Innovation Resistance - Moving Beyond Dominant Framings

Abstract: This study explores the manifestation of innovation resistance and the dynamics involved in its entanglement with innovation processes. This is achieved through reviews of extant literature combined with an actor-network analysis of interviews, public documents and news articles concerning three innovation processes. The study finds that innovation resistance is a process *between* programmes that manifests when an innovation programme intercepts an 'Other' programme. The resistance (1) shape the innovation process, (2) can protect the 'Other' from the influence of an unwanted innovation process, (3) can enable the excluded 'Other' to (re)gain influence over an innovation process by which it is affected. Moreover, the study shed light on central limitations of the scholarly knowledge production on innovation and innovation resistance. Specifically, it finds that the scholarly knowledge production has been conducted from within the mega programme of Industrial Capitalism which has enabled certain research directions and constrained others.

Keywords: Innovation; Innovation Resistance; Barriers to Innovation; Innovation Management; Non-Humans; Actor-Network Theory; Sustainability; Science, Technology and Innovation Studies; Critical Innovation Studies; Health Care; Energy Market

1. Problem/ Motivation

Innovation, especially technological innovation, encompass and affect a vast part of our social and material world. Decisions around technological innovation influence our society for an extended period of time (Winner, 1980), which is especially apparent when considering technological trajectories (e.g. Markard & Truffer, 2006) and lock-in effects (e.g. Foxon & Pearson, 2008). Much of the power to influence these processes lie in the hands of managers in firms. The consequences, however, reach much wider than the economically focused field of Innovation Studies usually acknowledge (Sveiby et al., 2012). How managers view their innovation processes and the resistance to them is topical for the social shaping of a more sustainable future. Since the mid-1800s, innovation has increasingly been caught up in a capitalist pro-profit and pro-growth paradigm (Walsh, 2021) that has externalised concerns such as exploitation of labour, ecological degradation and people's health. Soete (2019) has even gone so far as to argue that Science, Technology and Innovation (STI) research and policy are at a fundamental and existential crisis due to it being stuck in an industrial efficiently and consumerist mode that makes it unable to address these negative externalities. Therefore, from both managerial and policy perspectives, it seems relevant to offer an analysis of resistance to innovation that moves beyond the classic economic approach of STI and refrains from analysing resistance with a priori one-sidedly positive view on innovation.

2. Current understanding

Previous scholarly work has tended to label phenomenon seen as progressive as 'innovation' and innovation resistance as a reactionary antagonist (e.g. Juma, 2016). This has cast resistance and barriers in a negative light. Most studies have preoccupied themselves with identifying (and understanding) resistance to aid managers or others to overcome it (e.g. Dougherty, 1992). Innovation Resistance is often seen from the developing firm's perspective, and studies tend to promote continued innovation in one way or another (e.g. MacVaugh & Schiavone, 2010). Few attempts have been made to study innovation resistance from more standpoints than the innovating firm's (see Harrisson & Laberge, 2002 for an exception). Thus, most STI research on (human and non-human) innovation resistance has been conducted from an analytical starting point where the innovating capitalist firm is in focus and the innovation is assumed to lead to a positive sum-game. This has led to most available literature around innovation resistance offering a shallow analysis of the resistance as seen from the perspective of the innovating firm. It has also contributed to silencing the voices of the 'Others' (such as animals, workers, laws etc.) who also shape sociotechnical processes.

3. Research objective

It can be suspected that the studies focusing on innovation resistance (albeit sometimes under different names such as barriers or impediments) have done so with a pro-innovation starting point derived from the one-sided pro-growth, pro-firm view. This has likely coloured the analysis of innovation resistance in most previous studies. Critical innovation scholars have made the pro-innovation bias their point of departure for a more critical analysis of innovation management (Walsh, 2021). However, they have not yet extended much of their focus to exploring the relationship between the pro-innovation bias and innovation resistance. While critical scholars have challenged the pro-innovation bias, they have not yet given any suggestion on why this bias accompanied by a pejorative view on resistance lingers in the academic writings. Therefore, this thesis aims to shed light on central presuppositions and limitations of the scholarly knowledge production on innovation and its resistance and empirically explore the manifestation of innovation resistance and the dynamics involved in its entanglement with innovation processes. This is explored through an actor-network theory lens since that theory has had a history of avoiding a one-

sided perspective on resistance (e.g. Harrisson et al. 2001) and can easily include (non-)human actors and relationships outside of the economic sphere into the analysis.

