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Disruptive Innovation, Management, and Public Administration: A Bibliometric Study

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ABSTRACT

Purpose: The objective of this paper is to analyze the existing body of knowledge on disruptive innovation, management and public administration and identify directions for further research.

The paper used Biblioshiny to analyze disruptive innovation, management and public administration documents retrieved from the database of Web of Science with a time filter of 1994 to 2022 and Scopus Repository from 2010 to 2021.

Design/Methodology/Approach: Bibliometric study was conducted on 404 documents retrieved from the database of Web of Science. Further 9 documents from SCOPUS repository with same search key have also been included in the research.

Systematic review of existing literature on 'disruptive innovation, management and public administration' was performed using Biblioshiny (R Software).

Findings: This paper classifies the key authors working on different themes of disruptive innovation, management and public administration. It also provides diversified themes in terms of their centrality and relevance along with citation analysis, three-field plot with source-country-keywords. It also offers a list of key research areas (KRAs) to conduct further research.

Research Limitation: The research uses the limited database of Web of Science with a time filter of 1994 to 2022 and Scopus Repository from 2010 to 2021.

Managerial Implications: It aims to act as a point of reference for researchers working in the field of disruptive management and public administration.

Originality/Value: Present research explores the existing body of knowledge ondisruptive innovation, management and public administration and identifies the key areas of research in this field.

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Background Note

The world at present is witnessing a time of unexpected change. This unprecedented trend of change making this era an era of disruption, stems from global 'megatrends' comprising of changing demography, shifting global economic power, increasing urbanization, scarcity of natural resources, and of course climate change. Amidst these megatrends, the most crucial ones are changes occurring in digitalization technology and science.

The power and potential of disruptive innovation in government are enormous and are growing exponentially with societies getting increasingly connected and the challenges faced by them becoming more complex. Governments and civil servants across the world are transforming and reengineering their processes of solving problems by using impactful techniques to ensure the best realization of this potential. This trend of technology disruption distresses public sector organizations as they have to deal with contending tensions. It involves enervating old structures and adopting new ideas and technologies. Leading and implementing government policies in this era of disruption poses a great challenge for Public administrators and governments.

Persistent work to identify the significant issues for innovation in government and finding ways to realize greater impact by the OECD Observatory of Public Sector Innovation (OPSI) since 2014 indicates the significance of disruptive innovation in public administration.

To address the innovator's conundrum, (Christensen, 1997) first defined disruptive innovation primarily from a technological perspective. Regarding the performance component of mainstream consumer value, disruptive technology started as less effective than mainstream technology. Offering less complicated, more convenient, and more economical items, would draw customers from non-consumers or non-mainstream marketplaces. The term "disruptive" was subsequently expanded to include business and service paradigms.

Although disruptive innovation has been evolving for more than 20 years, there is not enough literature to provide a thorough analysis of disruptive innovation and Public Administration which makes this bibliometric analysis very much relevant.

Review of Literature: Subjective Analysis

Christensen (1997) was the first person to define the term Disruptive innovation from the technological perspective to offer a solution to the problem of an innovator's dilemma. At the very outset, Disruptive technology was considered less effective vis-à-vis mainstream technology owing to the better performance of the latter in terms of consumer value. It was expected to attract non-consumers by the way of making products affordable and simple. Research conducted by Christensen & Raynor (2003) concluded that disruptive innovation phenomena are well represented by business formats like online business education and chain discount stores.

With the growing popularity of the concept of disruptive innovation across products, it percolated to the service sector as well. In the service and business model segment, disruptive innovation was classified into two different categories viz; low-end and new market which are also known as static and dynamic perspectives of disruptive innovation.

Different Perspectives of Disruptive Innovation

Disruptive innovation had been studied from different perspectives viz; static, dynamic, functional, and creative. If we talk about the dynamic perspective of disruptive innovation, it starts with the aim of occupying a position in the low-end or new markets and ultimately aspires to move towards high-end markets to position itself as a replacement for mainstream products.

The process of disruptive theory building was not only proposed by (Christensen, 2005) but was also strengthened by enhancing the reliability and credibility of the theoretical framework. If we look at the extent of agreement among the scholars with the theoretical framework of disruptive innovation that was proposed by Christensen, most of the scholars had agreed with it and had constantly and consistently re-defined the concept from different perspectives.

From a static viewpoint, disruptive innovation is seen as a product, process, or technology that

gradually overtakes established enterprises before becoming a threat to eliminate them (Rafii & Kampas, 2002). Another classification of disruptive innovation perspectives named as functional perspective considers it as a significant strategic tool to either extinguish existing market links or to develop and expand new markets (Adner, 2006; Charitou & Markides, 2003). Scholars looking at disruptive innovation from a creative perspective defined it as a method to alter performance indicators of the market or expectations of consumers by offering them entirely new capabilities, new ownership forms of innovation, or distinct technical standards (Nagy et al., 2016). Disruptive innovation was initially thought of as an inventive marketing tactic, but later, management academics were also drawn towards it. Scholars have started analyzing the influencing factors of disruptive innovation to identify the significant factors and the comparative strengths thereof.

The findings of the study identified some of the influencing factors like company culture (Govindarajan & Kopalle, 2006a, 2006b), the personal characteristics of a manager (Thomond & Lettice, 2008), technology creation (Yu & Hang, 2010), resource allocation (Karimi & Walter, 2015), internal determinants viz; size and age of the firm (Ghezzi et al., 2016), and division of independent innovation units of the company (Isherwood & Tassabehji, 2016) to name a few.

Apart from other factors, the business environment plays a significant role in deciding the strategy, framework, and behavior of the firms. Some of the important components of the business environment like the market (Klenner et al., 2013), and the regional environment (Orheim et al., 2011) play a significant role.

The subjective and brief review of existing literature on disruptive innovation indicates that the domain of disruptive innovation has been well-researched in developed countries. On the contrary, owing to the dearth of extensive research into disruptive innovation, emerging markets are becoming an important destination for research on disruptive innovation (Li, 2013).

