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CLUSTERING THE IMP THOUGHT: SEARCHING ROOTS AND DIVERSITITES IN IMP RESEARCH

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Abstract

IMP research is often treated as an empirical perspective describing complexities of repeated business-to-business exchanges and their embeddedness. While building on some common understandings and concepts, this paper asks: How homogeneous is the IMP research? This paper uses cluster analysis to capture the roots and various sub-groups of IMP research as means to depict the question of homogeneity (i.e. a core focus in the research) or heterogeneity (i.e. using references from other fields or specific to sub-fields) of the IMP thought. In this scientific work in progress paper we introduce how we design to use bibliographical methods in order to harvest data from an extensive amount of IMP-related articles written from the 1970’s onwards. In this first attempt to reveal IMP we used overall 294 articles yielded to 10,615 co-citation relationships. A threshold of minimum number of citations of a cited reference was set to five (5) to capture such references that have been cited in multiple publications. We introduce visual mapping of defined subject area clusters and as an example we describe shortly clusters. Perhaps not surprisingly our findings suggest that IMP research is not so homogenous, with at least four clear clusters of IMP-research each utilizing different key references.

INTRODUCTION

IMP has grown as a research community since the early ideas presented by Johanson in the 1960s (Johanson, 1966), the parallel developments among in various countries throughout the 1970s, and their increased interactions since the first IMP conference. While being based on ideas of business relationships, networks, adaptation among parties, etc. (Anderson, Håkansson, & Johanson, 1994; Ford & Håkansson, 2006; Hallén, Johanson, & Seyed-Mohamed, 1991), the multitude of research presented since its foundation may not necessarily be as homogeneous in its thought as the taken-for-granted ideas may imply. This paper sets to investigate this issue through asking: In what ways is IMP research heterogeneous vs. homogenous? The paper uses cluster analysis to capture the roots and various sub-groups of IMP research as means to depict the question of homogeneity or heterogeneity of the IMP thought. As a means to answer the research question we focused on co-citations among various core IMP journal papers, while also looking into what articles or books these papers cited. We then defined clusters using qualitative analysis of findings from the co-citation analysis to establish meaning among various clusters of co-citation. Co-citation is defined as the frequency with which two documents are cited together by other documents. If at least one other document cites two documents in common these documents are said to be co-cited. The more co-citations two documents receive, the higher their co-citation strength, and the more likely that they are semantically related.
The paper contributes to the growing body of IMP literature by providing understandings for its various developments and origins, and through pointing out how more or less distinct clusters of interests and ideas have emerged, also linking to somewhat different sources of origin. These findings are important as they allow for a more nuanced discussion about what IMP really is and what emerging areas of interest have developed departing from it or as separate ideas within in.

The rest of the paper is structured as follows. After this introduction we briefly introduce the IMP idea. We then go on by describing the methods used in the paper. Thereafter identified clusters are briefly described. The paper ends with a concluding discussion.

IMP

As an overview of IMP scholars research, we provide a timeline visualization of IMP citation network implemented in CitNetExplorer (Van Eck & Waltman 2014). The most authoritative IMP articles were first identified by the researchers, and their bibliographic data then extracted from Web of Science. Using a threshold of ten or more citations in the Web of Science, our dataset included 296 articles starting from the year 1975, out of which, valid bibliographic data was available from 294 articles. The citation network of 40 most frequently cited IMP articles is illustrated in Figure 1.

Figure 1: A timeline visualization of 40 most frequently cited IMP articles. CitNetExplorer program used.
For the initial core article search, we used Web of Science’s search engine. The idea was to select central peer-reviewed articles based on three different sets of search terms: IMP keywords (industrial network, business network, IMP, business-to-business interaction; and close synonyms/spellings), IMP scholars (names taken from the IMP webpage) and articles published in special issues based on IMP conferences. After these three different searches were made, the output was combined and duplicates were removed. Thereafter, two scholars had to go through the raw output, and manually refine the list, reducing articles published in non-marketing journals (according to the ABS list categories). As some central pieces of work appeared to not be published in marketing journals, we decided also to include articles published in the Journal of Business Research, which for a long time is considered a core journal for IMP scholars (40 work in the final list comes from JBR). In total, 296 peer-reviewed articles were in this way considered as the “core of IMP,” that is, the starting point for the subsequent analysis. These articles were published between 1975 and 2015.