4. Research design

The research method consisted of three qualitative interview studies concerning three innovation processes. The first study revolved around a low tech medical innovation process that was resisted due to its ambiguous clinical evidence and impact on nature (based on 30 interviews with sales managers, procurement personnel, surgeons etc. and 39 secondary sources such as public documents). The second study was a 'deregulation' or 'a restructuring and reform' of a former public pharmacy monopoly (viewed as a systemic innovation) that gave rise to a number of associated changes in technology, supply chain, service, etc. (based on seven interviews with company managers, pharmaceutical managers etc. and 68 news articles, public documents etc.). This process faced resistance from within when entities in the innovation process willingly or unwillingly followed deviant agendas. The third study concerned the development of a high-tech electrical product and illustrated the firm's internal resistance processes (based on 47 interviews with managers and project workers). All interviews were loosely structured around a set of questions and lasted between 30-120 minutes. The empirical material was analysed using an actor-network lens (Latour 1999, Callon 2006). Additionally, a discourse analysis was conducted of 48 articles concerning innovation resistance from the top 20 innovation journals identified by Fagerberg et al. (2012).

5. Findings & Theoretical implications

Innovation scholars often portray human and non-human innovation resistance statically; in their narratives it appears to be without history or goal and only become salient when intercepting the innovation process. In contrast, this study has shown that any perceived resistance process gains from being (re)connected to its network and programme. It has shown that an innovation resistance process manifests *between* programmes when an innovation programme intercepts an 'Other' programme. The thesis has focused on the dynamics between the innovation programme and the 'Other' programme. So, when STI scholars have argued that resistance arises from the tension of novelty and stability, this study shows that resistance is a sign that someone else has another story, another goal, another way in which it wants to influence and shape the world and that the innovation programme is standing in its path.

Moreover, this study has shown that how the resistance process is interpreted depends on the observer's identity and its interpretation of surrounding phenomena. It also shows that resistance is crucial in shaping the socio-material evolvement and direction of an innovation process. This is very different from the antagonistic standpoint, where resistance was seen as 'an enemy' (Juma, 2016) of innovation. Furthermore, while most previous studies have framed innovation resistance as something dysfunctional that at best can lead to some learning for an innovating firm, this study has shown that resistance can be desirable for innovators, users and other actors in the world.

6. Practical implications & Impact

This thesis has indicated that policy could better aid innovation managers to serve society (through their innovating activities) if it moved away from promoting 'blind growth' where policy influences the speed of the economic activity but has little control over where the economy is headed. Directing the innovative energies to promote change must be accompanied by a readiness to promote decline. When decline is seen as desirable, innovation resistance becomes as a useful tool. Many problems today result from old innovations with technological trajectories that have been sedimented in industrial/post-industrial societies, perhaps even conditioning the workings of such societal orders. Resistance can be used to enable 'forced discontinuance' (Rogerts, 1983) of such

undesirable innovation processes and break up lock-ins, opening up paths for more sustainable developments. This thesis has illustrated that that kind of interference can be welcome and that it could enable managers of innovating firms to act more ethically than the market economy otherwise would permit.

Moreover, the thesis has indicated that some resistance (such as that from knowledgeable clients) is viewed in a somewhat favourable light by the innovation managers. Practitioners are, however, advised also to evaluate if there is value in resistance from other sources. The context in which an innovation enters encompasses more actors than just the clients. Resistance could aid firms in better adjusting to this setting. It could prompt the firm to take in more perspectives, reflect on the operations carried out, and help overcome the constraints set by the market.

7. Unique selling point

This thesis has broken new ground in the theorizing around innovation resistance and barriers. Most previous research on human and non-human innovation resistance has been conducted from an uncritical pro-growth pro-frim, pro-innovation starting point. In contrast, this thesis has moved away from this one-sided perspective and offered an analysis of resistance from a vantage point that is less coloured by ideology than much of the literature dominating the STI fields. Avoiding that one-sided perspective is more common in the field of Critical Innovation Research (CIR). That field has, however, not extended much inquiry into innovation resistance and the few analyses that exist are fragmented and heavily focuses on humans. In contrast, this study offer a more wholesome theorizing and make a point of including non-humans (such as aquatic organisms) into the analysis. CRI has occupied itself with moving away from the pro-innovation bias. It has, however, not offered any explanation as to why the bias has remained in the STI literature. The thesis provides an analytical explanation for this lingering. Additionally, the thesis has expanded the actor-network theorizing by moving away from the one-sided analysis focusing on one programme of action (overcoming anti-programmes) and instead shown that the analysis improves by viewing the encounters as interactions between two programmes in their own right. Moreover, the thesis has a creative and unusual structure, use comics to illustrate the research (see pages 134, 157, 197, 217, 299), and visualize the findings through a poetic illustration of programmes intercepting and shaping each other (on the cover).

8. References and Notes

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