Disruptive Innovation, Management and Public Administration

Gone are the days when the public sector used to have an image as rigid, resistant to change, weak, dull, and static juxtaposed to corporate entities that had to remain competitive for their survival and growth. Disruptive governance is an integral component of public administration 4.0 which heavily relies upon dynamic and responsive governance. It proposes a system of governance that should not only ensure the accomplishment of usual governance responsibilities but should also reincarnate the desired image of being an agile, responsive, strong, and public-friendly administration. The new age public administration especially in emerging economies like India, walks and talks about minimum government and maximum governance.

A systematic review of existing literature on disruptive innovation, management, and public administration using quantitative methods is infrequent. As a quantitative method of literature review, visualization bibliometric analysis has extensively been used to identify and examine scientific results in a specific domain (Chen et al., 2016; Sinkovics, 2016). As compared to the traditional one-by-one review strategy of research articles, bibliometric analysis is of immense benefit to the researchers as it not only saves time but also offers massive research literature in the relevant area. In recent years, disruptive innovation is not only prized by academia in affluent nations but also by emerging economies like China have begun to pay attention to it (Wan et al., 2015).

Objectives of the Study

In light of the debate above, the current study intends to conduct a historical review and bibliometric analysis using Biblioshiny (R package) to represent a comprehensive image of disruptive innovation and enhance the research material on the topic. The objectives of the present work are to:

- Analyze the existing body of knowledge on disruptive innovation, management, and public administration
- Conduct Content Analysis and
- Identify directions for further research.

Research Design & Methodology

The research used Biblioshiny to analyze disruptive innovation, management, and public administration. Documents retrieved from the

database of Web of Science with a time filter of 1994 to 2022 and Scopus Repository from 2010 to 2021 were put to analysis. Further 9 documents from the SCOPUS repository with the same search key have also been included in the research. **(Exhibit 1)**

Data Analysis & Findings

The key results of the analysis indicate that in a total period of 28 years, 163 sources offered 404 documents recording an average publication of 5.4 per annum ratifying the evolving nature of the topic of disruptive innovation. Further, with a collaboration index of 2.95, it can be said that there is a significant and robust presence of collaborative research in this field. (Table 1)

Publication Trend

Countries Contributing to the Research on Disruptive Innovation: Nation-wise Statistics

Analysis indicates the USA to be the most contributing country by corresponding authors with 106 articles followed by China (51), the United Kingdom (42), Germany (24), Australia, and the Netherlands both contributing the same (18) number of articles, Italy (14), Canada (12), Sweden (11) with rest of the countries contributing papers in single digits. The USA emerged to have the highest number of SCP (Single Country Publication) at 82 with an MCPR (Multiple Country Publication Ratio-MCP/Total Articles) of 0.226. MCPR of >= 0.50 was observed in the United Kingdom, Germany, Italy, Canada Singapore, India, Portugal, Austria, and France indicating a comparatively higher degree of international collaboration resulting in a higher number of Inter-Country articles published in these countries. (Table 2, Exhibit 2).

Citation Analysis: Analysis of citations found the USA as the most cited country (5197 citations) followed by the United Kingdom (1743), China (542, Germany (528), and Sweden (517) respectively. The Top 10 cited countries have representation of Australia as well with an impressive citation number of 228. Brazil, Canada, Finland, France, Spain, and Ireland also had a citation number of more than 100 whereas Portugal and Malaysia bagged less than 100 citations. The dispersion of citation statistics indicates the scope of further research

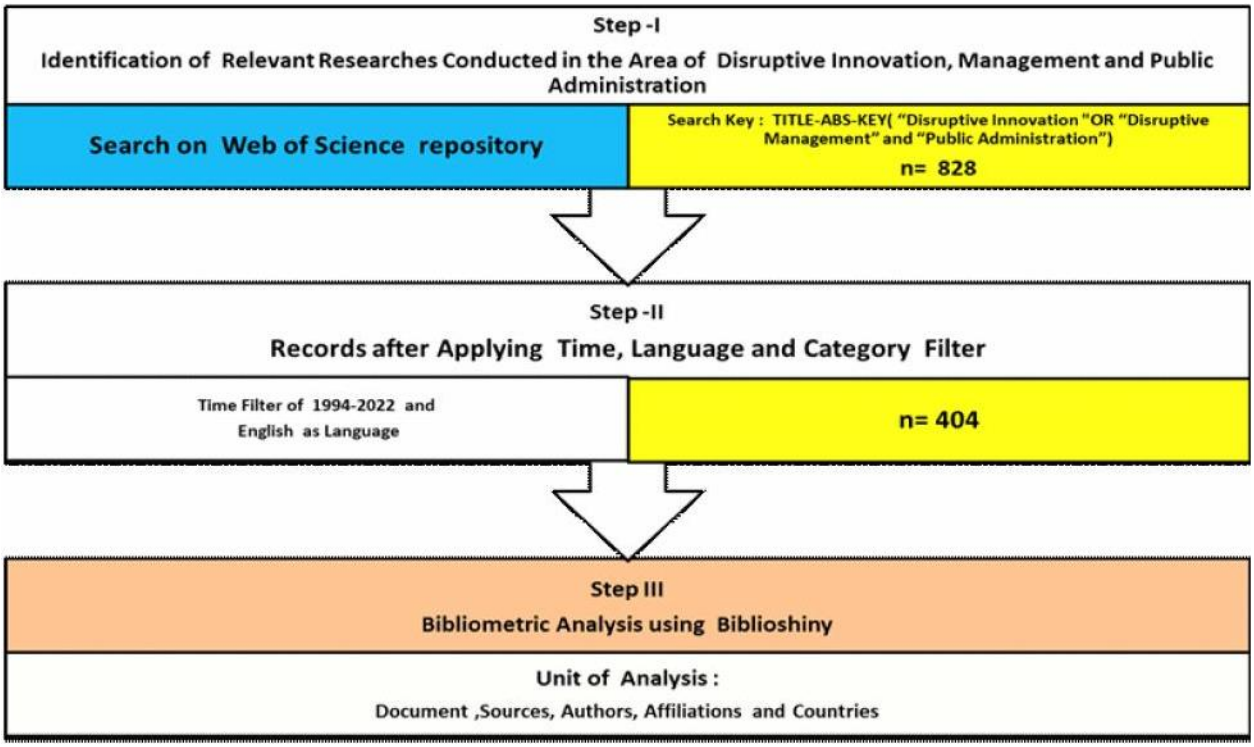

Exhibit 1: Research Design & Methodology

Table 1: Main Information About Data

Description	Results
Main Information About Data	
Timespan	1994:2022
Sources (Journals, Books, etc)	163
Documents	404
Average years from publication	5.4
Average citations per documents	29.79
Average citations per year per doc	4.427
Document Types	
Article	344
article; early access	19
article; proceedings paper	4
Document Contents	
Keywords Plus (ID)	990
Author's Keywords (DE)	1299
Authors	
Authors	1050
Author Appearances	1173
Authors Collaboration	
Single-authored documents	72
Collaboration Index	2.95

