Unmet needs on the road to address Rapid detection and Control for antimicrobial resistance (AMR)
The view of RaDAR-PPI project

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BACKGROUND

RaDAR-PPI is an EU-funded project, composed by a Buyers Group of four public organizations from three countries (Spain, France and Italy) that aims to address the rapid detection and effective infection control systems for antimicrobial resistance (AMR) through the procurement and deployment of demand-driven innovative solutions in their healthcare facilities.

THE BUYERS GROUP

Resah	Central Purcharsing Body- France
Osakidetza	Basque Health Service - Spain
ICO	Catalan Institute of Oncology - Spain
UNINA-DISAP	Federico II University of Naples - Italy

Figure 1. Map representing the countries of the buyer group of the RaDAR project..

METHODS

The methodology employed on the first part of the project to detect the needs was based on a holistic understanding of the AMR problematic in each of the Buyers Group local context. It was performed through mixed-method study that combined a qualitative analysis, consisted on an exhaustive "multilevel approach" (Figure 2) to comprehend the four local context's framework in AMR, followed by a series of tools employed to address the needs that exists in the healthcare facilities (Figure 3).

Semi-structured questionnaire: Buyers' context — AMR Clinical Workflow Definition — Addressing of problems and ideal scenarios — Guided discussions — Interviews — Scored surveys: Importance of the needs — Use Cases Scenarios Definition

Figure 2. Tools employed to address the needs of the the healthcare facilities of the Buyers Group

RESULTS

Through the needs identification activities, the Consortium was able to confirm that there are a series of needs that are common to the four Buyers, contributing to understand the AMR problem that the EU is facing.
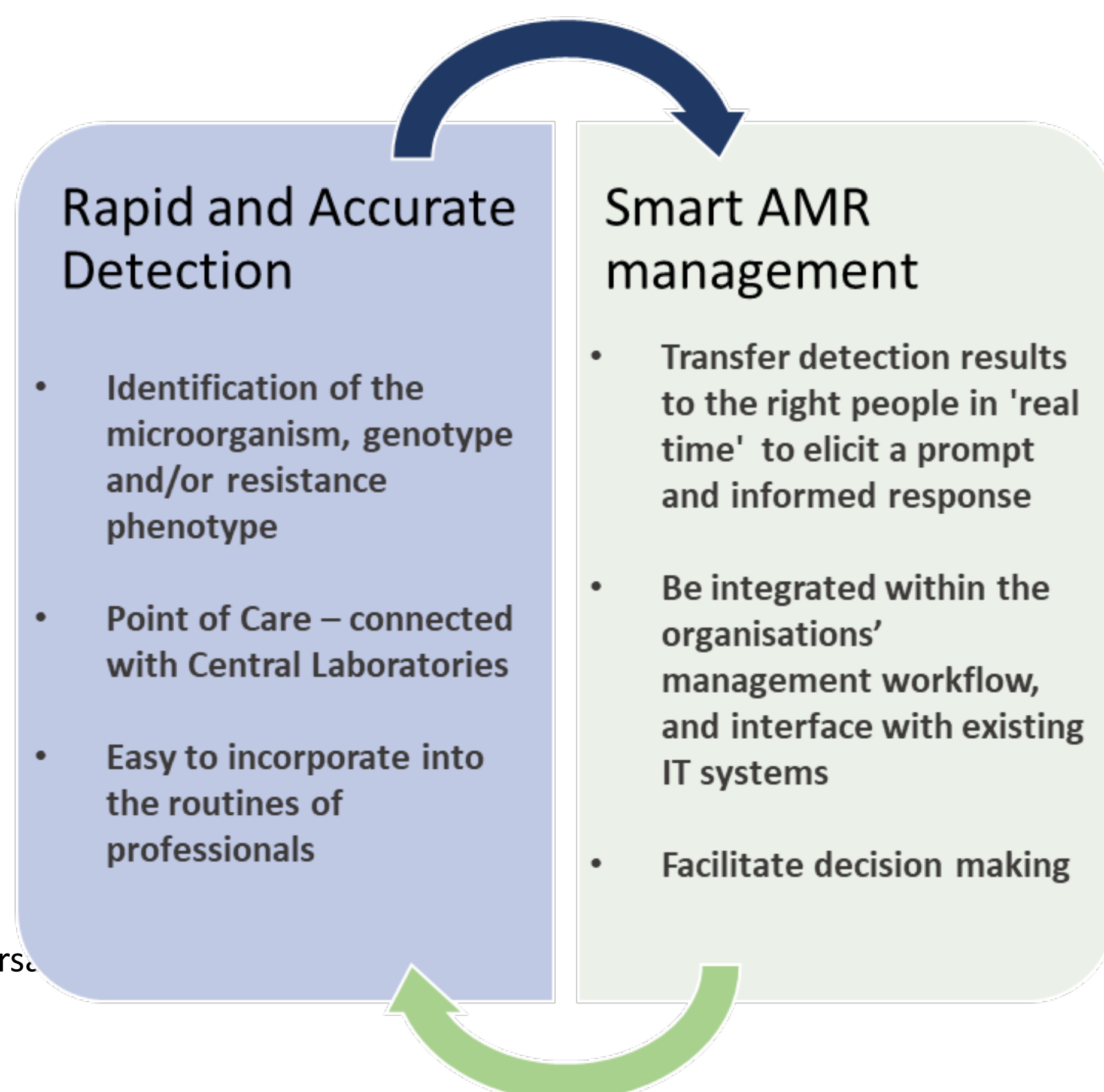
Rapid and Accurate Detection
- Identification of the microorganism, genotype and/or resistance phenotype
- Point of Care – connected with Central Laboratories
- Easy to incorporate into the routines of professionals

Smart AMR management
- Transfer detection results to the right people in 'real time' to elicit a prompt and informed response
- Be integrated within the organisations' management workflow, and interface with existing IT systems
- Facilitate decision making

An innovative solution that meets Buyers Group needs would consist of rapid and accurate detection of multi-drug resistant organisms (MDROs), by identifying the specific MDRO, together with the genotypic and/or phenotypic resistance. Specific areas were detected as priority locations for detection: emergencies, ICU, hospital room, surgery room, hemodialysis room, transplants units and primary care facilities, preferably using point of care technologies.

