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CLUSTERING THE IMP THOUGHT: SEARCHING ROOTS AND DIVERSITIES 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 referenfernces.

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 heterogenous 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.

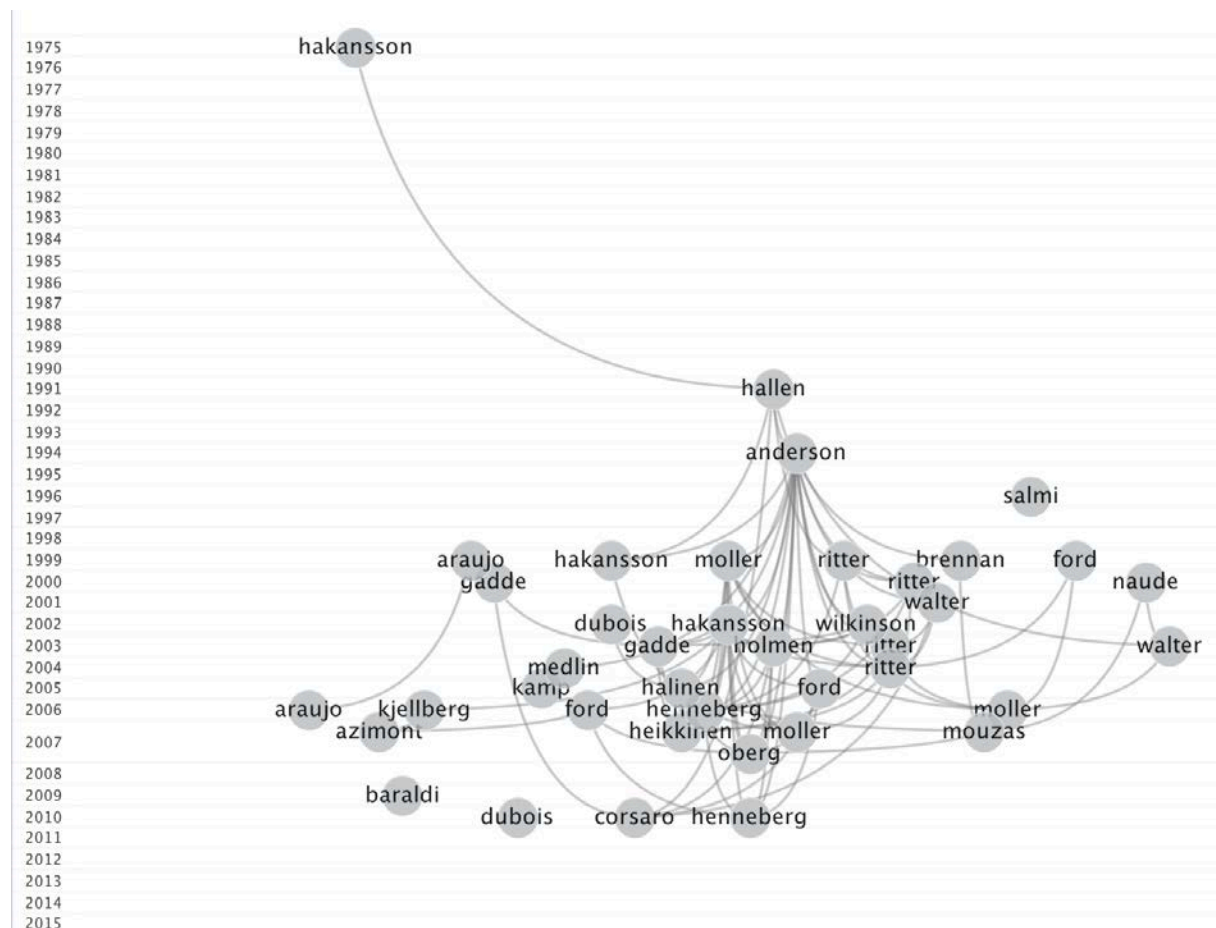


Figure 1: A timeline visualization of 40 most frequently cited IMP articles. CitNetExplorer program used.

METHODS 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).

