Open Data and Competitive Co-Creation of Value

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1. ABSTRACT

Contemporary marketing literature focuses heavily on co-creation of value between customers and companies, viewing end-users as "co-producers in service processes" and fundamentally "creators of value for themselves". Moreover, through engaging themselves in their customers' processes companies can become "co-creators of value with their customers" (Grönroos and Ravald, 2010). Companies may create value with one another through concepts such as Open Innovation (Chesbrough, 2003), whereby companies working in complementary industries work together to create value for those companies participating in the consortium. The digital economy challenges these established views in two fundamental ways; firstly, end-users are often functioning as creators of value not just for themselves, but for *other people and companies* (e.g. crowdsourcing). Secondly, digital technologies allow competing companies to co-create with one another without needing to write expensive contracts or even negotiate with one another at all (Mulligan, 2009). For the purposes of this paper, this second form of co-operation is defined as the *competitive co-creation of value*, whereby companies generally regarded as competitors receive a mutual net gain through co-operation. This paper discusses competitive co-creation of value with specific focus on the use of Open Data and highlights the research challenges to its successful implementation.

The marketing literature and to some extent Open Innovation, have their foundations in the existing understanding of 'value' within neo-classical economics. Both rely heavily on the concepts of 'core competencies' within a company as defined by Prahalad and Hamel (1990) as they rely on the concepts of operant resources, i.e. resources that act upon other resources to create benefit Per definition, however, core competencies cannot be ones that are *standardised or easily available* (Prahalad and Hamel, 1990). This understanding of a company's core assets stands in direct contradiction to the emerging industrial structure of the digital economy, which is built on standardised interfaces and standardised solutions. In particular, Open Data, which is based on making information and services as easily available as possible.

Open Data requires companies and/or governments to provide access to assets they have traditionally associated with a core competence, i.e. ones that they should protect and control access to. Data is viewed as a key asset, precisely because no one else has access to it. Examples include map data, postcode databases, customer care databases, etc. These assets are generally locked inside a company, with few or poorly defined interfaces to expose them. Often, such assets are used to track a customer and their use of a product in order to improve the next release or to "insert themselves (the company) into the customer's value creation process" (Vargo et al, 2008).

Through exposing the data held internally, however, a company may combine their knowledge of customers with another company's knowledge and increase their overall understanding of end-users. As a simple example, two supermarkets may combine their knowledge to understand wider purchasing patterns of a consumer, e.g. a person may use one supermarket for vegetables and cleaning products, but only purchase protein products from another one. By combining these observations, these companies could both improve the targeting of their customer advertising.

A more complex example is cloud-based mobile services. Mobile Network Operators (MNOs) understand how to co-create value with their end-users, having worked with service-based business models since the 1990s. Within a converged digital economy, however, co-creation of value with their end-user customers becomes a less significant problem than understanding how to create value with other companies within their value chain (Mulligan, 2010).

Through iPhones and Android devices, end-users are now able to access services directly on the Internet, rather than through MNO-run services. In the short-term, it may appear initially that these services are replacing the traditional MNO services; end-users no longer need to co-create with the MNO. An MNO may therefore view such services as a threat, in particular services that cannibalise traditional offerings, e.g., Skype. However, in the long run the revenues from traditional voice services *will* continue to fall., It is thus imperative for the MNOs to understand how to competitively co-create value with these external service providers instead of competing with them.

For mobile cloud services the use of Open Data can make competitive co-creation significantly more viable. As an example, understanding how and when consumers use mobile Internet services could lead to creating better services. Combining the knowledge of when and how an end-user uses their mobile device to access particular services on the Internet may help a service provider refine their service in order to capture more value, increasing the traffic on the MNO's network at the same time. Moreover, this interaction may allow a MNO to capture wider value in the Open Data process, e.g. to provide services based on Open Data from government sources, and to understand how and why to combine them with other services. This, however, requires both the MNO and service providers to 'share' parts of their data that they would normally protect.