To achieve maximum efficiency in handling AMR, it was confirmed that rapid detection systems need to be implemented together with smart AMR management mechanisms that would enable effective information flow, automatic alerts, decision support and easy access to epidemiological data, status reports and procedural guidelines, with the aim to facilitate decision making, transforming the AMR management and stewardship (Figure 3).

Figure 3. Diagram with the summary of transversal needs of the buyer group

CONCLUSIONS AND NEXT STEPS

Gold standard AMR management — Rapid detection — AMR decision making — @Primary care — @Laboratories — Communication — AMR Control — @Hospital

After the needs detection analysis, it was observed that unmet needs were found right across the clinical workflow, relating to both the detection and subsequent management of AMR situations. The general conclusion is that to address these challenges effectively, what is needed are rapid detection systems that may be standalone or may be implemented together with smart AMR management mechanisms to enable AMR stewardship, prevention and control, and as ultimate goal, improving patient care.

The common identification of the needs with the view of internal and external experts on the field of AMR will promote an increased impact of the adopted innovation to be escalated in the future to collaboratively give response to the current AMR problem affecting the EU.
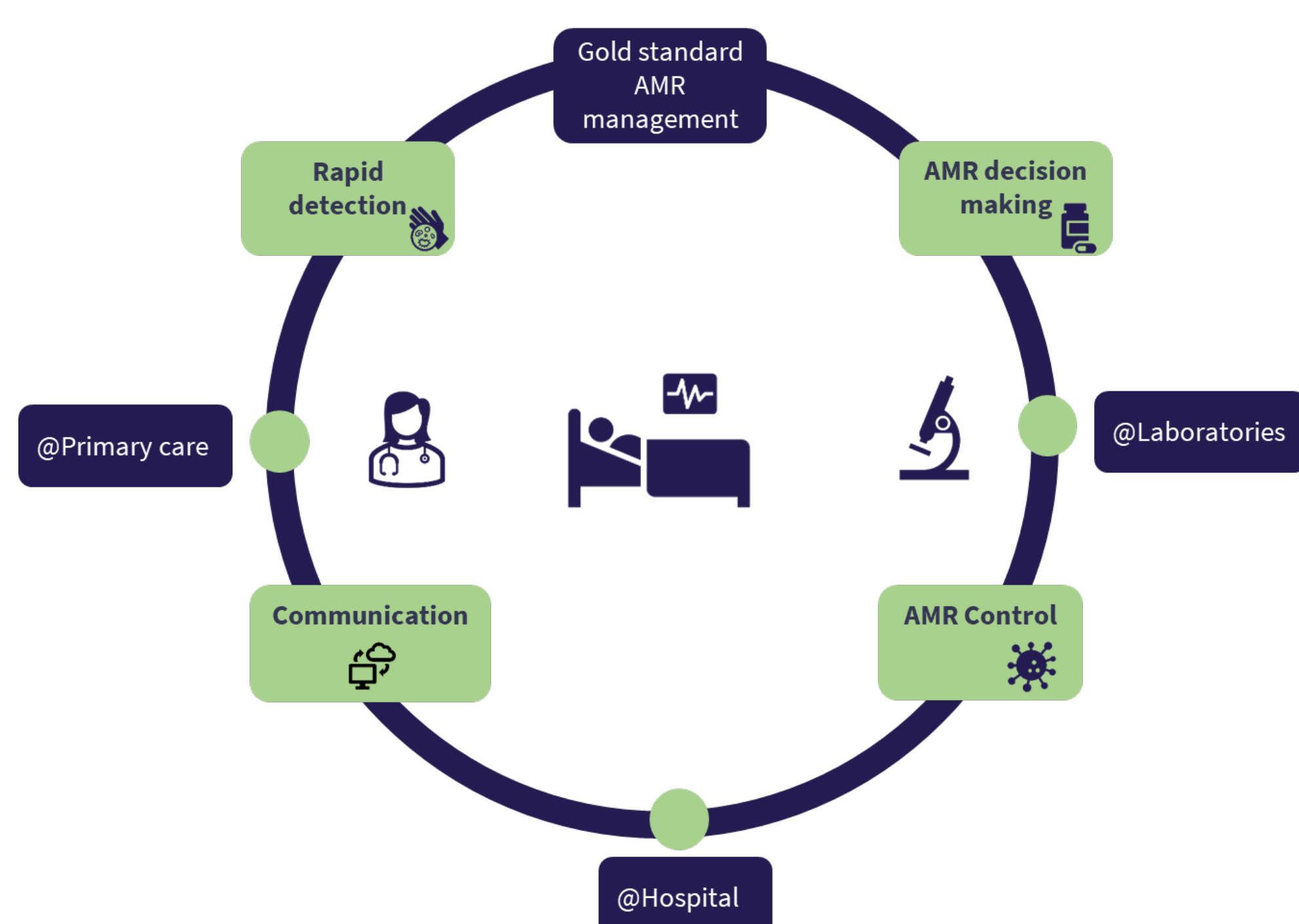
Next steps

External experts input	State of the Art analysis
Business Case	Open Market Consultation
Clinical Demand Definition	

Figure 4. Scheme that synthesizes the integration of the possible innovative RaDAR solution in healthcare facilities

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