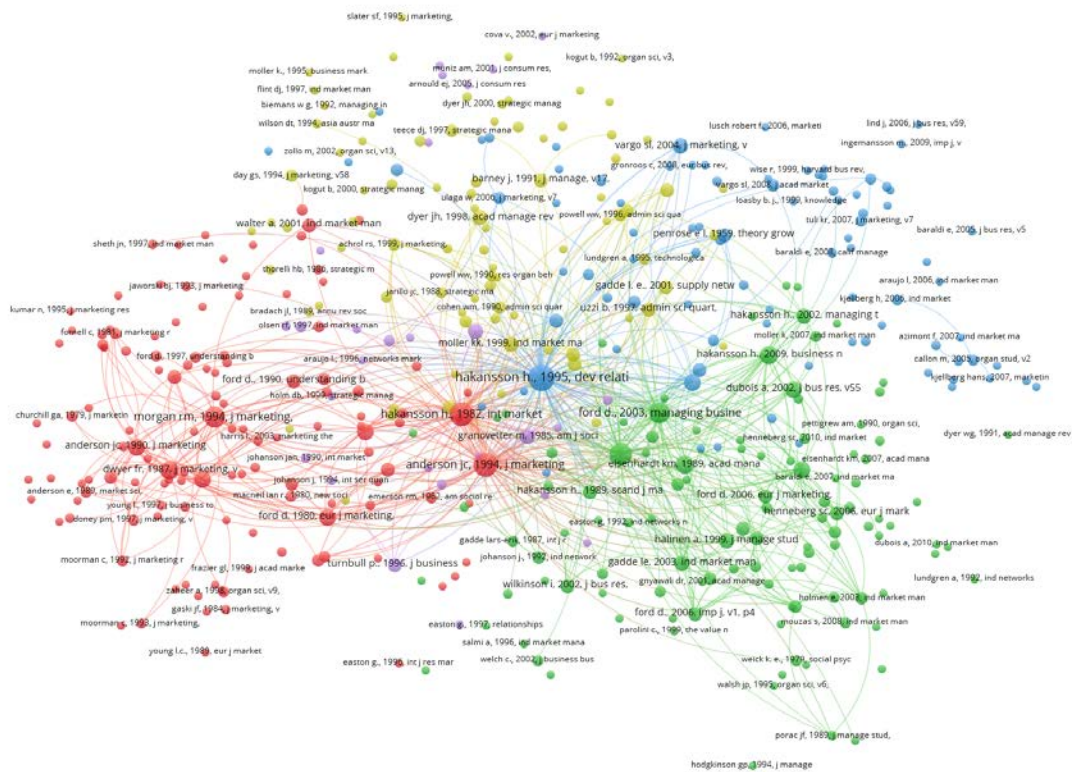


Figure 2: IMP co-citation network of 434 articles fulfilling minimum of 5 co-citations. VOSviewer used.

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 heterogeneous vs. homogeneous? 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 cite 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.