Source: *Generated from Analysis by Authors.*

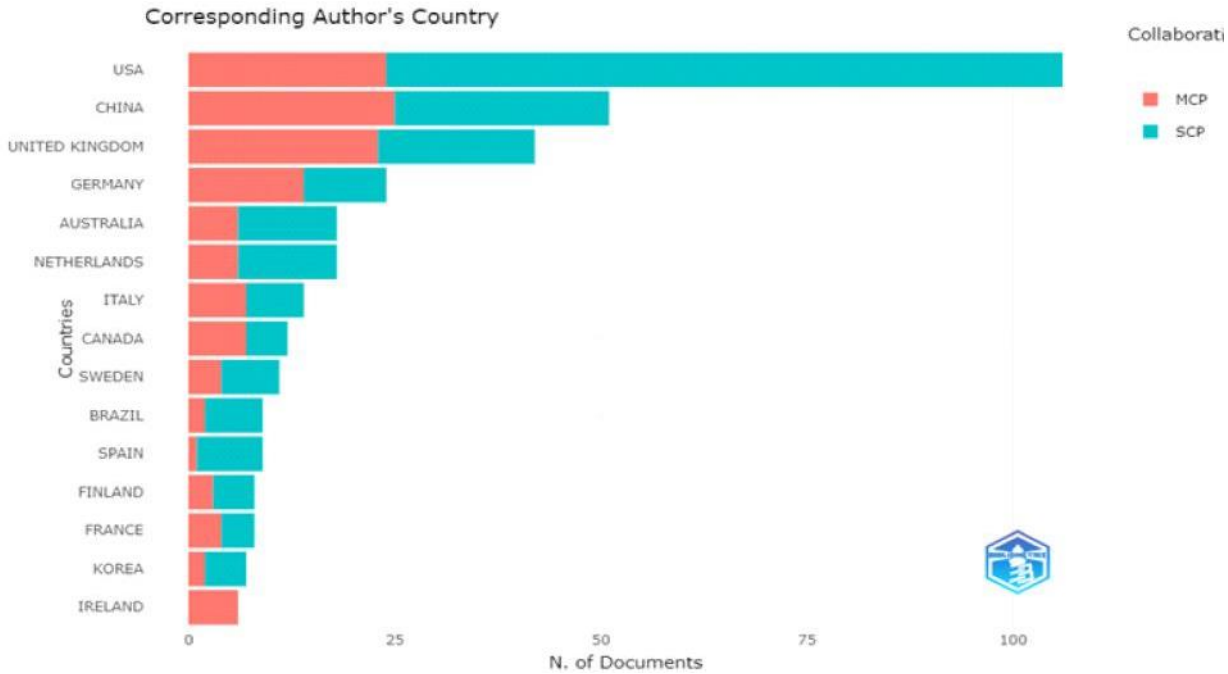

Exhibit 2: Single Country, Multiple Country Publication (SCP, MCP) Data

Source: *Generated from Analysis by Authors*

Table 2: Most Relevant Countries by Corresponding Authors

Country	Articles	Freq	SCP	MCP	MCP_Ratio
USA	106	0.26768	82	24	0.226
China	51	0.12879	26	25	0.49
United Kingdom	42	0.10606	19	23	0.548
Germany	24	0.06061	10	14	0.583
Australia	18	0.04545	12	6	0.333
Netherlands	18	0.04545	12	6	0.333
Italy	14	0.03535	7	7	0.5
Canada	12	0.0303	5	7	0.583
Sweden	11	0.02778	7	4	0.364
Brazil	9	0.02273	7	2	0.222
Spain	9	0.02273	8	1	0.111
Finland	8	0.0202	5	3	0.375
France	8	0.0202	4	4	0.5
Korea	7	0.01768	5	2	0.286
Ireland	6	0.01515	0	6	1
Singapore	5	0.01263	2	3	0.6
India	4	0.0101	2	2	0.5
Portugal	4	0.0101	1	3	0.75
Switzerland	4	0.0101	4	0	0
Austria	3	0.00758	1	2	0.667

Source: *Generated from Analysis by Authors.*

in developing economies vis-à-vis developed countries. (Exhibit 3).

Influence of Authors': Table 3 indicates the top 15 most cited authors along with their fractional statistics. A published set of articles of individual authors' contributions are quantified and expressed as fractional authorship. It assumes that each co-author made a consistent contribution to each paper. Christensen CM emerged as the most cited author with the highest number of articles published on the topic with a roaring total citation of 2222 followed by Johnson MW (987), Kagermann H (987), Mcdonald R (590), Markides C (512) and Raynor M (460) respectively (Exhibit 4).

Here, it is pertinent to mention that global citation is the measurement of citations a research article has retrieved from the documents contained in the entire repository whereas local citation only measures the number of citations a research article has received from a particular bibliometric dataset (e.g., 404 research papers in the present analysis). Authors' Local Impact by total citation index may be viewed from Exhibit 4.

Source Analysis

Exhibit 5 lists the most relevant journals contributing as a platform for publication on disruptive innovation, management, and public administration. Technological Forecasting and Social Change (29), Sustainability (20), Technology Analysis and Strategic Management (20), Journal of Product Innovation Management (12), and Journal of Engineering and Technology Management (12) emerged as the most relevant journals.

