Table 1. Set of identified projects (source: own elaboration)

ID	Author/Title/Year of publication	Project goal
CS01	Nardi, F. et al. Citizens AND HYdrology (CANDHY): Conceptualising a transdisciplinary framework for citizen science addressing hydrological challenges 2021	Conceptualising a transdisciplinary approach to using civic wisdom to solve problems and create new knowledge in the field of hydrology.
CS02	Fritz, L. et al. Explore, engage, empower: methodological insights into a transformative mixed methods study tackling the COVID-19 lockdown 2022	A transdisciplinary approach to citizen engagement when examining housing conditions and resident well-being during the COVID-19 lockdown in Switzerland.
CS03	Spasiano, A. et al. Engagement of online communities within a citizen science framework for improving innovative participation models: Insights from hydrology and environmental monitoring 2021	Conceptualising an approach to transdisciplinary integration of online communities in citizen science projects in hydrology and water resources management.
CS04	Saraò, A. et al. On the crowdsourcing of macroseismic data to characterise geological settings 2023	A transdisciplinary approach to citizen engagement in the post-earthquake macroseismic data collection process.
CS05	Mattke, R. et al. Mapping Prejudice: The Map Library as a Hub for Community Co-Creation and Social Change 2022	A transdisciplinary approach to engaging the civic community to read historical property deeds and transcribe information necessary to locate racial boundaries placed on a generated digital map.
CS06	Hubbell, B. J. et al. Understanding social and behavioural drivers and impacts of air quality sensor use 2018	A transdisciplinary approach to responsible innovation that connects citizens with air quality scientists at the level of approach development, testing, and crowdsourcing in data analysis.
CS07	Taylor, A. et al. Defining research priorities for youth public mental health: reflections on a coproduction approach to transdisciplinary working	Conceptualising assumptions for future research aimed at supporting youth mental health through engaging transdisciplinary stakeholder groups.

	2022	
CS08	Henshilwood, E. et al.	Transdisciplinary study of sustainable changes in automobility on the example of an urban enclave in Cape Town, using CS to collect data and information.
	A Transdisciplinary Inquiry Into Sustainable Automobility Transitions: The Case of an Urban Enclave in Cape Town	
	2019	
CS09	Nik-Bakht, M., El-Diraby, T. E.	Using collective social intelligence to extract and classify knowledge from social media content about the sustainable development of urban infrastructure.
	Sus-tweet-ability: Exposing public community's perspective on sustainability of urban infrastructure through online social media	
	2016	
CS10	Bono, C. et al. Pernici, B.	Both articles concern the CROWD4SDG project, the main goal of which is the development of citizen science based on new IT tools, which will facilitate the bottom-up (citizen) generation of projects and ensure their high quality while setting best practices in this area.
	1) A Citizen Science Approach for Analysing Social Media With Crowdsourcing 2) CROWD4SDG: Crowdsourcing for sustainable developments goals	
	2023 2020	
CS11	Durso, A. M. et al.	The utilitarian goal of the transdisciplinary project was to assess the possibility of using citizen knowledge to quickly and accurately identify various species of snakes based on photos posted online. The cognitive objective was to assess the potential role of citizen science and CS in supporting epidemiological activities in the field of snakebites.
	Crowdsourcing snake identification with online communities of professional herpetologists and avocational snake enthusiasts	
	2021	

Table 2. The frequency of CS roles in the analysed set of projects (source: own elaboration)

Case	Count	Role					
		R1	R2	R3	R4	R5	R6
CS01	1			1			
CS02	2	1			1		
CS03	4			1	1	1	1
CS04	3			1	1		1
CS05	6	1	1	1	1	1	1
CS06	2			1	1		
CS07	6	1	1	1	1	1	1
CS08	6	1	1	1	1	1	1
CS09	5	1	1	1	1	1	
CS10	4	1	1	1		1	
CS11	3		1	1		1	
	Count	6	6	10	8	7	5

Table 3. The co-occurrence of roles in the analysed set of projects (source: own elaboration)

