Human-centered Robotics

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UC SANTA CRUZ

Personal Computers

Personal Robots

Domestic Robots

Remote Work

Remote Work

the problem
Remote Work

the problem

Remote Work

Remote Work

Remote Work

Remote Presence

Remote Presence

Question:
How do people actually use telepresence robot systems over long periods of time?

Lee, M. K. & Takayama, L. (2011). "Now, I have a body": Uses and social norms of mobile remote presence in the workplace. Proceedings of Human Factors in Computing Systems: CHI 2011, Vancouver, CA, 33-42.

Remote Presence

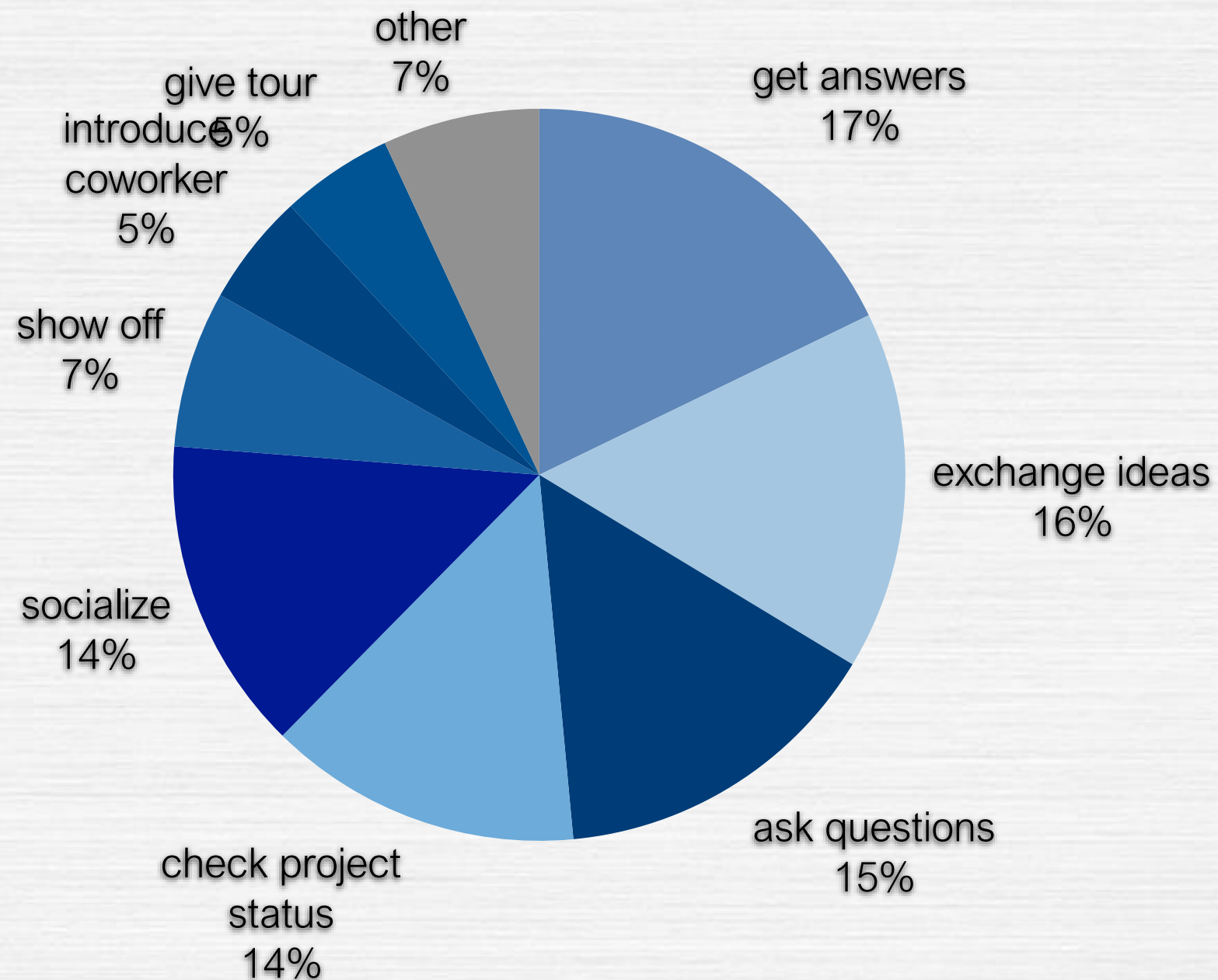|	Type	Duration	# Pilots
Company A	Robotics R&D	18 months	2 pilots
Company B	Web development	10 weeks	3 pilots
Company C	Design software development	10 weeks	2 pilots