Affiliation Analysis: Universities/Institutions contributing to the research on disruptive innovation, management, and public administration in the order of their relevance are displayed in Exhibit 6. The University of Cambridge emerged as the top contributor with

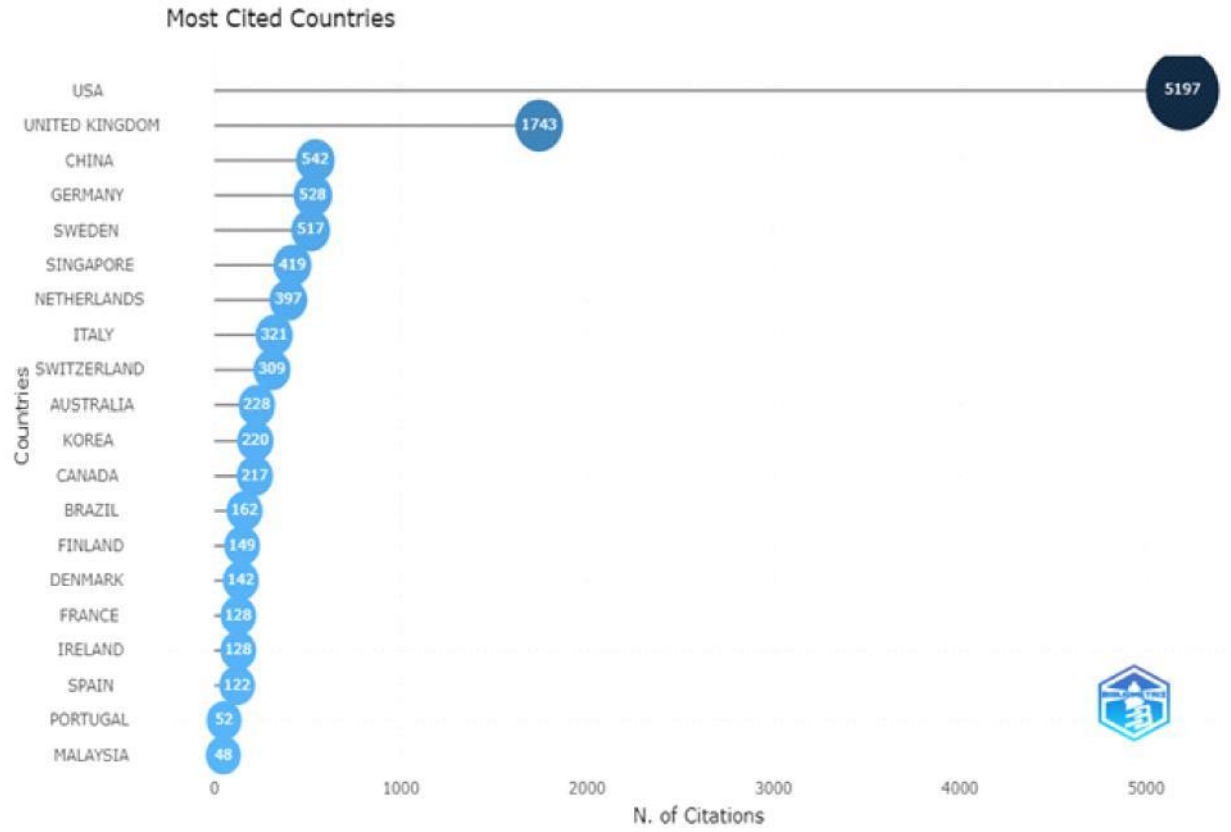

Exhibit 3: Most Cited Countries

Source: *Generated from Analysis by Authors*

Table 3: Most Cited Authors (Top 15)

Authors	Articles	Articles Fractionalized
Christensen CM	7	2.50
Hang CC	6	2.20
Chen J	4	1.07
Gurtner S	4	1.83
Ho JC	4	2.50
Kivimaa P	4	1.42
Reinhardt R	4	1.83
Sandstrom C	4	1.50
Tian HY	4	0.77
Zhang QP	4	1.25
Adapa LM	3	1.00
Ansari S	3	1.17
Bohnsack R	3	1.33