Open Data therefore requires a new style of thought with regards to a company's competitors and providers of supplementary goods. While Open Innovation allows companies to share R&D efforts through an 'open' process, they are not free from transaction costs, and governance procedures in particular. For example, IBM's Open Governance procedures for Eclipse run four layers deep (IBM, 2007). Open Innovation works best for companies that can dedicate the time and effort to ensure that their ideas and R&D processes are protected. As a result, this type of innovation is often quite limited – it is largely still innovation run by large corporations, whereby smaller players need to co-operate with larger players and play by their rules. Open Data allows companies to co-create without the transaction costs traditionally associated with data exchange.

There is a difference, however, between using open data for competitive co-creation and merely handing over all the corporate assets stored in different digital formats. Open Data merely allows for the dynamic transmission of information between different entities using Open APIs or Open Interfaces (Mulligan, 2009), reliable knowledge creation and value capture still rests with the application of appropriate service logic. Those companies with organisational understanding about how best to *apply* such knowledge will achieve/retain a competitive advantage.

Challenges for the use of Open Data for Competitive Co-Creation

Enabling competitive co-creation of value is not a simple process. Despite monumental advances in technology, many technical issues remain that potentially hinder the free and usable exchange of data between corporate entities[1], in particular as they relate to customer data. How does a company, therefore, protect all the data that they do not wish to have exposed to the world, while usefully exposing the rest? A company may be willing to contribute some of their data to a wider set, if for example, they can be assured that no one can trace it back directly to their corporation, i.e. they avoid liability if the data is used for nefarious purposes. In some sense, this is a similar challenge as faced by individuals in the personal container project; companies would potentially benefit from combining their data and allowing others to innovate on top of it.

The answer lies in the creation of a "computational space" (Mortier, 2010), illustrated in Figure 1, which enables processing of data from many customers of many companies, while maintaining the privacy of both the individual to whom the data refer, and the corporation that originally collected and housed the data. Techniques such as mix- and DC-networks (Chaum, 1981, Chaum 1988), differential privacy (Dwork, 2008) and privacy integrated querying (McSherry, 2009) may be extended and used to provide this protection.

From a Digital Innovation perspective, the following questions are important research areas:

- How does a company/individual work out what is useful data to expose?
- By how much does the innovative capacity of the economy have to increase to convince companies to open their data? How much of this increase has to directly involve the company opening the data?
- What is the right subset of data exposure to allow innovation without removing an organisation's ability to compete?
- How can a company for whom the benefits of Open Data only arise through competitive co-creation convince a competitor to enable this by *also* opening their data? Is there the potential to initially work with companies creating complementary goods?

[1] Please note that for the purposes of this paper, we are not addressing specific issues related to semantic web, rather the interfaces between corporate entities

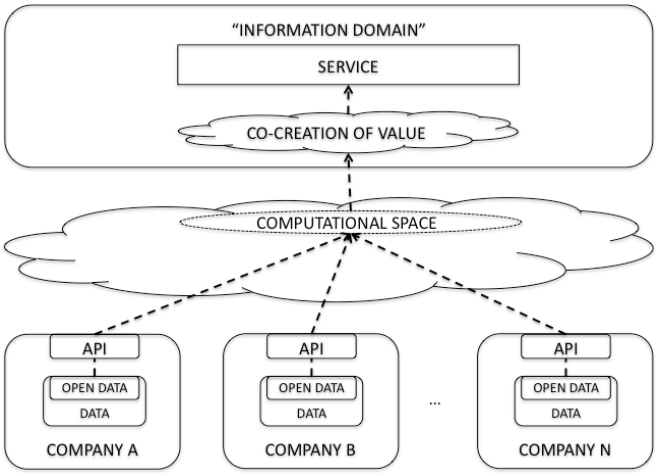

Figure 1: Competitive Co-Creation and Computational Space

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