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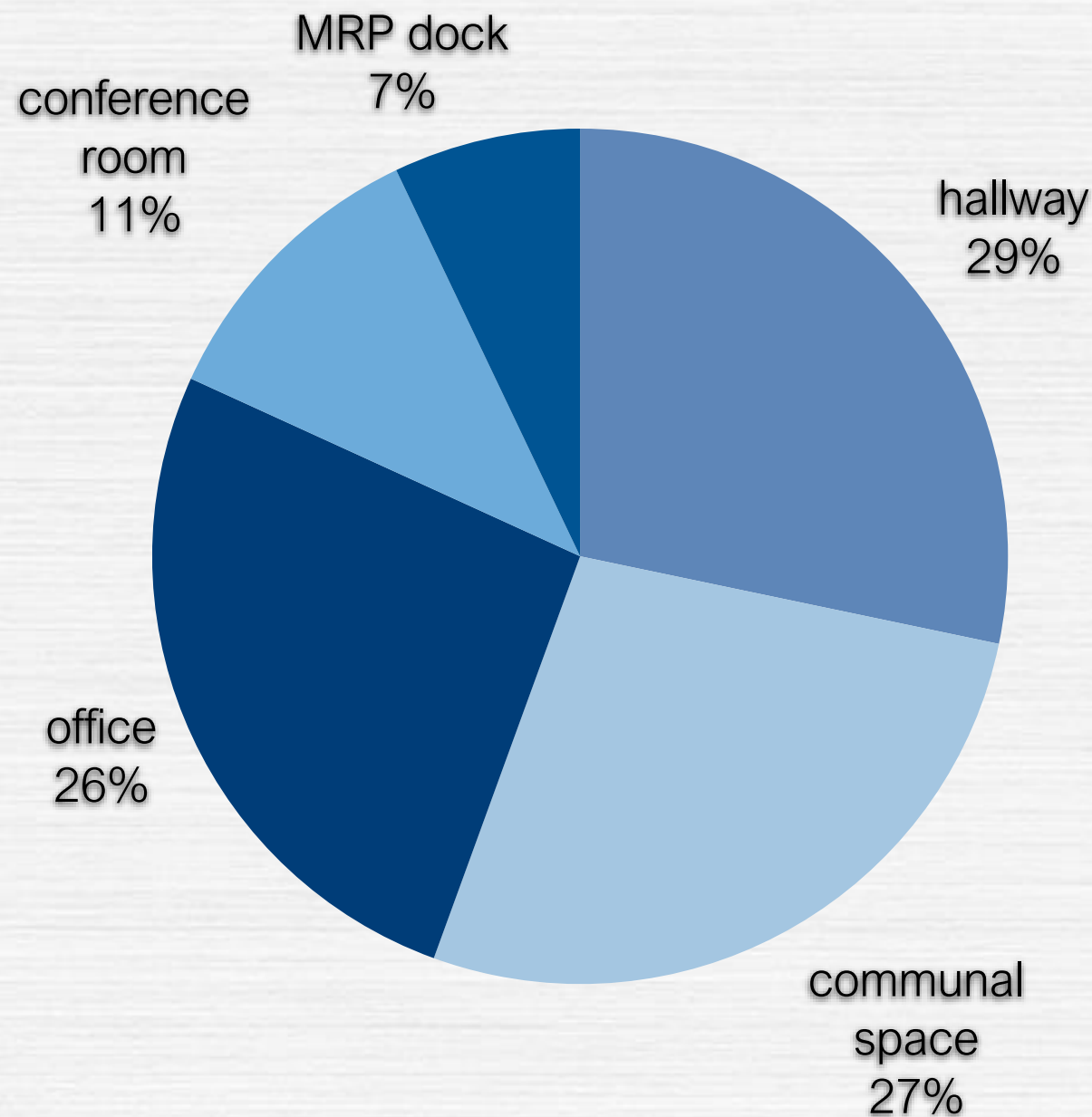
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Remote Presence