Source: *Generated from Analysis by Authors.*

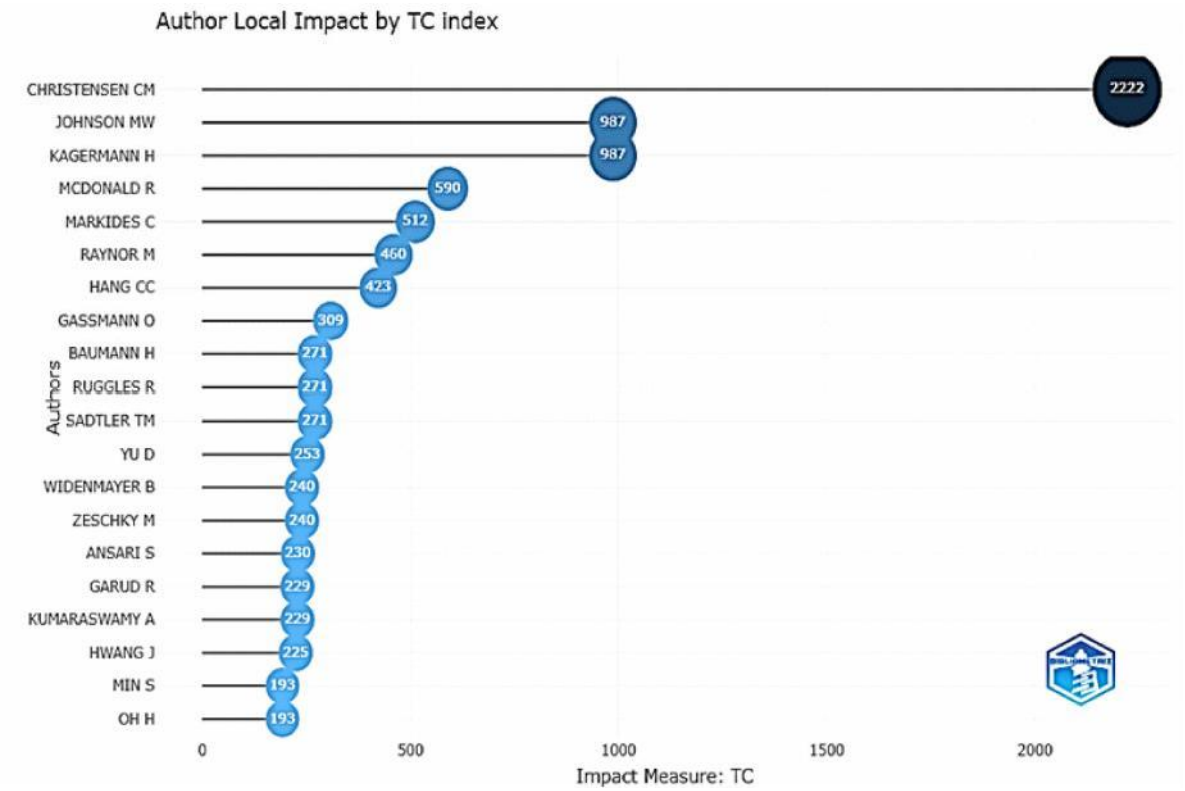

Exhibit 4

Source: *Generated from Analysis by Authors*

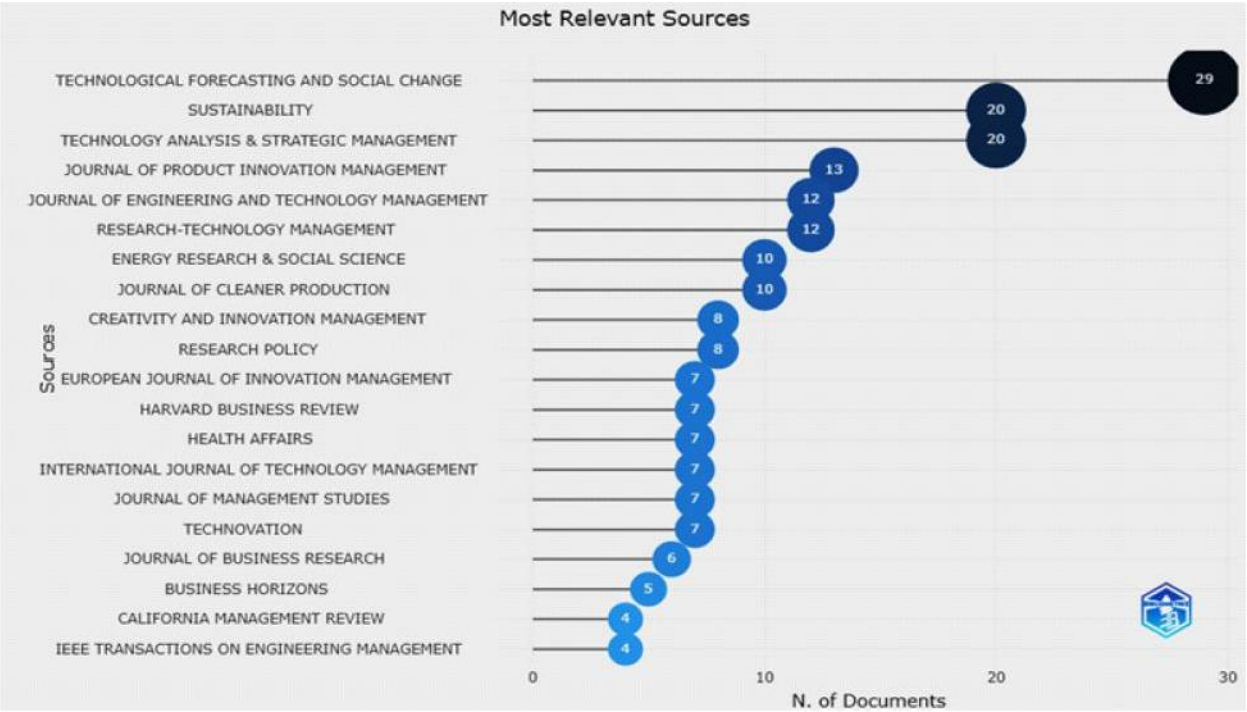

Exhibit 5: Most Relevant Sources

Source: *Generated from Analysis by Authors*

a total of 17 articles followed by Harvard University (15), Zhejiang University (13), Jiangsu University, University of Pennsylvania, and University of Washington (all three with 9 Articles each). Holistically, we can say that the topic of disruptive innovation, management, and public administration has drawn the attention of leading academic and research institutions worldwide.

Thematic Evolution: Thematic evolution in the specific domain scans the evolution of the subject as a research area in a selected time frame. Exhibit 7 indicates the thematic evolution from 2001-2018 & 2019-2022. It is observed that the topic of disruptive innovation has evolved from care to impact, mere innovation to disruptive innovation, its model, performance, and very importantly industry implications.

Sankey plots, in which the size of the section is proportionate to the value of the node, are used to depict the relationship between three fields (Exhibit 8) in a three-field plot(Riehmann et al., 2005). On the very left side of the Sankey Plot is the document title, in the middle row is the author's nationality, and on the extreme right are the keywords related to the papers chosen for analysis.

Each of the fifteen items reflected significant keywords like performance, technology, disruptive innovation, innovation, model, capabilities, industry, impact, management, strategy, knowledge, framework, entrepreneurship, adoption, and firms along with their title and country.

