

# The small world of editorships: A network on innovation studies

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## Abstract

Editors exert a significant influence on journal's mission and governing the strategic direction of outlets. They are the channels gatekeepers not only by ensuring the quality but also by guaranteeing the integrity of novels produced. For being such an important piece of scientific puzzle, they are a research object of utmost interest which is rather fragmented. This paper aims to better understand the relationships between editors seated on boards of 20 innovation top-tiers. The sample considered comprised 2,440 editors occupying 3,005 editorial positions and assuming 122 different duties. No single journal is free from this interlocking editorship phenomenon and 18.6% of the scholars serve on multiple boards. We deploy social network analysis to further inquire and model the editorial relationships in which innovation journals are embedded. Our results offer new insights on how the field is organised: 627 lines linking the journals were found with a 41.6% interlocking density. Research Policy has the highest number of direct links to other boards (degree) and the shortest distance from all network journals (closeness) while Industrial and Corporate Change is the one bridging the largest number of other pairs of journals (betweenness), followed by Small Business Economics and Research Policy.

## Introduction

Elite boards memberships are crucial agents in scientific governance. For being seen as critical the role they play and thus, an appointment to a journal board is considered an important career stepping-stone as it provides opportunities for intellectual growth and networking (Topaz & Sen, 2016). The critical mentality and decisions of scientific editors have so far safeguarded and will also warrant the social and intellectual integrity of science for the upcoming years. For being consulted about research agendas and strategic directions for the outlets, the elite board membership become of paramount interest (Bedeian, Van Fleet, & Hyman, 2009; Feldman, 2008). Their positions and editorial affiliations provide a chance to study the underlying direction of journals (Morton & Sonnad, 2007; Wilkes & Kravitz, 1995).

As prominent scholars with a robust track of publications (Teixeira & Oliveira, 2018) and highly appreciated by peers (Andrikopoulos & Economou, 2015), editors are commonly seat in more than one board. Such phenomenon was previously identified by Baccini & Barabesi (2010) and may be responsible for the establishment of subgroups of scholars linked to some core journals, who may exert influence on the vision and main paradigms of such journals.

Taking advantage of commonly described academic boards on journal's website, we aim to ponder about journal governance as already done for other scientific fields (Bakker & Rigter, 1985; Brinn & Jones, 2008; Burgess & Shaw, 2010).

In this work, we draw a social network analysis to discuss about the social structures and independence of journal's EB. Through the assessment of Boards composition of the twenty most important innovation journals identified by Fagerberg et al. (2012), we examined how the memberships of EB interact and identified the most influential ones in the field. We believe this study may introduce some pertinent knowledge for those interested social structures in the innovation studies context.

## **The editorship network**

In modern science governance literature, editors validate their role legitimacy through high academic standing and further signal their intellectual and social capital resources through board member affiliations. In this sense, the editorial process becomes an important professional network. To investigate the relationships between editors and journals, we have employed principles from network science to study complex systems composed of relationships between entities (Vespignani, 2018).

A social network was defined by Wasserman and Faust (1994), p.20, “as a finite set or sets of actors and the relationship or relationships between them”. With social network analysis (SNA), we can find groups of elite board memberships surrounded scientific outlets or as bridges connecting them. Social network analysis characterizes networked structures in terms of nodes and ties (edges). Networks can be conceptualized organizationally, as networks of journals connected by editors. In this work, we model the relation between editors from innovation-oriented journal Boards based on data collected on outlets’ webpages.

Considering editors seating on more than one journal Board is a proxy of intellectual similarity between editorial policies, we may perceive journals have closer policies according to the number of scholars they have in common on their Boards. The interlocking phenomenon puts outlets closer to each other and facilitates the communication. In other words, the closeness of the editorial policies of two scientific journals can be assessed by the number of common editors sitting on their Boards. We will not focus on the editorial policies adopted by the Boards of innovation-oriented journals. Instead, we will infer about the similarity of editorial policies through the detection of recurrent scholars as common editors between Boards.