Pie chart showing uses of mobile remote presence:
- get answers 17%
- exchange ideas 16%
- ask questions 15%
- check project status 14%
- socialize 14%
- show off 7%
- introduce coworker 5%
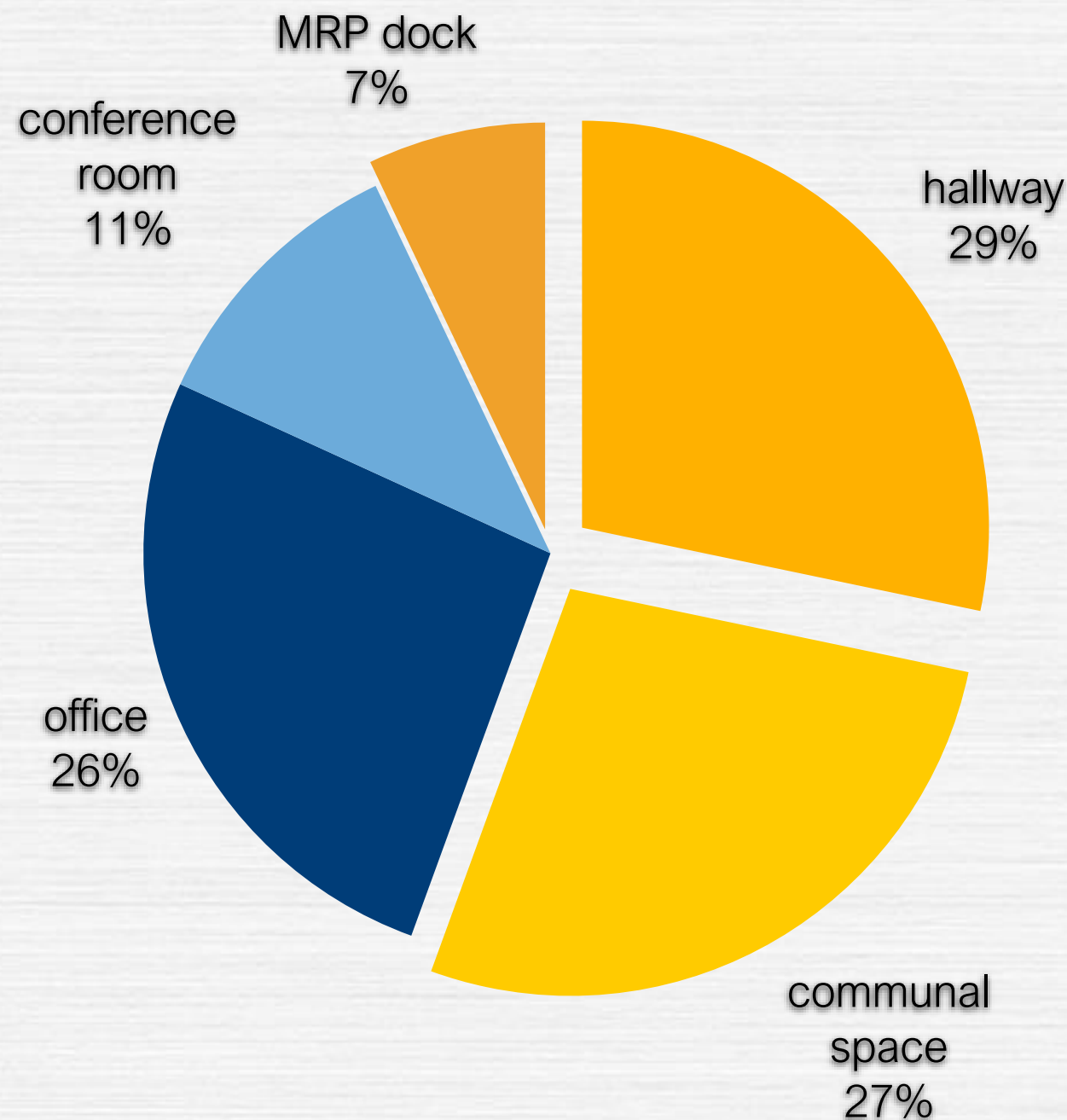- give tour 5%
- other 7%

