

Free Household Sector Innovation: Paradigm and Implications

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1. Background of the special issue

Household sector (HHS) innovation encompasses the ideation and development of new or modified products, services, processes, techniques, or other applications by consumers, practiced in their discretionary time without pay (von Hippel, 2017). Their innovation behavior extends beyond idea generation or making suggestions, to include developmental activity. Individuals not only create innovative solutions for their own use, but also frequently reveal them to others and allow others to use their designs for free.

Research in HHS innovation by individual and collaborating consumers is both novel and of fundamental importance for society and the economy. Yet while research activity is accelerating rapidly, and hundreds of scholars are now involved, HHS innovation is still poorly understood, and there remains an urgent need for better integrating the phenomenon in the broader innovation literature. Indeed, innovation by consumers does not figure in the traditional, producer-centered “Schumpeterian” innovation paradigm.

An increasing body of literature has observed innovation behaviors in the household sector that depart from the conduct of producer-centered innovators. Specifically, the scope of this special issue includes user innovations by individuals in the household sector (von Hippel, 2005), open-source projects (von Krogh & von Hippel, 2006), commons-based peer production (Benkler, 2012), frugal innovation (Zeschky, Widenmayer & Gassmann, 2011), bottom-of-the-pyramid innovation (Prahalad, 2004), and free innovation (von Hippel, 2017). For example, user innovators in the household sector innovate for personal need (e.g., Shah, 2000). Beyond user innovation, consumers may innovate because engagement in the innovation process is self-rewarding; or they might be interested in bringing their innovation to the market by becoming entrepreneurs (von Hippel, 2017). Contributors to open-source projects are usually motivated by a desire to learn, advancing their reputation, or to connect with like-minded individuals (Lakhani & Wolf, 2005). In developing countries many individuals initially innovate to satisfy a personal need, and their innovation behavior can be strengthened by lack of alternatives and particular market circumstances in which classical producer innovation resources are lacking (Gupta, 2012).

Nationally-representative surveys of HHS innovation have been conducted in ten countries since 2012. Findings from six countries have been published so far. These indicate that between 1.5 percent to 6.1 percent of individuals engage in HHS innovation (von Hippel et al., 2011). Tens of millions of individuals collectively spend tens of billions of dollars annually on creating novel products by and for themselves (de Jong, 2016). Household sector innovators develop all types of consumer goods, including household items and medical applications (Kanstrup et al., 2015; Oliveira et al., 2012). Larger innovations are generally done collaboratively (e.g., Lakhani & Wolf, 2005), and may be highly impactful in various field of application. Also, as consumers across the globe are increasingly better educated and have access to innovation resources (including the Internet), more HHS innovation can be expected in the future (Baldwin & von Hippel, 2011).

2. Focus of the special issue

Advancing theory and research on HHS innovations has important implications for our understanding of innovation management at large, and requires involving the broader community of innovation scholars from diverse perspectives, including management and organization studies, the economics of innovation, policymaking, and micro-level research on creativity and motivations of consumers. This special issue is open to classical hypothesis/deductive papers, but also phenomenon-driven empirical research that existing innovation management theories fail to predict or explain. Submissions can be done as full manuscripts or research notes as per instructions at Research Policy. Specific research challenges include:

Genesis, processes, and effects of HHS innovation

While prior research indicates that HHS innovation is salient, there is a lack of understanding of how the development processes unfolds, which factors trigger such innovations, and what contextual factors foster them. Moreover, the effects of HHS innovations for individuals, organizations, and society at large is largely unknown. Relevant questions to be answered include:

- What are salient differences between individuals who successfully carry out HHS innovation projects and those that fail?
- Which contextual factors, institutions, and interventions are effective in supporting the efforts of household sector innovators?
- How does the rate and nature of HHS innovation change with the availability of innovation resources (e.g., having access to or being deprived of time, tools, money, collaboration opportunities)?