## **Exploring editorial teams in “Innovation Studies” periodicals**

Innovation studies is an evolving interdisciplinary field focused on producing systematic and reliable knowledge about how best to influence innovation and to exploit its effects to the full (Fagerberg, Martin, & Andersen, 2013). Born from plural contexts like Economics (Nelson, 1959), Management (Burns & Stalker, 1961) and Sociology (Rogers, 1983), it became a global research community world-wide (Martin, 2012). Fagerberg et al. (2012) analysed the development of innovation studies and through an empirical approach based on analysing the chapters contained in authoritative handbooks on innovation studies, identified which publications had most impact (Fagerberg and Verspagen, 2009). This proved to be consistent with later studies from Cancino, Merigó, & Coronado, (2017), Kotsemir (2013) and Rakas and Hain (2019). With the purpose of understanding the editorial community, we studied the emergence of the innovation studies field from an editorial point of view (Fagerberg, Mowery, & Nelson, 2004). In this study, we restricted our analyses to the twenty most influential journals identified (Fagerberg et al., 2012).

Our research explores structural properties of the network generated by the editorial population of leading innovation studies journals (de Andrade & Rêgo, 2018). The general aim of this study is to investigate the relationships between editors and journals. Taking advantage of centrality measures such as degree, betweenness and closeness, the most central outlets and their roles in the network were also identified.

## **The Boards of “Innovation Studies”**

### *Data collection and methodology*

From outlets’ editorial pages, we collected scholars’ names, institutional affiliations, gender and their roles inside the Board. A summary about the editorial memberships found is provided in Table 1, including the number of editorial positions available, the number of different scholars seating on the Board and shared editors with other outlets. In total, 2,440 different

persons were found for the 3,005 editorial positions available. Repeated names allowed the identified the ones in charge of multiple duties inside a journal or among different journals.

**Table 1. Editorial Boards descriptive characteristics.**

Short name	Journal	No. of editorial memberships	Total distinct scholars	Shared editors	No. of duties
AMJ	Academy of Management Journal	328	328	145	5
AMR	Academy of Management Review	312	310	149	5
ASQ	Administrative Science Quarterly	115	111	62	5
CJE	Cambridge Journal of Economics	53	52	1	4
HR	Human Relations	99	99	26	1
ICC	Industrial and Corporate Change	98	98	38	8
IJTM	International Journal of Technology Management	21	21	2	3
JIBS	Journal of International Business Studies	275	274	66	8
JMS	Journal of Management Studies	280	280	99	2
MS	Management Science	399	365	21	35
OSc	Organization Science	237	237	117	4
OSt	Organization Studies	235	234	82	6
RDM	R&D Management	19	19	3	5
RS	Regional Studies	37	37	3	11
RP	Research Policy	102	102	38	3
SBE	Small Business Economics	152	150	14	4
SMJ	Strategic Management Journal	50	50	28	6
TASM	Technology Analysis & Strategic Management	37	37	12	3
TFSC	Technological Forecasting and Social Change	98	96	12	5
Tec	Technovation	58	58	12	12

Source: Scimago, as of March 2019 and journals' homepage.

Among those top-tier outlets, it was noticed the editorial memberships available differ greatly between journals. Some of them revealed to have small numbers of editorial positions such as RDM and IJTM while other Boards reported more than 300 of duties entrusted to scholars. For 12 outlets, these duties were assigned to different personalities while 8 top-tiers made some editors responsible for multiple roles. All outlets also share at least one editor with other Board, actually, scholars shared range from 2% to 56%. For this interest, duties and the proportion of shared editors is addressed apart.

#### *Editors' duties*

Among different journals, diverse internal organisations within EB were found. There are journals with only one title for all editors, such as observed for HR where everyone is "editor" while MS exhibited 35 different titles within the Board. According to the titles assigned, different internal organisations were supposed: journals like HR, where the same title label is given to all editors without further hierarchies contrasted with other Boards which presented more defined internal structures with five or more different categories.

It is noteworthy that outlets have different numbers of scholars on Board. With the exception of MS, all journals have one title ascribed to a majority of the editors. Editorial duties' labels were kept exactly as recorded from official journals' webpages with exception of plural descriptions which were converted to singular. The lack of uniformity in the similar positions' titles across journals makes it harder to compare editors' responsibilities. As expected from Table 1, MS counts with a large number of memberships while RDM has a very small editorial

team. ICC and IJTM have also a geographical organisation for editors on Board which is not found in the other outlets.

Although AMJ and AMR exhibit a similar editorial structure, with a team encompassing mainly scholars as part of Editorial Board, in general, outlets from the same publisher did not present a similar editorial organisation. Considering the ones published by John Wiley & Sons (JMS, RDM and SMJ), it is clear the heterogeneous labels used for the group of scholars on their Boards. The main editorial assignment in JMS, named as “Editorial Board”, includes 279 scholars while RDM has five different categories and the largest one, “Editorial Advisory Board”, has only eleven memberships. SMJ organises editors among six different categories involving 33 as “Associate Editor”.