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Remote Presence

Showing commitment

Capturing and maintaining attention

Building social connections

(Nardi, 2005)

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Showing Commitment

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Capturing Attention

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Social Connections

Lee, M. K. & Takayama, L. (2011). "Now, I have a body": Uses and social norms of mobile remote presence in the workplace. Proceedings of Human Factors in Computing Systems: CHI 2011, Vancouver, CA, 33-42.

"Shel-bot"

Building Connections

Opportunity:
Visit grandparents more often by using telepresence robots

Questions:
What would older adults do with telepresence robotic systems?
What kinds of benefits and concerns would older adults see in these systems?

Beer, J. M. & Takayama, L. (2011). Mobile remote presence systems for older adults: Acceptance, benefits, and concerns. Proceedings of Human-Robot Interaction Conference: HRI 2011, Lausanne, CH, 19-26.
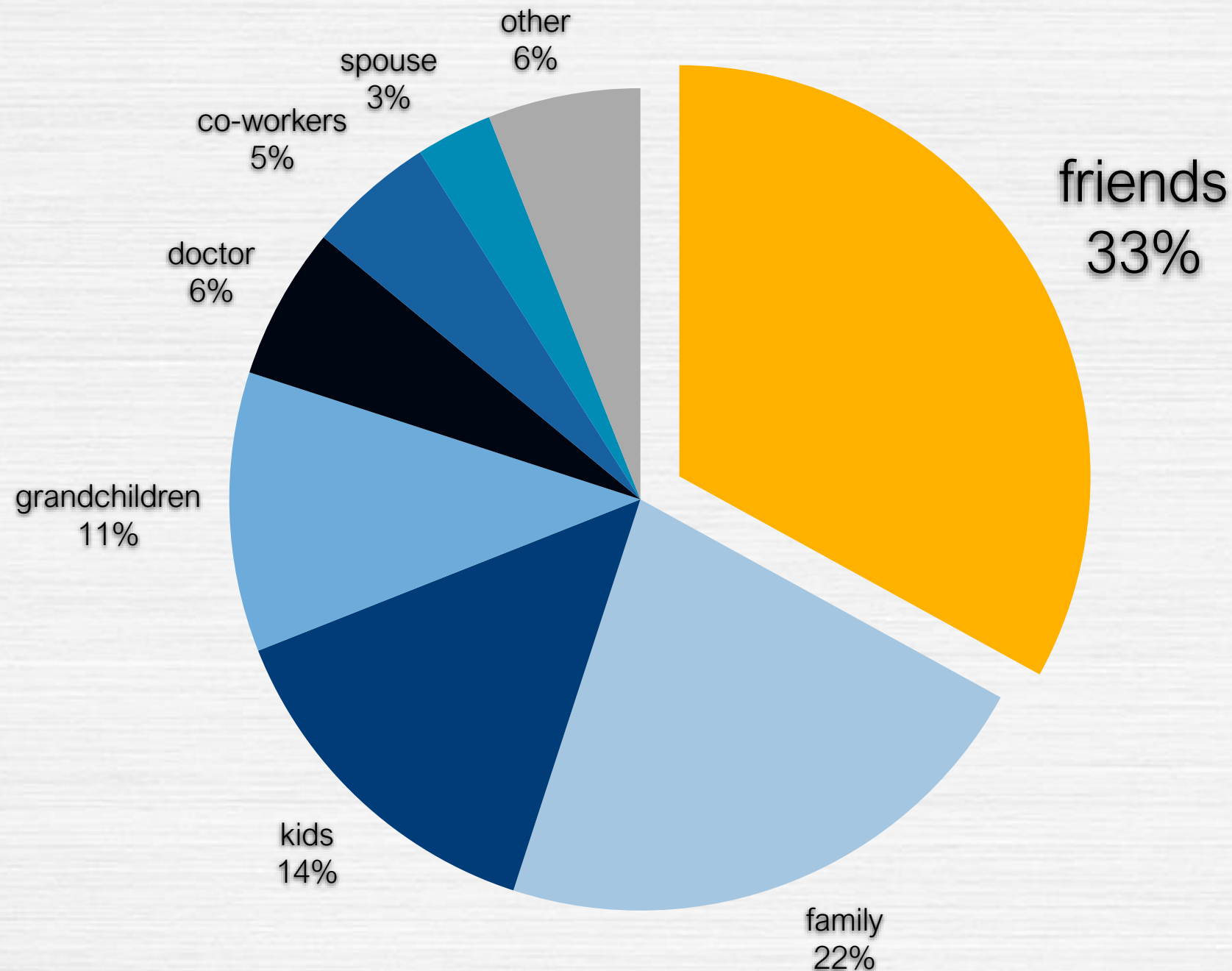
Building Connections