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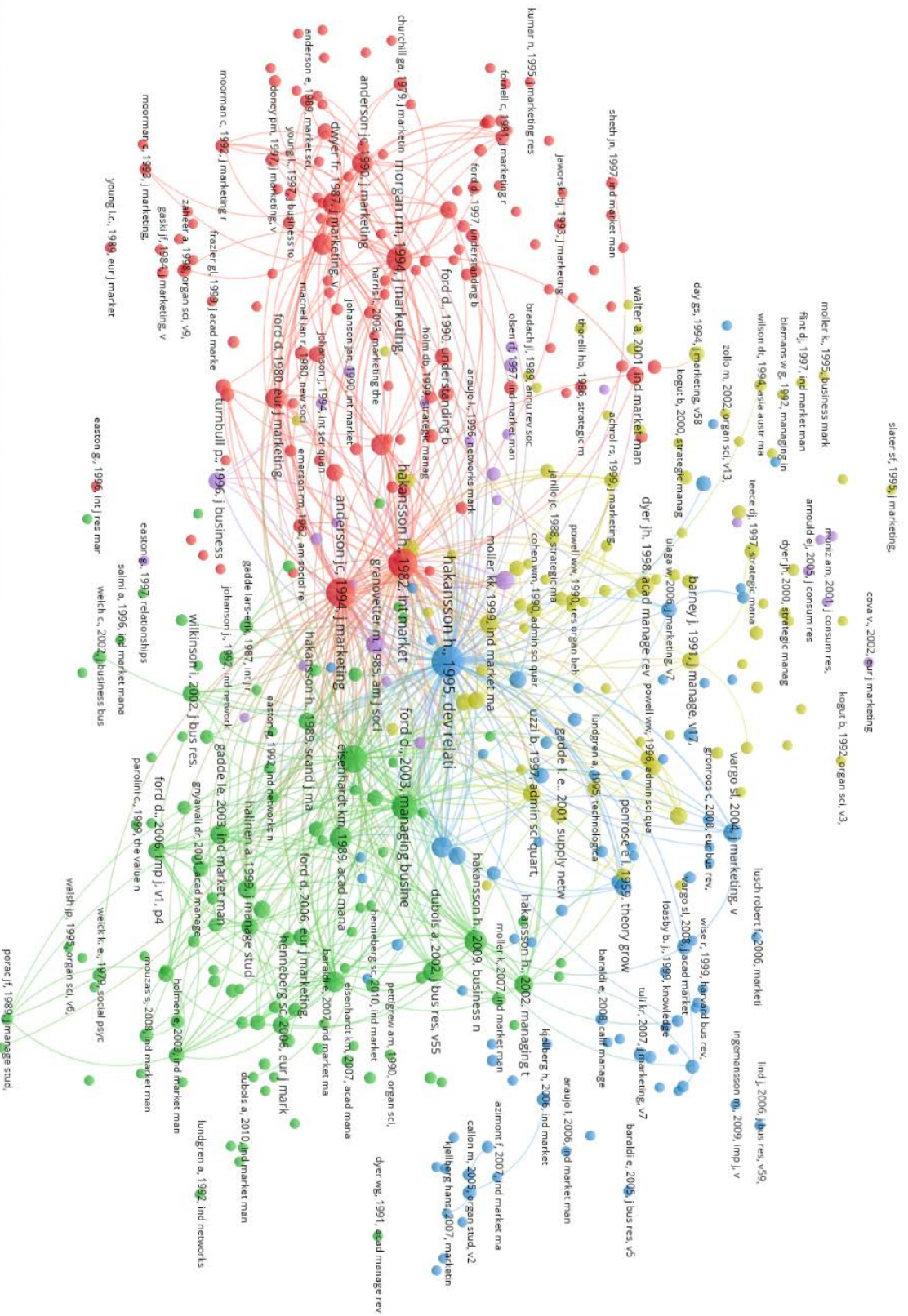
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APPENDIX 1