The same editorial title is also found between Boards with different frequencies, suggesting dissimilar commitments. In HR, those 99 scholars on its Board are assigned as “Editor” and no other group of editors are disclosed. However, in RDM, the one assigned as “Editor” seems to be the main gatekeeper in this top-tier, sustained by 18 additional scholars to direct the journal's outputs. SBE reveals one individual as “Editors-in-Chief” assisted by a group of 28 memberships designated as “editor” and 120 among the “Editorial Review Board”. For being a designation, which could be applied to all members of a Board, to a medium group of editors or only to a single editor, it is possible to deduce it has different connotations and thus, heterogeneous responsibilities.

*Shared editors, inter and intra-journals*

Since editors are prestigious researchers, the more prominent one editor is, the higher the recognition level and more invitations will get for further responsibilities. Within our sample, we searched for scholars taking the editorial job for multiple journals. Among the memberships from our study set, 47 were assigned to editors already on the same Board, i.e. the name appeared more than once in EB and they became responsible for more than one duty in the internal editing process. In order to understand the outlets assigning one, two and three concomitant duties within the same top tier the same personality, Figure 1 was developed.



**Figure 1. Number of editors in each country, per number of duties.**

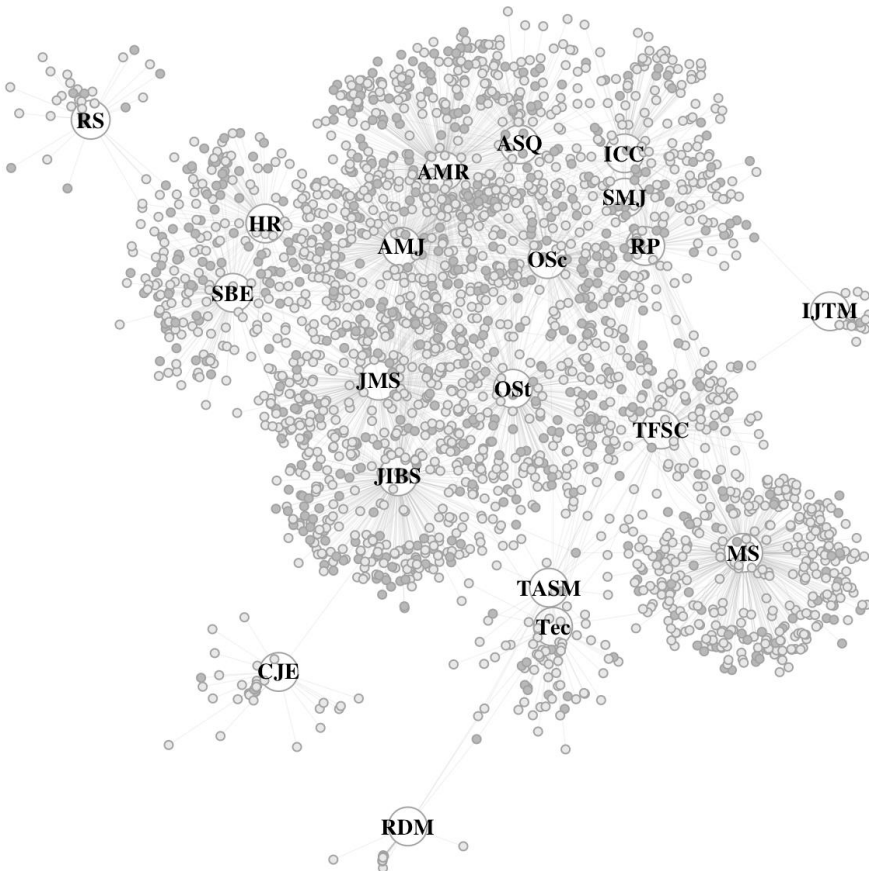
With exception of MS, all outlets have less than ten editors with two simultaneous assignments. MS has also two editors responsible for three simultaneous assignments in the same Board. Some editors were also found common to more than board. For this journals’ set, the highest number of simultaneous Board memberships held by one individual, is five; thirteen academics hold four Board memberships, 82 have three and 348 have two. From 361 editors in the UK and 1.131 in the US, there are more than 60 and almost 180 editors assuming two duties, respectively. Other studies have also found five as a common number of Board memberships individuals accept simultaneously. Brinn and Jones (2008), in the accounting field, identified

two individuals assuming editorial duties for six journals simultaneously and Chan and Fok (2003) found scholar with eight as the maximum number of memberships, in international business.