Policy implications

Innovation policies around the world have been predominantly designed to support producer innovation. Producers seeking to profit by commercializing ideas, products, services, and processes which they have developed at private cost, require monopoly rights and/or government subsidies to justify their innovation investments (von Hippel & von Krogh, 2003). HHS innovators are self-financed and self-rewarded and do not require either of these conditions to innovate. Diffusion of HHS innovations, however, often fails due to individuals' weak incentives to inform other consumers about their innovations—even if these would be highly valuable to others (de Jong et al., 2015). Potential research questions include:

- How can public policies (e.g., around makerspaces and open standards) support HHS innovation?
- What kind of policy interventions can be taken to stimulate HHS diffusion to peers and/or commercializing firms, and what is the effectiveness of these measures?
- What are the implications of HHS innovation processes for intellectual property rights systems at large?

Organizational factors affecting HHS innovation

Many HHS innovation projects are developed by collaborating groups of unpaid individuals who operate outside the boundaries of formal organizations, without clear organizational structures or roles. For example, innovators often use online project management software like GitHub for coordination purposes. Also, some HHS innovations get commercialized in new ventures, which in turn may spur the creation of new industries or segments (Shah & Tripsas, 2007; Haefliger, Jäger, & von Krogh, 2010). Under these circumstances, organizational forms likely shape HHS innovation emergence and diffusion. Possible research questions include:

- What is the role of project coordination functions with non-hierarchical management and coordination methods in HHS innovation?
- How can more traditional organizations use HHS innovation-inspired methods to their advantage?
- How does user participation in HHS innovation collaborations shape the nature of the project and its likelihood of success?

Interaction with producers

Gambardella and colleagues (2017) identified four interactions between HHS innovation and producer innovation. If HHS innovations diffuse freely to peers, innovations may compete with incumbent producer offerings (e.g., Windows vs Linux). HHS innovations may also complement incumbent products, such that producers' revenue potential is enhanced (e.g., consumers adding modules to computer games). HHS innovations may be absorbed by incumbent producers, to be developed further and brought to the market for general sale (e.g., mountain biking and kitesurfing). Finally, producer can actively support HHS innovators to benefit from their innovative contributions (e.g., Lilien et al., 2002; Nishikawa et al., 2012). We expect that in this emerging new reality, a range of new strategies, organizational forms, and business models will emerge. Research questions may be:

- How can firms share their innovation process with HHS innovators for mutual benefit?
- What kind of business models emerge from HHS innovation, and how might organizations benefit from these models?
- How can HHS innovators and firms develop methods to systematically co-create new innovations of interest to both?

3. Deadline, submission and review process

The deadline for submitting papers is March 1, 2019.

Submissions to the special issue should be sent electronically through the Research Policy web platform <https://ees.elsevier.com/respol>. When submitting your manuscript, select the

‘SI: Household Innovation’ option in the “Article Type” step of the submission process. Authors also need to select 'SPRU' as the handling editor.

Submissions should be prepared in accordance with Research Policy’s author guidelines available at: <https://www.elsevier.com/journals/research-policy/0048-7333/guide-for-authors>. All manuscripts must be original, unpublished works that are not concurrently under review for publication elsewhere. All papers will receive a double-blind review following Research Policy’s normal review process.

The timeline of the review process is as follows:

Call for papers announcement:	May-June, 2018
Submission due date:	March 1, 2019
First round decisions:	June 1, 2019
First revision due date:	December 1, 2019
Second round decisions:	March 1, 2020
Second revision due date:	June 1, 2020
Third round decisions:	September 15, 2020
Final editorial decisions:	November 15, 2020

4. Paper development workshop

After the first round of reviews of submitted papers to this special issue and to aid in the development of papers, the editorial team will organize a paper development workshop. The workshop is on July 8-10, 2019 at the annual Open and User Innovation Conference in Utrecht, the Netherlands. Attending the workshop is not compulsory. Acceptance for the workshop does not guarantee acceptance for the special issue.

5. Questions

For questions regarding the content of this special issue, please contact the guest editors: Jeroen de Jong (j.p.j.dejong@uu.nl) or Shiko Ben-Menahem (benmenahem@ethz.ch). For questions about submitting to the special issue, contact Research Policy at respol@sussex.ac.uk.

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