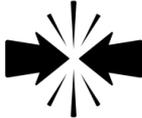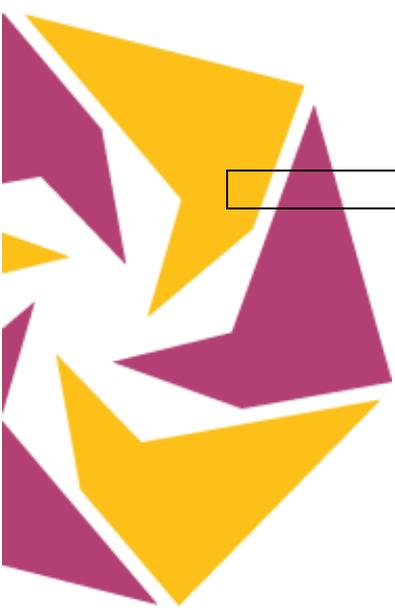# Roadmap for crowdsourcing

Description and state of the art	
Definition	Trend, based on the enabling technologies of the internet and social media. Crowdsourcing, a combination of the words 'crowd' and 'outsourcing', is a specific sourcing model, which describes the processes for sourcing a task or challenge to a broad, distributed set of contributors using the Web and social collaboration techniques. It consists in obtaining needed services, ideas, or content by soliciting contributions from a large group of people, especially an online community, rather than from employees or suppliers. By definition, crowdsourcing combines the efforts of numerous self-selected volunteers or part-time workers; each person's contribution combines with those of others to achieve a cumulative result. Crowdsourcing applications typically include mechanisms to attract the desired participants, stimulate relevant contributions and select winning ideas or solutions[258],[259]
Addressed societal /business or public sector need	Public sector need: Civil servants as a community of change
Existing solutions /applications /services	• Spacehive[260] • Goteo.org[261] • Crowdcube crowdfunding platform[262] • Paribas Securities Services and Smart Angels crowdfunding platform[263] • FinStat Data Feeds[264]
Main actors regarding R&D	• Alma Mater Studiorum-Universita di Bologna • Centre National de la Recherche Scientifique • University of Oxford

of this technology	
Current research activities	**EU R&D projects and programmes** IoT Lab, c-Space, FutureEnterprise, CrowdRec, NOMAD, we.learn.it, RESCUER, Citizen Cyberlab, CROWDLAND, CROWDFLOWS, Be-novative, CloudTeams, CroDS, CORAL **Other national or international R&D projects and programmes** Study about crowdsourcing, Challenge Cloud and Crowd
Impact assessment	**Public sector modernization:** • Degree of Resources (Capital, Personnel, Infrastructure) Utilization • Sustainability • Quality of Services Provided • Level of participation **Public Sector as an Innovation Driver:** • Innovation • Equity & Inclusiveness • Privacy & Security • Transport Infrastructure

Necessary technological modifications

Potential use cases	Crowdsourcing works to generate new ideas or develop innovative solutions to problems by drawing on the wisdom of the many rather than the few. There are many potential use cases for crowdsourcing: • Knowledge discovery and management (gather information from the citizens about their city) • Distributed human intelligence tasking (behavioural modelling) • Peer-Vetted Creative Production (developing social[265] marketing campaign themes or target messages) But this roadmap refers to crowdsourcing within the public sector, government setting up a micro-tasking platform, not just for citizen engagement, but as a way to harness the knowledge and skills of its own workers across multiple departments and agencies. This can be a way to improve performance, job satisfaction and innovativeness.
Technological challenges	• Recruiting and retaining users can be a challenge. • Types of users' contributions are mostly limited (e.g. review/rate/tag/etc.). • Difficulty in combining and evaluating user contributions - unstructured information gathered, cumbersome to filter. • Good quality of user contributions is not guaranteed. • Difficulty in keeping hold of confidential information and

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	intellectual property.

Necessary activities (in or for the public sector)		
Development of a specific training necessary	**Open task**	For this new way of working, there should be an emphasis on continuous learning. To broaden public employees' skills and the ability to handle multiple tasks and work on a variety of projects, learning should focus on social and collaborative processes in a distributed workplace.
Advanced or adapted ICT infrastructure needed		Not necessary. In relation to infrastructure, only a crowdsourcing platform, mobile devices and networks are required.
Change of (public sector internal) processes necessary	**Open task**	If ideas and tasks are crowded from public sector employees, internal processes should change to incorporate this new approach. It requires rethinking about some traditional workforce practices, designed for clerks of the last century, and would necessitate some changes to current human resource norms (teleworking), focusing on flexible work arrangements to improve public sector recruiting.
Promotion / information of stakeholders necessary	**Open task**	It is a new concept and needs to be explained. The motivation can vary from: • Flexibility, giving more control over their schedules and workloads Public employees could switch from project to project and from office to office as their career develops and interests evolve. When they feel they have reached the limit of their ability to learn or grow in one role, they will look elsewhere for a new opportunity. This avoids confine the knowledge within any single department and allows the government to concentrate resources where needed. • Focus on results It also implies a greater focus on mission outcomes rather than on back-office management.

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Need to deal with cyber security issues	**Open task**	Working remotely from different locations poses a major security risk. Besides, virtual team members could be accessing sensitive information from their homes or from a public Wi-Fi networks.
New or modified legislative framework or regulations necessary	**Open task**	To accommodate this new way of working in the public sector, there should be a change in the legislative framework, which is nowadays very constricted in terms of tasks that each professional level can undertake.
Development of a common standard necessary		No issues identified.
Need for a more economical solution		This crowdsourcing approach is more cost efficient than the traditional approach because a government-wide pool of workers could reduce the burden on each individual agency of maintaining and managing a large workforce.
Dealing with challenges		
Ethical issues		As the "crowd" is internal, public employees themselves, there are no ethical issues related to IP and ownership of results.
Societal issues		No issues identified.
Health issues		No issues identified.

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Public acceptance	?	Crowdsourcing within public sector represents a dramatic change so it is bound to be greeted with some scepticism. A good communication is necessary.

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