N=12 (5 men, 7 women)
Ages 63-88

Real experience with prototype
Semi-structured interview
MAXQDA coding
   388 dimensions coded
   2 coders (91% agreement)

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Building Connections

Pie chart: Building Connections

- friends 33%
- family 22%
- kids 14%
- grandchildren 11%
- doctor 6%
- co-workers 5%
- spouse 3%
- other 6%

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Top Benefits

Visualization (25%)
Reduced travel time and safer travel (14%)
Reduce social isolation (13%)
Convenience (9%)
Health diagnoses (9%)

n=174 codes

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Top Concerns

Etiquette of refusing / ending a call (18%)
Privacy (15%)
Less face-to-face contact (13%)
Misuse or overuse (12%)
Difficulty of using (9%)

n=124 codes

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Top Use Cases

Outings (e.g., go to the park or the city) 50%
Performances (e.g., concerts) 41.7%
Attend sporting events 41.7%
Museums 33.3%
Theater performances 33.3%

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Goal Setting

Implications for design

There is value in going out and about, keeping in touch with friends & family, reducing travel time, etc.

There must be an etiquette that minimizes social awkwardness

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Available in: en fr

1 Scope

This Technical Specification provides specifications for socio-acoustic surveys and social surveys which include questions on noise effects (briefly referred to hereafter as "social surveys"). Its scope includes questions to be asked, response scales, key aspects of conducting the survey, and reporting the results. This Technical Specification does not prescribe methods for the analysis of data obtained from these questions.

It is recognized that specific requirements and protocols of some social and socio-acoustic studies may not permit the use of some or all of the present specifications. This Technical Specification in no way lessens the merit, value or validity of such research studies.

The scope of this Technical Specification is restricted to surveys conducted to obtain information about noise annoyance "at home". Surveys conducted to obtain information about noise annoyance in other situations, such as recreational areas, work environments and inside vehicles, are not included.

This Technical Specification concerns only the questions on noise annoyance used in a social survey and the most important additional specifications needed to accomplish a high level of comparability with other studies. Other elements which are required to provide high-quality social surveys, but which are not specific for social surveys on noise (such as sampling methods), can be found in textbooks (e.g. see references [1] and [2]).