APPENDIX 2

Cluster 1 (127 items)	Cluster 2 (110 items)	Cluster 3 (87 items)	Cluster 4 (83 items)	Cluster 5 (27 items)
Anderson E 1989	Alderson WROE 1957	Anderson JC 1993	Achrol RS 1991	Araujo L 1996
Anderson E 1992	Alderson WROE 1965	Anderson JC 1995	Achrol RS 1997	Arnould EJ 2005
Anderson JC 2004	Anderson H 1998	Anderson JC 1998	Achrol RS 1999	Brennan R 1999
Anderson JC 1984	Araujo L 2002	Araujo L 1999	Adler PS 2002	Cova B 1997
Anderson JC 1988	Axelsson B 1992	Araujo L 2003	Amit R 2001	Cova V 2002
Anderson JC 1990	Baraldi E 2007	Araujo L 2006	Anderson JC 1999	Cyert RM 1963
Anderson JC 1994	Bogner WC 1993	Araujo L 2007	Araujo L 1998	Dubois A 1998
Armstrong JS 1997	Bonoma TV 1985	Axelsson B 1992	Axelsson B 1992	Easton G 1994
Arndt I 1979	Brito C 1998	Azimont F 2007	Barney J 1991	Firat AF 1995
Axelrod R 1984	Corsaro D 2011	Baraldi E 2005	Biemans WG 1992	Ford D 1998
Bagozzi RP 1975	Daft RL 1984	Baraldi E 2008	Bradach JL 1989	Fournier S 1998
Barber B 1983	Denrell J 2003	Baraldi E 2009	Campbell NCG 1983	Granovetter M 1985
Bensaou M 1999	Dubois A 2002	Biemans WG 1991	Campbell NCG 1985	Gulati R 1999
Blankenburg H 1996	Dubois A 2010	Burt RS 1992	Cohen WM 1990	Hakansson H 1975
Blau PM 1964	Dubois A 2007	Callon M 1998	Day GS 1994	Hakansson H 2004
Borys B 1989	Dwyer RF 1987	Callon M 1998	Dhanaraj C 2006	Holm DB 1999
Cannon JP 1990	Dyer WG 1991	Callon M 2002	Dosi G 1982	Johansson J 1977
Churchill GA 1979	Easton G 1992	Callon M 2005	Dubois A 1982	Johansson J 1994
Coleman J 1990	Easton G 2002	Callon M 1998	Dyer JH 1996	Johansson J 1990
Cook KS 1978	Easton G 2010	Cannon JP 2001	Dyer JH 1998	Larson A 1992
Coviello NE 2002	Easton C 1993	Chesbrough H 2002	Dyer JH 2000	Mattson LG 1997
Crosby LA 1990	Easton G 1995	Coase RH 1937	Eisenhardt KM 2000	Mattson LG 1985
Cunningham MT 1986	Easton G 1995	Corsaro D 2010	Fiocca R 1982	Muniz AM 2001
Cunningham MT 1973	Easton G 1997	Cova B 2008	Flint DJ 1997	Porter ME 1980
Cunningham MT 1980	Easton G 1998	Dubois A 2004	Ford D 1986	Snehota I 1990
David TW 1986	Eisenhardt KM 1989	Eggert A 2006	Ford D 1999	Turnbull P 1996
Day GS 2000	Eisenhardt KM 2007	Gadde LE 1993	Ford D 2002	Williamson OE 1975
Deshapande R 1993	Ford D 2005	Gadde LE 2000	Foss NJ 1999	
Doney PM 1997	Ford D 2006	Gronroos C 2008	Gadde LE 2001	
Dwyer FR 1987	Ford D 2001	Gronroos C 2011	Garcia R 2002	
Easton G 1996	Ford D 2003	Gronroos C 1997	Grandoni A 1995	
Emerson RM 1962	Ford D 2006	Hakansson H 1993	Grant RM 1991	
Ford D 1980	Ford D 2011	Hakansson H 1998	Grant RM 1996	
Ford D 1982	Gadde LE 1987	Hakansson H 1999	Gulati R 1998	
Ford D 1990	Gadde LE 2003	Hakansson H 1987	Gulati R 2000	
Ford D 1996	Glaser BG 1967	Hakansson H 1989	Hunt SD 1995	
Ford D 1997	Gnyawali DR 2001	Hakansson H 1995	Jarillo JC 1988	
Ford D 2002	Granovetter MS 1973	Hakansson H 2007	Kale P 2000	
Fornell C 1981	Hakansson H 2002	Harrison D 2008	Kogut B 1992	
Frazier GL 1988	Hakansson H 1989	Hayek FA 1945	Kogut B 2000	
Frazier GL 1999	Hakansson H 1992	Hodgkinson GP 2005	Lorezoni G 1999	
Gadde LE 2004	Hakansson H 1992	Ingemansson M 2009	Lundgren A 1995	
Ganesan S 1994	Hakansson H 1995	Kjellberg H 2006	March JG 1991	
Garbarino E 1999	Hakansson H 2002	Kjellberg H 2007	Miles RE 1978	
Gaski JF 1984	Hakansson H 2009	Kraljic P 1983	Moller K 2003	
Gemunden HG 1996	Hakansson IL 1992	Lancioni RA 2000	Moller K 2005	
