD**)
- To qualitatively investigate views towards the robot's cultural competence, quality of service provided, impact upon independence, autonomy, quality of life and caregiver burden, experiences related to using the technology (clients and caregivers).



## Motivation:

- Ageing populations across the world are placing health systems under increasing pressure.
- Elderly care robots can be a means to relieve that pressure in hospitals and care homes, as well as a way to improve care delivery at home and promote independent living for the elderly.
- Care robots that are culturally aware, competent and personalised are likely to be met with greater acceptance from both the elderly and their caregivers compared to non-culturally aware, non-personalised robots





## Contact:

- If you wish to contact me for further information about this project (which I would very much welcome) my details are:
- My email: [chris.papadopoulos@beds.ac.uk](mailto:chris.papadopoulos@beds.ac.uk)
- My twitter: @chrispaps
- CARESSES website: <http://www.caressesrobot.org/>
- CARESSES Facebook: <https://www.facebook.com/caressesproject/>
- CARESSES Twitter: @caressesproject
- CARESSES ResearchGate:  
<https://www.researchgate.net/project/CARESSES-Culture-Aware-Robots-and-Environmental-Sensor-Systems-for-Elderly-Support>

---

Thank you