Compliance with the recommendations of this Technical Specification does not guarantee the collection of accurate, precise or reliable information about the prevalence of noise-induced annoyance and its relationship to noise exposure. Other aspects of study design, as well as uncertainties of estimation and measurement of noise exposure, can influence the interpretability of survey findings to a great extent.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1996-1, *Acoustics — Description and measurement of environmental noise — Part 1: Basic quantities and procedures*
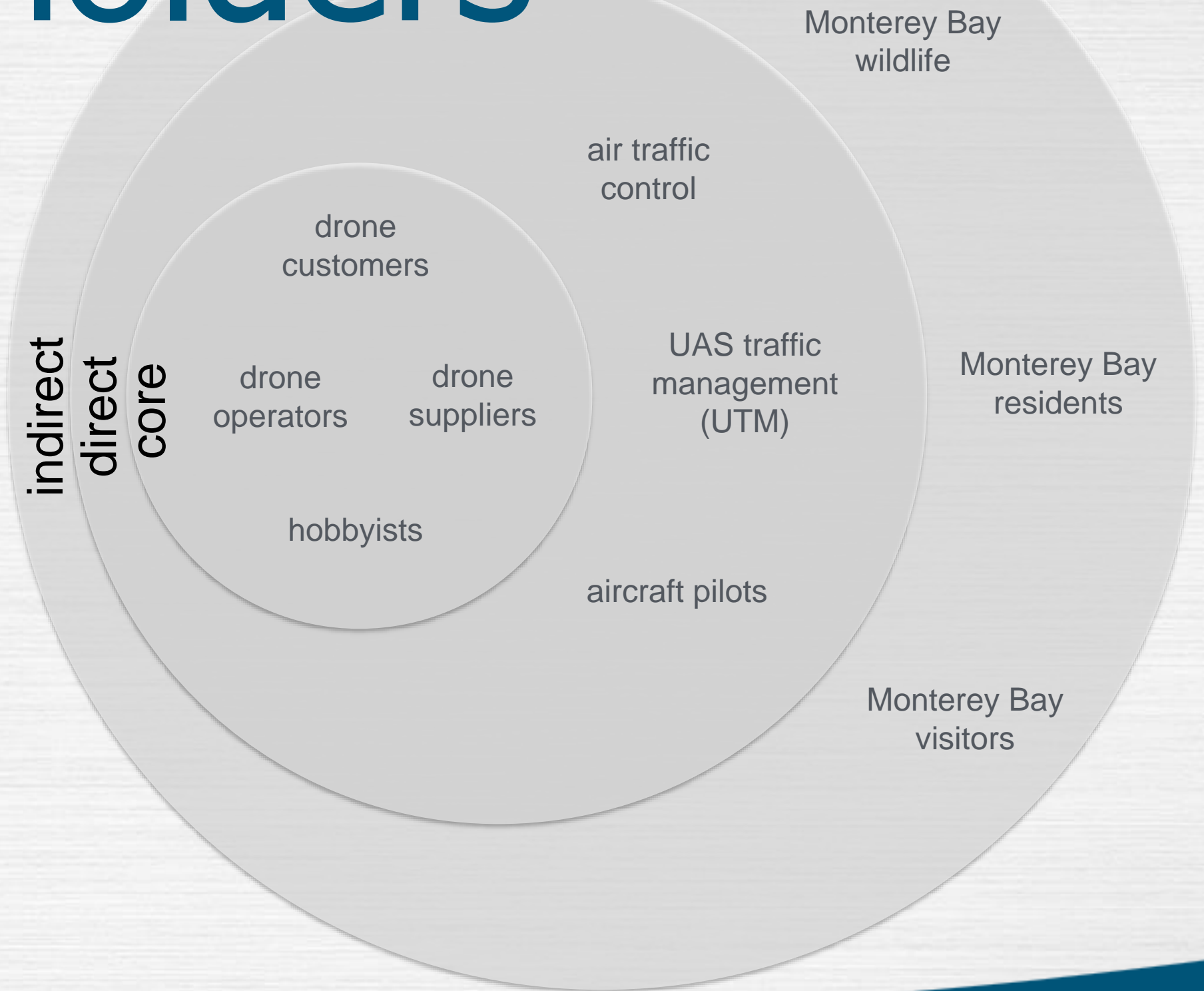
ISO 1996-2, *Acoustics — Description and measurement of environmental noise — Part 2: Acquisition of data pertinent to land use*

ISO 1996-3, *Acoustics — Description and measurement of environmental noise — Part 3: Application to noise limits*

ISO 3891, *Acoustics — Procedure for describing aircraft noise heard on the ground*

Stakeholders

Mahalo

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