**Clustering of editors based on Boards coupling**

In order to address the degree of EB overlapping, we applied some SNA techniques to study the cross-presence of editors within Boards. Based on the so-called ‘interlocking editorship’ phenomenon described by Baccini and Barabesi (2010), the editorial proximity was measured. When a scholar is found in two different Boards, then the two Boards are ‘interlocked’. The interlock bridges the two journals and allows social interaction and communication.

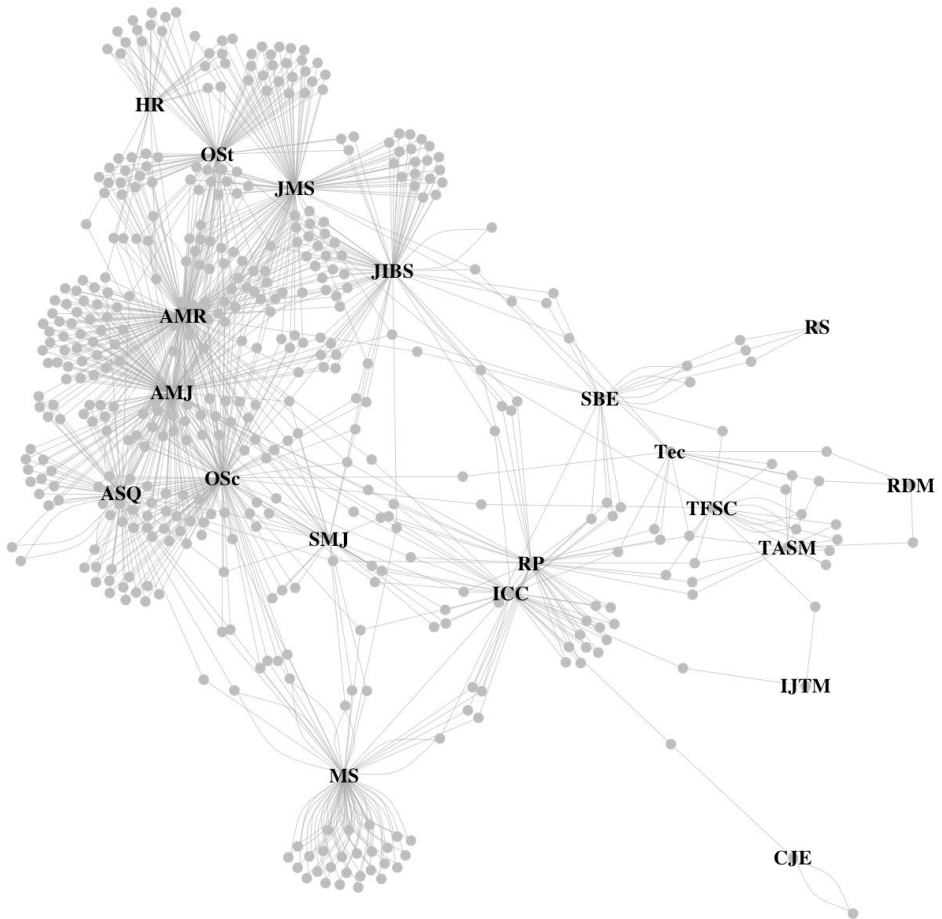
Journals are linked by 627 connections and the density of the interlocking editorship network (i.e. the ratio of the actual number of lines to the maximum possible number of lines in the network) is 41.6%. This is quite superior to the trend previously determined by Baccini and Barabesi (2010) for economic journals and Baccini, Barabesi, & Marcheselli, (2009) for statistical journals.



**Figure 2. Social network of EB members of innovation-oriented journals.**

Using the data from the twenty journals previously identified, we constructed the affiliation network database ad hoc. The average number of seats per journal was 150.25, while the average number of seats occupied by each scholar (i.e., the mean rate of participation) was 1.22. We also investigated the female presence on Boards. The graph of the network is reported in Figure 2, where editors are connected to the journals they work for. Distinct scholars are represented by small nodes (light grey for women and dark grey for man) and their memberships are represented as edges to the big white nodes, the top-tiers.

