

THE FUTURE OF WORK: CROWDSOURCING – A WAY TO EFFICIENT AND FAIR DISTRIBUTION OF EMPLOYMENT?



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basic question of what and where people work. On one hand there is a clear transition from traditional production of goods or processing of raw materials towards the provisioning of services. On the other hand the flexibility with respect to the place where such services are actually physically provided has dramatically increased.

Take for instance the area of customer relationship management, where everyday services like ordering procedures, customer data management, complaint handling, etc. have to be performed. Although such services do not produce anything in the traditional sense, they are critical for company goals like customer experience, satisfaction, and retention. Whereas such tasks used to be done on-site, nowadays call centers all over Europe provide such services from a central location at considerably reduced costs for a large number of customers. These services are quite basic and easy to provide in terms of education. On an educationally higher level, business intelligence services can serve as a good example: extracting relevant information from company data and using it to recognize or design value-adding areas like new products, promising customer segments, or better business processes for a company is a profitable business. Indeed infopreneur is a term coined for the growing number of persons whose primary business is gathering and selling electronic information. Still, although in both cases services could in principle be offered flexibly from virtually anywhere in Europe, typical constraints like the local cost of labor or easy access to an educated workforce, remain valid.

Crowdsourcing as a Social Chance

One of the problems Europe is currently facing as a market,

The European knowledge society has brought severe changes to business processes in today's economy. This is especially true for the

are the steadily improving, but still existing differences in location factors like infrastructure, costs of living, education and salary level, workforce availability, etc. The following diagram shows the development of unemployment rates in different European countries that to some degree are influenced by these location factors.

The problem of finding adequate workplaces today leads to urbanization and rural depopulation. But given the ubiquity of the Internet and recent developments in semantic applications the chance of a fairer employment market independent of locations may become feasible. A key insight is what is often referred to as the wisdom of the crowd or collective intelligence: instead of having sophisticated and complex tasks solved by low-availability and high-cost experts, to some degree they can also be solved by a clever decomposition into smaller low-cost work-packages (so-called human intelligence tasks or HITs), their distribution to highly-available non-experts, and a suitable subsequent aggregation. Surprisingly, the result often even surpasses an individual expert's solution in terms of quality.

The idea of tapping into the wisdom of the crowd by electronic distribution of small, easy to solve, and low-cost work-packages is usually referred to as crowdsourcing. Of course such a work distribution also has to be facilitated over the Internet, which gave rise to several platforms like Amazon's Mechanical Turk, CrowdFlower or SamaSource. Some of these platforms already recognized the social dimensions and chances of their basic business model, e.g. SamaSource (<http://www.samasource.org>) claiming as mission statement: "Samasource is an innovative social business that connects women and youth living in poverty to dignified work via the Internet."

What can be done by Crowdsourcing and what are the Major Research Challenges from Academia?

Today crowdsourced tasks are mostly limited to simple cognitive tasks like data cleaning and verification, entity resolu-