Minimum   Maximum

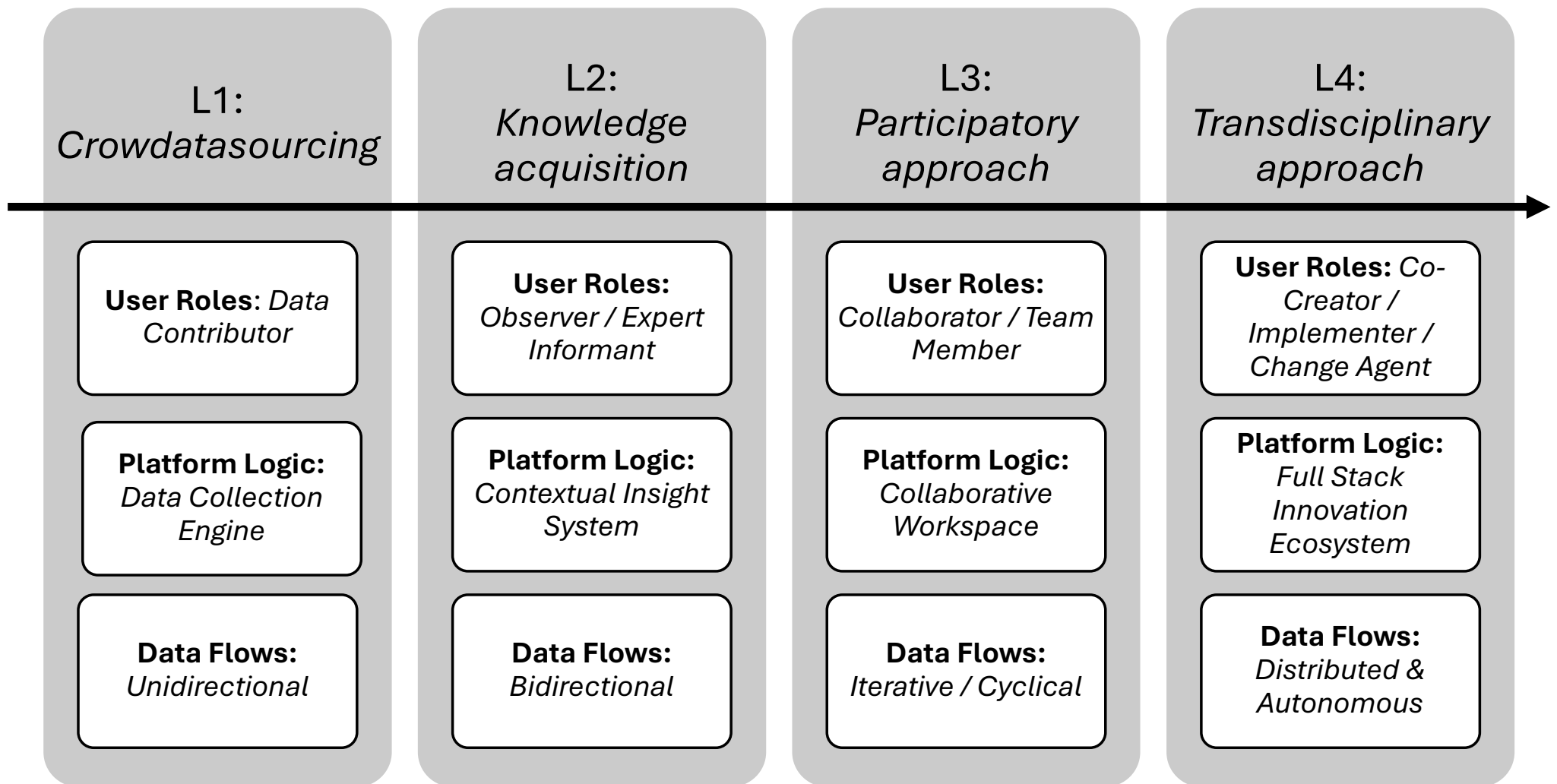| Roles	R1	R2	R3	R4	R5	R6
R1						
R2						
R3						
R4						
R5						
R6						

Fig. 1. The 4L model (source: own elaboration)