No journals were found to be completely independent from the others as all outlets are connected, suggesting a strongly connected network. It was also possible to perceive one main group, a giant central which shows close ties formed by editors shared between journal Boards. It is possible to see the high number of scholars holding editorial positions in MS, JIBS, HR and SBE.



**Figure 3. Network illustrating Boards highly connected having staff in common.**

More isolated are those journals with lower numbers of editors shared with other journals from the sample: RDM, CJE, RS, IJTM. Actually, CJE shares only one scholar, only with JIBS. Among those more isolated, it is also noticeable the differences on Boards' size. These four outlets have a small number of editors compared to the ones in the central group. Among this



network, 73% are men (n=1.783) while 27% are women (n=657). Most female editors are presented in the giant centred sample. Outlets like JIBS, ASQ and SBE show a large number of dark spots surrounded, illustrating the female underrepresentation on those ones. Considering only the editors shared between journals, we plotted Figure 3 to illustrate which outlets share the most scholars.

It is possible to see pairs of journals sharing more editors with larger numbers of edges or larger width edges. Pairs of journals like OSt and MS, ASQ and OSc, RP and ICC share a great number of editors. Regarding the most isolated ones, five journals can be identified: RS, RDM, TASM, IJTM and CJE. The last one, CJE, shares only one editor with ICC. In MS, ASQ and CJE's Boards, it is possible to find some nodes with multiple edges to the same outlet illustrating the multiple editorial roles scholars are assigned to.

### *The power structures in the interlocking editorship network*

One main purpose in SNA is to distinguish between the most central from the peripheral components of a network. In our case, the goal is to perceive which journals are in a central position from those in the boundaries. Centrality analysis may reveal the power and status of the individual or organisation in the social network. As suggested by Wasserman and Faust (1994), three centrality measures may be used: Degree, Closeness and Betweenness.

The simplest measure for the centrality of a journal is represented by the degree of overlap among Boards. Degree centrality is the number of direct connections (lines) a director has with the other journals and measures network influence. It proxies individuals' ability to access, share knowledge or other resources and thereby influence the wider network. Thus, the more ties a journal has to other journals, the more central will be its position in the network.

The Closeness centrality is based on the distance between a journal and all the other journals. This measure calculates the shortest paths between all nodes. A journal is central if its Board can quickly interact with all the other Boards. The more direct and indirect connections a journal has with others, the more central it will be in the network. Journals occupying a central location are best placed to quickly influence the entire network.

Finally, the idea behind the Betweenness is that similar editorial aims between two nonadjacent journals might depend on other journals in the network, especially on those outlets lying on the paths between the two. The number of times a node lies on the shortest path between other nodes is measured as Betweenness centrality. It highlights nodes acting as 'bridges' in a network, proxying for a director's ability to control information and resource flow and to coordinate otherwise disparate parts of the network. In Table 2, centrality measures are provided for all the outlets in the railway network to identify significant top-tiers.

Within our network, we realised both RP and OSc are the outlets with the highest Degree, i.e. with more connections. Considering the normalised degree, which is obtained by dividing the number of connections by the maximum possible number of journals, we realise there are twelve top-tiers showing a normalised degree above 1. In this network encompassing twenty top-tiers, the maximum number of journals an outlet could be linked to is 19. Those twelve exceeding 1 reveal they share more than one editor with some other Boards. Figure 4 provides a graphical representation of the network according to journals' degree, betweenness and closeness. Journals with the average shortest distance (closeness) to all other outlets are represented with greater nodes. Grey scale is applied to illustrate betweenness centrality measure where darker colours represent top-tiers linking higher number of other non-adjacent outlet pairs. Edges between journals are larger for journals with higher number of common editors which justifies the degree score.