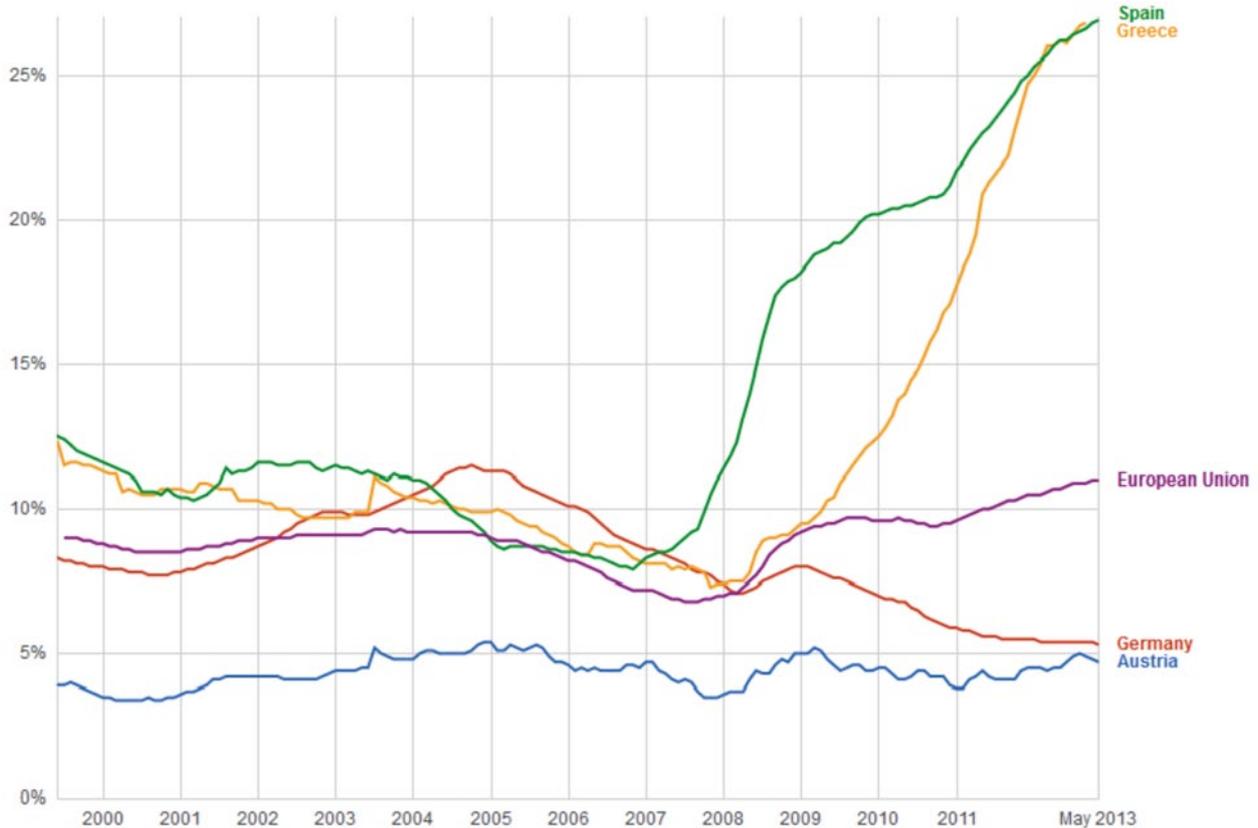


Fig 1: Seasonally adjusted unemployment rates for some EU countries [Eurostat, Sep. 2012]

tion and reconciliation, or image recognition and annotation. But the generalized use of the Internet and social network platforms has already essentially changed the way human beings establish relations, collaborate and share resources. Recently, innovative – although still non-mature – methods to provide solutions to complex problems by automatically coordinating the potential of machines and human beings working hand-in-hand have been proposed. Several research challenges still separate crowdsourcing from being a real solution for real world problems. For instance, the quality delivered by workers in the crowd is crucial and depends on different aspects such as their skills, experience, commitment, etc. The capacity to deliver on time, costs, ethical issues, or confidentiality are just some other possible obstacles to be removed. Finally, trusting individuals in a social network and their capacity to carry out the different tasks assigned to them becomes essential in speeding up the adoption of this new technology in industrial environments. Europe definitely has to catch up: platforms such as Amazon's Mechanical Turk do not allow workers from outside USA and India, and there are no solutions at a European level that allow leveraging the potential of the crowd yet. Considering the variety of problems and the extremely promising potential of crowdsourcing, from an academic perspective it is clear that there will be increasing research efforts in European countries in the foreseeable future. From an ICT perspective the grand challenge is to find out what tasks can be solved effectively, as well as cost-efficiently by crowdsourcing and how exactly this can be done. But this

tells only part of the story: the immanent social transformation of the European knowledge society by new models of work like crowdsourcing is bound to encourage also strong academic research in the social sciences, business and law.

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