Co-Word Network Analysis

In the Co-Word Network Analysis betweenness shows the number of times a node is located on the shortest possible distance between two other nodes. The betweenness value of <0.1 reflects that node has no role whereas >0.1 shows it is significant (Chen et al., 2010). Two

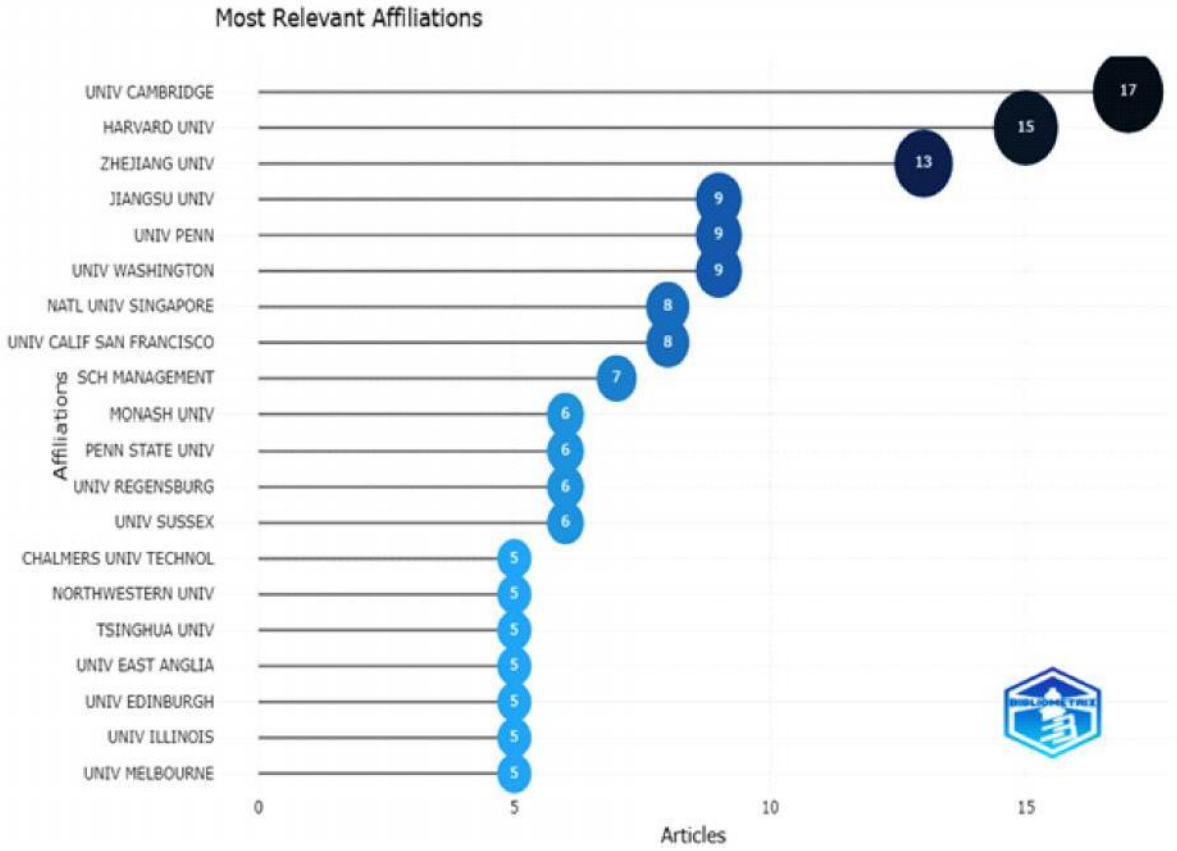

Exhibit 6

Source: *Generated from Analysis by Authors*

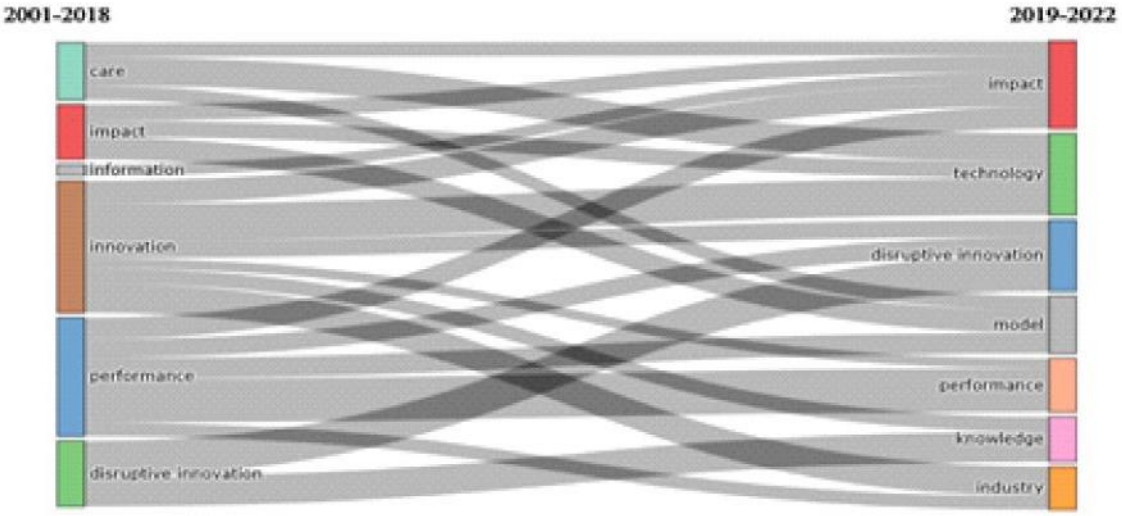

Exhibit 7: Thematic Evolution

Source: *Generated from Analysis by Authors*

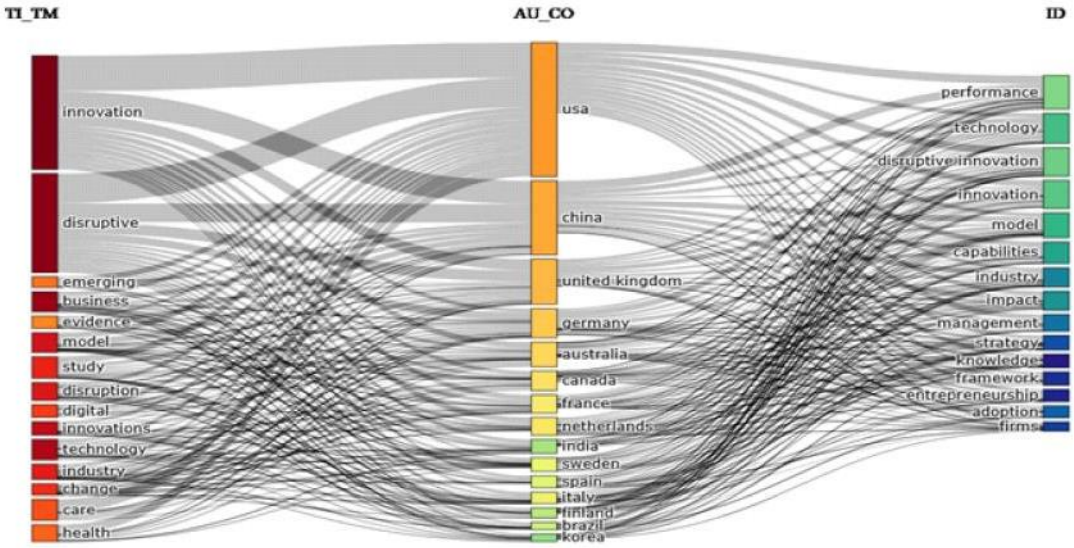

Exhibit 8: Thematic Evolution- Three Field Plots

Source: *Generated from Analysis by Authors*

words viz; disruptive innovation and disruptive technology are found to be the significant ones. (Table 4)

The main limitation of citation analysis is the fact that it somehow ignores the status of a research paper (Yu et al., 2017). To overcome this limitation, Page Rank analysis is conducted. Page rank value focuses on both the popularity and status of an article. The Page Rank values of different nodes are listed in Table 4.

In the network shown in Exhibit 8, a node denotes a high-frequency word in all documents selected for analysis. An edge essentially depicts the relationship between two high-frequency words that simultaneously exist in the same article's subject. One of the key metrics for determining a node's importance is its degree.

Table 4: Co-word Network Analysis

Node	Cluster	Betweenness	Closeness	Page Rank
Disruptive Innovation	1	1005.978422	0.020408163	0.348335132
Business Model	1	0	0.010752688	0.035501288
Disruptive Technology	1	0.367020492	0.010989011	0.027960896
Business Model Innovation	1	0	0.010638298	0.012742614
SMEs	1	0	0.010638298	0.007011939
Radical Innovation	1	0	0.010752688	0.016719171
Artificial Intelligence	1	0	0.010638298	0.010832389
Emerging Economies	1	0	0.010638298	0.012742614
Sustaining Innovation	1	0	0.010752688	0.018713209
Telemedicine	1	0	0.010752688	0.010668364
Dynamic Capabilities	1	0	0.010638298	0.008922164
Ecosystems	1	0	0.010638298	0.008922164
Incumbents	1	0	0.010638298	0.008922164
Technology Adoption	1	0	0.010638298	0.008922164

Source: *Generated from Analysis by Authors.*

Exhibit 8: Co-word Network

Source: *Generated from Analysis by Authors*

Content Analysis

Content analysis has been conducted to reflect content related to the topic of public administration, management, and disruptive innovation. Specific to the domain of public administration only nine (09) research papers could be retrieved which focused on different dimensions of public administration. Further, to strengthen the directions of further research and to identify all possible gaps the same "search key" was run on the Scopus repository and resulted in another eight (8) papers. The Content analysis of these seventeen research documents led to the identification of diversified dimensions of research conducted in the domain which is summarized in Annexure A & B.

Discussion

To create a knowledge map of the growth of the disruptive innovation field in the domain of public administration, bibliometric analysis was carried out using the disruptive innovation literature records from 1994 to 2022 acquired from the Web of Science database as study objects.