**Table 2. Journals' centrality measures.**

<b>Journal</b>	<b>Degree</b>	<b>Degree normalized</b>	<b>Betweenness</b>	<b>Betweenness normalized</b>	<b>Closeness</b>	<b>Closeness normalized</b>
AMJ	26	1.368	11.35	0.033	0.037	0.704
AMR	26	1.368	11.35	0.033	0.037	0.704
ASQ	20	1.053	2.65	0.008	0.030	0.576
CJE	4	0.211	0	0	0.022	0.422
HR	14	0.737	0	0	0.027	0.514
ICC	24	1.263	61.02	0.178	0.037	0.704
IJTM	6	0.316	0.80	0.002	0.024	0.463
JIBS	24	1.263	9.58	0.028	0.037	0.704
JMS	22	1.158	12.85	0.038	0.033	0.633
MS	20	1.053	3.01	0.009	0.033	0.633
OSc	28	1.474	21.71	0.063	0.038	0.731
OSt	20	1.053	6.09	0.018	0.031	0.594
RDM	6	0.316	0	0	0.021	0.396
RS	4	0.211	0	0	0.021	0.396
RP	28	1.474	36.71	0.107	0.040	0.760
SBE	20	1.053	40.81	0.119	0.033	0.633
SMJ	20	1.053	2.40	0.007	0.032	0.613
TASM	10	0.526	6.28	0.018	0.027	0.514
TFSC	16	0.842	20.72	0.061	0.031	0.594
Tec	18	0.947	36.69	0.107	0.032	0.613

Through the closeness centrality, we understand how long it will take to spread information from a given node. For being the ones with the highest closeness scores and shortest average distance to other nodes, RP and OSc are the outlets represented by larger nodes. Occupying such a position may suggest they are a reference for other outlets. The smallest nodes found are those representing RS and RDM. ICC is the one bridging the bridge for the highest number of other pairs of journals. Its central position may be explained by its interdisciplinary nature, we mean by the presence of many influential editors who enlarge the number of different links with other top-tiers. ICC seems to have an important role facilitating the communication between innovation-oriented journals as it presents the biggest size on its node. For being the most isolated ones, CJE, IJTM, RDM, RS and TASM have a null betweenness as they cannot be a path for other outlets to interact.

Considering the edges, it is possible to understand the degree scores journals obtained. RP and OSc, the ones with higher score, have the largest number of connections. RP has several edges to other outlets and the one with ICC with a larger width. OSc has also multiple edges connecting other top-tiers, three of them representing a great number of shared editors. The most isolated ones are CJE, IJTM, RDM and RS sharing only one or two editors with other outlets from the network. Interesting to remark is that no journals are isolated or completely apart from the network (i.e. they do not present a zero degree).



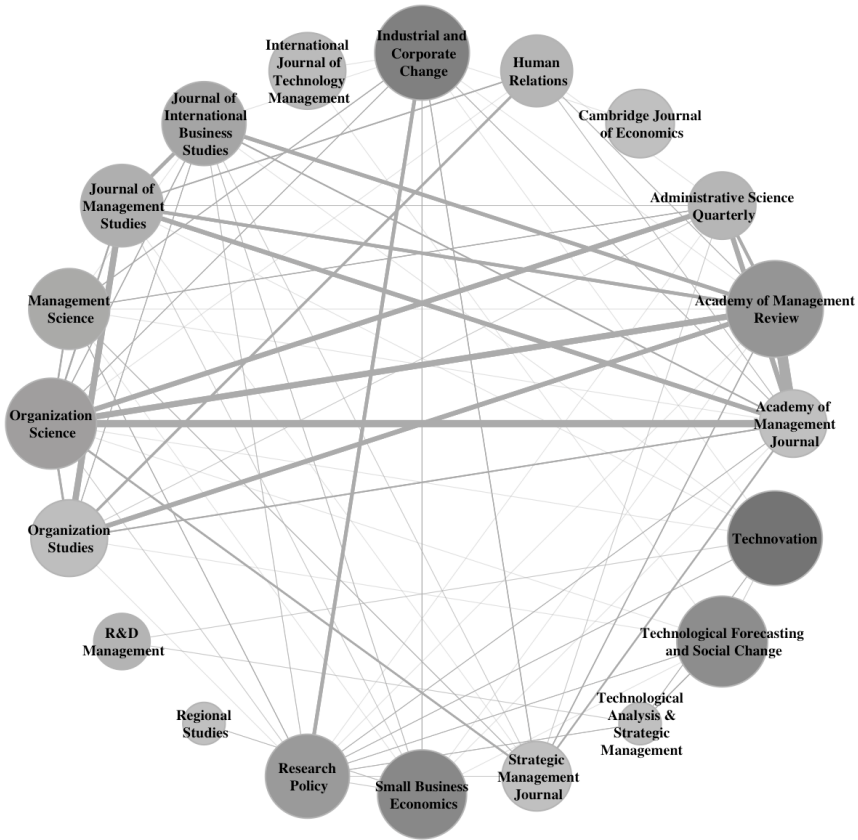


Figure 4. Projection of journals closeness and betweenness centrality and shared editors.