Gemunden HG 1997	Halinen A 1999	Latour B 1987	Moller K 1995	
Geyskens I 1996	Halinen A 2005	Lind J 2006	Moller KK 2003	
Gronroos C 1994	Halinen A 1995	Lindgreen A 2005	Moller KK 1999	
Gummesson E 1987	Halinen A 1998	Loasby BJ 1999	Nahapiet J 1998	
Gundlach GT 1995	Harrison D 2004	Loasby BJ 1998	Nelson RR 1982	
Hakansson H 1987	Heikkinen MT 2007	Lusch RF 2006	Nonaka I 1994	
Hakansson H 1993	Henders B 1995	Mattson LG 1973	Nonaka I 1995	
Hakansson H 1982	Henneberg SC 2006	Mcloughlin D 2002	Normann R 1993	
Hakansson H 2000	Henneberg SC 2006	Moller K 2006	Parolini C 1999	
Halinen A 2002	Henneberg SC 2010	Normann R 1994	Peteraf MA 1993	
Halinen A 1997	Hertz S 1998	Oliva R 2003	Porter ME 1985	
Hallen L 1991	Hodgkinson GP 1994	Palamountain JRC 1955	Porter ME 1990	
Harris L 2003	Holmen E 2003	Payne AF 2008	Powell WW 1990	
Havila V 2002	Johanson J 1992	Penrose EL 1959	Powell WW 1996	
Heide JB 1988	Johanson J 1985	Ragin CC 1992	Prahalad CK 1990	
Heide JB 1992	Kamp B 2005	Ravald A 1996	Ritter T 1999	
Heide JB 1994	King N 2004	Richardson GB 1972	Ritter T 2002	
Helfert G 1999	Kragh H 2009	Rinaldo D 2006	Ritter T 2003	
Hofstede G 2001	Krippendorff K 2004	Storbacka K 2011	Ritter T 2004	
Holmlund M 2004	Laage-Hellman J 1997	Stremersch S 2001	Ritter T 2004	
Homans GC 1958	Lambe CJ 2000	Stromsten T 2006	Rosenbrojer CJ 1999	
Jackson BB 1985	Langley A 1999	Tuli KR 2007	Shan WJ 1994	
Jaworski BJ 1993	Leek S 2009	Ulaga W 2001	Slater SF 1995	
Johanson J 1987	Lincoln YS 1985	Ulaga W 2006	Snow CC 1992	
John G 1982	Lundgren A 1992	Van De Ven A 1999	Stabell CB 1998	
Juttner U 2007	Macaulay S 1963	Vargo SL 2004	Stacey RD 1996	
Kalwani MJ 1995	Mattson LG 1987	Vargo SL 2008	Teece DJ 1997	
Kohli AK 1990	Mattson LG 1987	Vargo SL 2008	Thompson JD 1967	
Krapf RJ 1991	Medlin C 2004	Vargo SL 2011	Turnbull P 1997	
Kumar N 1995	Meinel IR 1994	Vargo SL 2004	Ulaga W 2003	
Kumar N 1995	Miles MB 1994	Von Hippel E 1988	Uzzi B 1996	
Lewis JD 1985	Miles MB 1984	Von Hippel E 1986	Uzzi B 1997	
Macneil IR 1980	Moller K 2006	Webster FE 1972	Wernerfelt B 1984	
Macneil IR 1978	Moller K 2007	Weick KE 2005	Williamson OE 1985	
Mattsson LG 1988	Moller K 2010	Wenger E 1998	Zolkiewski J 2002	
Mayer RC 1995	Mouzas S 2007	Windahl C 2006	Zollo M 2002	
McCallister DJ 1995	Mouzas S 2008	Wise R 1999		
Metcalfe LE 1992	Oberg C 2007	Woodside AG 2003		
Mohr J 1990	Osborne JD 2001	Yin R 2003		
Mohr J 1994	Parolini C 1999			
Mohr JJ 1996	Pettigrew AM 1997			
Moorman C 1992	Pettigrew AM 1990			
Moorman C 1993	Piekkari R 2010			
Morgan RM 1994	Porac JF 1989			
Mouzas S 2007	Quintens L 2010			
Narayandas D 2004	Ragin CC 1992			
Narver JC 1990	Ritter T 2000			
Naude P 2000	Salmi A 1996			
Olsen RF 1997	Sebenius JK 1992			
Palmatier RW 2006	Siggelkow N 2007			
Palmatier RW 2007	Smircich L 1985			
Parasuraman A 1988	Srivastava RK 1998			
Pfeffer J 1978	Strauss A 1998			
Phillips LW 1981	Tsoukas H 1989			
Podsakoff PM 2003	Vandeven AH 1992			
Ring PS 1992	Vandeven AH 1995			
Ring PS 1994	Walsh JP 1995			
Ritter T 2003	Weick KE 1979			
Robison PJ 1976	Weick KE 1995			
Rousseau DM 1998	Weick KE 1993			
Sheth IN 1997	Welch C 2002			
Siguaw JA 1998	Wilkinson I 2002			
Thibaut J 1959	Yin RK 1989			
Thorelli HB 1986	Zaheer A 2005			
Turnbull PW 1986				
Van de Ven AH 2005				
Walter A 1999				
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