The time distribution, national distribution, journal distribution, author distribution, and research category distribution were used to create measurement statistics. At various stages of disruptive innovation, hot spots were discovered using keyword co-occurrence analysis. The main literature and evolution of the research front's knowledge base were investigated using literature citation analysis in the field of disruptive innovation. The findings of the study are as follows:

- **Time Distribution:** Over 25 years, the amount of research literature on disruptive innovation grew rapidly. In the domains of innovation and management, disruptive innovation research gained popularity as it continued to grow quickly and entered a stage of rapid development.
- **National Distribution**: Based on the number of publications each nation published, the USA contributed the most to the literature and showed unquestionable dominance in the area of disruptive innovation. In terms of the number of articles published, China and India were among the top 15 nations. According to (Pandit et al., 2017). The turbulence in developing economies presents chances for disruptive innovation. Disruptive innovation can help latecomer enterprises develop more quickly as a competitive strategy (Wan et al., 2015).
- This growth is likely connected to the nation's innovation strategy. The government has made significant financial investments and developed pertinent regulations, particularly in China, to encourage the innovation of strategic emerging sectors (Chen et al., 2016). The United States had the greatest influence and the strongest centrality within the network of disruptive innovation. China held a certain position in the sector as well, but there was still a significant difference when compared to the United States and other European nations.
- Disruptive technology was first introduced as a result of a series of technological advancements, and it was eventually replaced thanks to several management strategies and case studies.
- Disruptive innovation gradually superseded disruptive technology, whose applications moved beyond technical goods to the invention of services and business models. Disruptive technology was first launched based on a succession of technological innovations, and via several management practices and case studies, it was replaced.
- The fundamental types of disruptive innovation were refined over time and broken down into more specific categories, such as radical product innovation, disruptive business model innovation, and disruptive technology innovation
- Only nine (09) research publications that were explicitly related to the field of public administration and that concentrated on various aspects of public administration could be found. The same "search Key" was conducted on the Scopus repository to reinforce the directions for future study and to detect any gaps that might exist. This produced an additional eight (8) papers. A variety of study dimensions in the field were discovered through the content analysis of these 17 research documents. Based on the four main aspects of public administration – economy, efficiency,

effectiveness, and social equity – those gaps have been presented as areas for further research in a categorized manner. (Please Refer to Table 5)