## Discussion

In this paper, an overview of editors behind the twenty-top innovation-oriented journals identified by Fagerberg et al. (2012) was provided. We tried to analyse which scientific outlets had the greatest number of editors, which ones share the highest number of scholars with other journals and which top-tiers are the most central ones.

With reference to the internal Board's organisation, the different assignments labels were determined and the heterogeneity in the numbers became manifest. This proliferation of titles without settings description makes it harder to compare the proportion of scholars responsible for the same duties among Boards and responsibilities accepted by an editor present in two Boards. Apart from the Editor-in-Chief role, which may be the single title with the same definition, all the others may entail several different duties and levels of knowledge.

Even though editors have some power shaping the editorial policies and thus, journals sharing editors may have common interests. By measuring the degree of overlap among Boards, the editorial proximity was compared. As an example, AMJ and AMR share 65 Board members, so greater affinity may be expected on their articles published. On the other hand, journals like RDM and CJE have no common editors and no further similar interests are predictable. Actually, by the articles published, we realise the first one is dedicated to Management while the other one to Economics.

Our special interest was to investigate the social relationships between EB members using network techniques. Based on the public data available on journals webpages, we draw our sample of editors from the top twenty innovation-oriented journals and establish co-editorship links between these scholars. Applying a social network methodology, it was possible to provide a rare insight about the dependency of journals through their editors. All outlets were connected at least with another, sharing at least one scholar as editor. This method of research field mapping using co-editorship allowed us to compute centrality measures and provide many novel insights about the relationships between journals' EBs.

By measuring the average geodesic distance, which is the average distance between pairs of nodes in the network, we discovered RP plays a central position for having on Board twenty-eight editors shared with other journals (degree). This journal as well as OSc are able to reach swift communications with other Boards. In addition, RP also revealed to be the closest Board for all the others (closeness). We also determined some journals act as a bridge between others. ICC was the journal occupying the most strategic position facilitating the communication between other pairs of outlets in this twenty journals network (betweenness), followed by the SBE, RP and TFSC. These outlets play a pivotal role connecting top-tiers which do not share editors between their boards and thus, we may infer, with unlike publish policies. By bonding those more distinct channels, these outlets are bringing closer other heterogeneous components which otherwise would be out or disregarded from such a group.

A few limitations should be acknowledged: the official list of EB members on journals' web pages might not be the most updated since a time lag is common between the time a member enters or exits the Board and the appearance of the information in a journal's masthead. Regarding the editorial duties, more detailed analysis of different functions within EB were not possible because of the diversity of positions and the inconsistency of their distributions among journals. Some editorial designations used in one Board are not used in the others, so common assignments are not matchable.

## **Conclusions**

This work analysed the social structure of EB membership in innovation-oriented research based on twenty leading innovation journals in 2019, previously identified by Fagerberg et al. (2012) from 1989 to 2013. The network generated highlighted the presence of shared editors who are responsible for getting journals closer without any independent outlet among this sample.

Regarding the duty's scholars are responsible for, the lack of formalism defining duties allow each journal to decide how to label them. Thus, comparison is not possible. In addition, we considered the number of editors without considering the effort each one of them dedicate to the editorial job.

We can also discuss potential uses of such an approach for science policy purposes and academic governance in our global science system. Co-editorship networks seem prone to reflect intellectual influence of current gatekeepers rather than those who have made significant past contributions but are no longer affiliated to those journals. Comparisons with past Boards' composition may bring more details about outlets' common views and journals connections. Key advantages of social networks encompass the chance to map knowledge wardens in interdisciplinary fields. It could be also used for research fields where literature outputs are published in non-English languages or to map intellectual influence around issues like government policies and scientific processes involving inputs from non-scientific stakeholders but lay experts and others.

In the innovation field, a promising issue to address in the future relates to knowing deeper about those important gatekeepers shared between journals (i.e. where they work or which

journals they work with) and determining how common editorial Board composition has put closer editorial policies and similar outputs.