Co-citation analysis is a form of content analysis that can be applied in the context of scholarly publications with the idea of identifying prominent articles, authors and journals being referenced to by the citing authors. It identifies co-cited references that occur in the reference list of two or more citing articles, with the resultant co-citation network providing insights into the constituents of a knowledge domain. Co-citation analysis identifies clusters of “co-cited” references by creating a link between two or more references when they co-occur in the reference lists of citing articles (Raghuram et al., 2010). Studies that have used co-citation analysis include the study of the Information Science discipline (White et al., 1998), the studies on the intellectual structure of Management Information Systems (Culnan, 1986; Mustafee, 2001), Operations Management (Pilkington, 2009), and Science in general (Kas, 2012). However there is presently no study that has investigated the international marketing and purchasing (IMP) knowledge base through co-citation analysis. The co-citation analysis of IMP literature will use a visualisation-based analysis of bibliographic data downloaded from the ISI Web of Science (http://apps.webofknowledge.com/) and is an approach similar to that used by (Naizi, 2011) - who present a visual survey of agent-based computing; (Zhao, 2011) – who visualise research on pervasive and ubiquitous computing; (Liu, 2013) – who used this approach towards visualisation of patents and papers in terahertz technology, and (Mustafee et al., 2014) – who use co-citation analysis for exploring the modelling and simulation knowledge base.

We used 294 selected articles in VOSviewer. This yields into 10,615 co-citation relationships, 2233 pcs two (2) times cited co-citations, 1069 pcs three (3) times co-cited, 636 pcs four (4) times co-cited and 434 pcs articles five (5) times co-cited. We used five (5) as minimum number of citations of a cited reference.

**CLUSTERS DISCOVERED**

We used VOSviewer (Waltman & Von Eck 2012) to create a co-citation network from the 294 articles. Overall the 294 articles yielded 10615 co-citation relationships. A threshold of minimum number of citations of a cited reference was set to five (5) to capture such references that have been cited in multiple publications. With this limitation the constructed co-citation network consisted of 434 publications that are illustrated in Figure 2. (For larger picture see appendix 1 and table in appendix 2).
Figure 2: IMP co-citation network of 434 articles fulfilling minimum of 5 co-citations. VOSviewer used.

Publications are clustered into five research areas based on citation relations (Waltman & Van Eck 2012). Table of clusters in Appendix 2. Suitable labels for the identified research areas were manually determined into further mentioned five clusters:

1. Marketing - Interaction and relationships (red)
2. Management - Organisational change (green)
3. (Marketing) Practices - Services (blue)
4. Strategy - Resource and capabilities (yellow)
5. Mixed other items (purple)

Cluster 1: Marketing - Interaction and relationships (red)
Publications in this clusters are situated mainly in the dominant discipline of general marketing research. More specifically, articles provide insights into purely industrial marketing with a focus on interactions and relationships in markets. Since this cluster is the largest in our sample, cluster 1 can also be identified as the cluster that identifies the IMP discipline at its core.

Cluster 2: Management - Organisational change (green)
This cluster is formed by publications contributing mainly to management literature. As such, this clusters focuses on the managerial perspective of how to organise and manage networks through organisational (network) change processes.

Cluster 3: (Marketing) Practices - Services (blue)
Similarly to cluster 1, this cluster combines publications situated within the marketing discipline. In contrast, however, the focus lies on marketing practices, such as the Service-Dominant-Logic approach. In addition, publications within this cluster specifically look at markets as an ontological concept and focal point of exploration. Thereby, this cluster is closely connected to managerial (Cluster 2) as well as strategic implications (Cluster 4) resulting from the service orientation in markets.

Cluster 4: Strategy - Resource and capabilities (yellow)
Publications in this cluster are mainly aimed to make contribution towards business strategy literature. This cluster connects to cluster 3 on basis of enlarging the concept of strategy to the concept of strategizing. In contrast, publications in cluster 4 also have a main focus on resources and capabilities in networks.

Cluster 5: Outliers - Mixed other items (purple)
Most related to strategizing (cluster 4) or the marketing-imp-cluster (cluster 1)

CONCLUSIONS
We asked a research question: In what ways are IMP research heterogenous vs. homogenous? In this short paper we introduced co-citation analysis which could reveal subject area clusters in IMP-group literature. These are more or less distinct in their co-citation related to IMP papers, origins (work preceding IMP, but often referenced in it), and current ideas of interest. The visualization tools help to grasp these overlaps and differences and indicate how IMP may well diffuse into increased heterogeneous spheres of interest. With different references of origin, the paper also indicates how the core IMP papers may not necessarily share (complete) homogeneity in points of departures, indicating that the IMP research may be as complex and heterogeneous as those business networks it attempts to capture.

Our aim is to continue this study in order to investigate each cluster by further analysis and thereafter draw a map of IMP-group. While earlier analyses 1984-2006 shows an intensive citation frequency within the IMP-group (Henneberg et al., 2007), surprisingly few researchers outside the core of the IMP-group cites these scholars. We take a different view to Henneberg et al. (2007) and try not to interview scholars, but merely to run more analysis with bigger amount of literature available. Thus, analysis methods and available algorithms have evolved since 2007 to better answer the question.

References

Liu, G., Visualization of patents and papers in terahertz technology: a comparative study, Scientometrics. 94 (2013) 1037–1056.


Zhao, R., J. Wang, Visualizing the research on pervasive and ubiquitous computing, Scientometrics. 86 (2011) 593–612.


APPENDIX 2

Cluster 1 (127 items) Cluster 2 (110 items) Cluster 3 (87 items) Cluster 4 (83 items) Cluster 5 (27 items)