Table 5: Directions for Further Research based on Research Gap Identified

Economy	Efficiency	Effectiveness	Social Equity
❖ Disruptive Innovation in Benefit Transfer	❖ Public Aministration Challenges	❖ Digital Disruption	❖ Digital Inclusion
❖ e-Procurement	❖ Public Service Management	❖ Digital Transformation	❖ Social Analysis of Technology
❖ e-Governance Policies	❖ Digital Public Policies	❖ Management of Innovation in Public Sector	❖ Socio-technical Impacts
❖ e-Government Assessment	❖ Digital Platforms and Ecosystems	❖ Public Governance Innovation	❖ Disruptive Innovation and Marginal People
❖ Sustaining Innovation	❖ Digital Transformation	❖ Public Policy Innovations	
❖ Policy Fortress to Policy Change	❖ Cyber Security	❖ Public Service Innovation	
❖ Governance Impact Assessment	❖ Disruptive Technology and Internet of Things (IoT)		

Source: *Generated from Analysis by Authorsbased on research papers published on public administration.*

Ideas for Future Researchers based on Research Gap:

Conclusion

This study while comparing existing reviews of disruptive innovation (Yu & Hang, 2010) attempted to explore disruptive innovation research in totality, and visually illustrated the knowledge structure and evolution of disruptive innovation, management, and public administration. This study was compared to existing reviews on disruptive innovation.

The study fills in the need for quantitative analysis of disruptive innovation and serves as a valuable resource for researchers to understand the situation now and significant trends in this area. The study also draws attention to the discrepancy in disruptive innovation between developed and developing nations, as well as between various disciplines. It has guiding implications for disruptive innovation practice in the future.

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Annexure A: SCOPUS Documents/Papers on Disruptive Innovation and Public Administration

Authors	Title	Year	Source Title	Author Keywords	Source
Lincaru C., Pîrciog S., Grigorescu A., Tudose G **Romania**	Low-low (LL) high human capital clusters in public administration employment-predicor for digital infrastructure public investment priority Romania Case study	2018	Entrepreneurship and Sustainability Issues	Digital inclusion; Digital public policies; Human resources management; Resilience; Rural broadband	Scopus
Datta P. **South Africa**	Digital transformation of the Italian public administration: A case study	2020	Communications of the Association for Information Systems	Change Management; Culture; Digital Disruption; Digital Transformation; Disruptive Innovation; E-Government; Europe; Italy; Policy; Technology	Scopus
Datta P., Walker L., Amarilli F. **United States; South Africa; Italy**	Digital transformation: Learning from Italy's public administration	2020	Journal of Information Technology Teaching Cases	digital platforms and ecosystems; digital transformation; digitalization; public administration; social analysis of technology Society; socio-technical impacts	Scopus
Styrin E.M., Dmitrieva N.E., Sinyatullina L.H. **Moscow, Russian Federation**	Government digital platform: From concept to implementation	2019	Public Administration Issues	Digital platforms classification; Government digital platforms; Lean government; Platform approach in public administration; Platform based industry regulation	Scopus
Barahona J.C., Elizondo A.M., Santos M. **Costa Rica**	The dilemma of public e-procurement in Costa Rica: Case on the duality of technological platforms and implementation models	2015	Journal of Information Technology Teaching Cases	Disruptive innovation; E-government; E-procurement; New business models; Technology management	Scopus
Barahona J.C., Elizondo A. **Costa Rica**	Measuring the provision of public services by digital means	2013	Proceedings of the European Conference on e-Government, ECEG	Disruptive innovation; e-Government; e-Government assessment; It management; Networked society	Scopus
Barahona J.C., Elizondo A. **Costa Rica**	New challenge to fulfill e-procurement promises	2012	Proceedings of the European Conference on e-Government, ECEG	Disruptive innovation; E-procurement; E-Governance; Innovation management; Interoperability; Networked society; Public administration challenges; Public service management	Scopus
Lovio R., Kivisaari S. **Romania**	Public sector innovations and innovation activities: Literature review	2010	VTT Tiedotteita - Valtion Teknillinen Tutkimuskeskus	Innovation in public sector; Management of innovation in public sector; Public governance innovation; Public policy innovations; Public service innovation	Scopus

Annexure B: Web of Science Documents/Papers on Disruptive Innovation and Public Administration

Authors	Title	Year	Source Title	Author Keywords	Source
Watanabe, C; Naveed, K; Neittaanmaki, P	ICT-driven disruptive innovation nurtures un-captured GDP - Harnessing women's potential as untapped resources	2017	Technology in Society	Gender balance Women board members Untapped resources Trilateral co-evolution Cultural dimensions	Web of Science
Hogarth, Stuart	Valley of the unicorns: consumer genomics, venture capital and' digital disruption	2017	New Genetics and Society	consumer genomics disruptive innovation venture capital FDA Silicon Valley	Web of Science
Hopster, J	What are socially disruptive technologies?	2021	Technology in Society	N.A.	Web of Science
Ho, Jonathan C.; Chen, Hongyi	Managing the Disruptive and Sustaining the Disrupted: The Case of Kodak and Fujifilm in the Face of Digital Disruption	2018	Review of Policy Research	Digital Disruption	Web of Science
Hasselbalch, Jacob A.	Innovation assessment: governing through periods of disruptive technological change	2018	Journal of European Public Policy	Disruptive innovation Governance impact assessment innovation assessment technology assessment policy appraisal	Web of Science
Mordue, Greig; Karmally, Danish	Frontier Technologies in Non Core Automotive Regions: Autonomous Vehicle R&D in Canada	2020	Canadian Public Policy-analyse De Politiques	automotive, autonomous vehicles, Canada, disruptive innovation, frontier technologies, industrial policy, sustaining innovation	
Lew, SS; Tan, GWH; Loh, XM; Hew, JJ; Ooi, KB	The disruptive mobile wallet in the hospitality industry: An extended mobile technology acceptance model	2020	Technology in Society	Mobile technology acceptance model Flow theory Self-efficacy theory Critical mass theory Mobile wallet Mobile payment	Web of Science
Stein, Elliot James; Head, Brian W.	Uber in Queensland: From policy fortress to policy change	2020	Australian Journal of Public Administration	Policy Fortress Policy Change	Web of Science
Brass, I; Sowell, JH	Adaptive governance for the Internet of Things: Coping with emerging security risks	2021	Regulation & Governance	cybersecurity, disruptive technology, internet of things, planned adaptive risk regulation, regulatory governanceb	Web of Science