## References

- Andrikopoulos, A., & Economou, L. (2015). Editorial board interlocks in financial economics. *International Review of Financial Analysis*, 37, 51–62. Elsevier Inc.
- Baccini, A., & Barabesi, L. (2010). Interlocking editorship. A network analysis of the links between economic journals. *Scientometrics*, 82(2), 365–389. Kluwer Academic Publishers.
- Baccini, A., Barabesi, L., & Marcheselli, M. (2009). How are statistical journals linked? A network analysis. *CHANCE*, 22(3), 35–45. Informa UK Limited.
- Bakker, P., & Rigter, H. (1985). Editors of medical journals: Who and from where. *Scientometrics*, 7(1–2), 11–22. Kluwer Academic Publishers.
- Bedeian, A. G., Van Fleet, D. D., & Hyman, H. H. (2009). Scientific Achievement and Editorial Board Membership. *Organizational Research Methods*, 12(2), 211–238. SAGE PublicationsSage CA: Los Angeles, CA.
- Brinn, T., & Jones, M. J. (2008). The composition of editorial boards in accounting: A UK perspective. *Accounting, Auditing & Accountability Journal*, 21(1), 5–35. Emerald Group Publishing Limited.
- Burgess, T. F., & Shaw, N. E. (2010). Editorial Board Membership of Management and Business Journals: A Social Network Analysis Study of the Financial Times 40. *British Journal of Management*, 21(3), 627–648. John Wiley & Sons, Ltd.
- Burns, T., & Stalker, G. (1961). *The Management of Innovation*. London: Tavistock Publications.
- Cancino, C. A., Merigó, J. M., & Coronado, F. C. (2017). A bibliometric analysis of leading universities in innovation research. *Journal of Innovation & Knowledge*, 2(3), 106–124. Elsevier.
- Chan, K. C., & Fok, R. C. W. (2003). Membership on editorial boards and finance department rankings. *Journal of Financial Research*, 26(3), 405–420. Wiley Subscription Services, Inc., A Wiley Company.
- de Andrade, R. L., & Rêgo, L. C. (2018). The use of nodes attributes in social network analysis with an application to an international trade network. *Physica A: Statistical Mechanics and its Applications*, 491, 249–270. North-Holland.
- Fagerberg, J., Fosaas, M., & Sapprasert, K. (2012). Innovation: Exploring the knowledge base. *Research Policy*, 41(7), 1132–1153. North-Holland.
- Fagerberg, J., Martin, B., & Andersen, E. (2013). *Innovation Studies: Evolution and Future Challenges* (1st ed.). Oxford: Oxford University Press.
- Fagerberg, J., Mowery, D., & Nelson, R. (2004). Innovation: A Guide to the Literature. *The Oxford Handbook of Innovation* (pp. 1–26). Oxford: Oxford University Press.
- Feldman, D. C. (2008). Building and Maintaining a Strong Editorial Board and Cadre of Ad Hoc Reviewers. *Opening the Black Box of Editorship* (pp. 68–74). Palgrave Macmillan UK.
- Martin, B. (2012). The evolution of science policy and innovation studies. *Research Policy*, 41(7), 1219–1239. Elsevier B.V.
- Morton, M. J., & Sonnad, S. S. (2007). Women on professional society and journal editorial boards. *Journal of the National Medical Association*, 99(7), 764–771.
- Nelson, R. R. (1959). The Simple Economics of Basic Scientific Research. *Journal of Political Economy*, 67(3), 297–306. University of Chicago Press.
- Rakas, M., & Hain, D. S. (2019). The state of innovation system research: What happens beneath the surface? *Research Policy*, 48(9), 103787. Elsevier B.V.
- Rogers, E. M. (1983). *Diffusion of Innovations* (3rd ed.).
- Teixeira, E. K., & Oliveira, M. (2018). Editorial board interlocking in knowledge management and intellectual capital research field. *Scientometrics*, 117(3), 1853–1869. Springer Netherlands.
- Topaz, C. M., & Sen, S. (2016). Gender Representation on Journal Editorial Boards in the Mathematical Sciences. *PLoS ONE*, 11(8). Public Library of Science.
- Vespignani, A. (2018). Twenty years of network science. *Nature*, 558(7711), 528–529. Nature Publishing Group.

- Wasserman, S., & Faust, K. (1994). Social Network Data: Collection and Applications. *Social Network Analysis: Methods and Applications*. Cambridge University Press.
- Wilkes, M. S., & Kravitz, R. L. (1995). Policies, practices, and attitudes of North American medical journal editors. *Journal of General Internal Medicine*, 10(8), 443–450