

# 102年度區域研究及地理學門 熱門及前瞻議題

## 子議題：交通運輸

執行計畫單位：成大交管系

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2014/09/16



# 大綱

## 資料蒐集及統計

- 期刊關鍵字整體統計資訊

## 前瞻課題之分析與探討

- 總體性之前瞻課題
- 依運具區分之前瞻課題

## 熱門議題與關鍵字之分析與探討

- 關鍵字整理(Accident Analysis & Prevention除外)
- Accident Analysis & Prevention 關鍵字整理

## 結論



## 調查過程說明-資料蒐集及統計

- ◆ 國科會人文處區域學門八大次領域(人文地理、交通運輸、地政、景觀學、休閒遊憩、建築與都市設計、都市及區域、環境與資源管理)進行熱門及前瞻議題之資料蒐集。
- ◆ 為調查國科會人文處區域學門之交通運輸次領域熱門及前瞻議題，進行相關調查，熱門議題以期刊為主，前瞻議題以政府與研究單位的白皮書、規劃報告為主。



## 調查程序

- ◆ 期刊資料蒐集：經由成功大學圖書館JCR資料庫，查詢所有交通運輸期刊。
- ◆ 期刊排序：針對各期刊5年Impact factor進行排序，並列出各年期(2008~2012)之Impact factor供問卷填答教授參考。
- ◆ 期刊分類：針對三類別進行分類，包含：期刊屬於 (a) SSCI；(b) SCI或 (c) SSCI/SSCI皆是。



# 期刊問卷內容示意圖

	A	B	C	D	E	F	G	H	I	J
1	請於□中打■(請勾選15個)	ID	Journal Title	5-Year Impact Factor (IF)	2008 IF	2009 IF	2010 IF	2011 IF	2012 IF	屬於SCI/SSCI
2	<input type="checkbox"/>	1	Transportation Research Part B	3.520	1.874	2.268	2.091	2.856	2.944	SCI/SSCI
3	<input type="checkbox"/>	2	Computer-Aided Civil and Infrastructure Engineering	3.326	0.747	1.989	3.170	3.382	4.468	SCI
4	<input type="checkbox"/>	3	IEEE Transactions on Intelligent Transportation Systems	3.263	2.844	2.092	2.258	3.452	3.064	SCI
5	<input type="checkbox"/>	4	Transportation Research Part A	3.000	1.832	1.715	1.601	2.354	2.725	SCI/SSCI
6	<input type="checkbox"/>	5	Transportation Research Part E	2.764	1.270	1.958	1.954	1.640	2.272	SCI/SSCI
7	<input type="checkbox"/>	6	Transportation Science	2.623	1.534	1.479	1.514	1.507	1.814	SCI/SSCI
8	<input type="checkbox"/>	7	Transportation Research Part C	2.433	1.082	1.706	1.702	1.957	2.006	SCI
9	<input type="checkbox"/>	8	Accident Analysis and Prevention	2.391	1.963	1.647	2.353	1.867	1.964	SSCI
10	<input type="checkbox"/>	9	Transportation Research Part F	2.354	1.403	1.481	1.534	1.989	1.577	SSCI
11	<input type="checkbox"/>	10	Transport Reviews	2.261	0.819	1.030	1.722	1.875	1.887	SSCI
12	<input type="checkbox"/>	11	Transport Policy	2.161	1.122	1.024	1.171	1.719	1.541	SSCI
13	<input type="checkbox"/>	12	Transportation	2.131	1.767	1.512	1.875	1.023	1.657	SCI/SSCI
14	<input type="checkbox"/>	13	Journal of Safety Research	1.970	1.239	1.340	1.336	1.295	1.379	SSCI
15	<input type="checkbox"/>	14	Transportation Research Part D	1.801	1.118	1.214	1.108	1.659	1.291	SCI/SSCI
16	<input type="checkbox"/>	15	Transportmetrica	1.575	2.043	2.038	0.808	1.062	1.357	SCI/SSCI
17	<input type="checkbox"/>	16	Networks & Spatial Economics	1.561	0.718	1.341	0.940	1.019	1.226	SCI
18	<input type="checkbox"/>	17	International Journal of Shipping and Transport Logistics	1.493	0.000	0.000	1.000	1.844	1.319	SSCI
19	<input type="checkbox"/>	18	Journal of Transport Economics and Policy	1.462	0.721	0.795	0.732	0.949	0.860	SSCI
20	<input type="checkbox"/>	19	International Journal of Sustainable Transportation	1.407	0.643	0.758	1.056	0.951	0.944	SSCI
21	<input type="checkbox"/>	20	Journal of Intelligent Transportation Systems	1.400	1.031	0.727	1.273	0.714	0.806	SCI
22	<input type="checkbox"/>	21	Journal of Air Transport Management	1.204	0.773	0.828	0.829	0.907	0.800	SSCI
23	<input type="checkbox"/>	22	Journal of Advanced Transportation	1.082	1.207	0.727	0.650	0.643	0.733	SCI
24	<input type="checkbox"/>	23	IET Intelligent Transport Systems	1.000	0.367	0.476	0.473	0.512	0.958	SCI
25	<input type="checkbox"/>	24	Journal of Transportation Engineering-ASCE	0.895	0.665	0.496	0.460	0.620	0.863	SCI
26	<input type="checkbox"/>	25	Transportation Planning and Technology	0.652	0.286	0.516	0.411	0.203	0.427	SCI
27	<input type="checkbox"/>	26	Transportation Research Record	0.636	0.259	0.298	0.482	0.471	0.442	SCI
28	<input type="checkbox"/>	27	International Journal of Transport Economics	0.333	0.231	0.146	0.235	0.345	0.393	SSCI
29	<input type="checkbox"/>	28	Maritime Economics & Logistics	X	0.000	0.000	0.000	0.902	0.833	SSCI
30	<input type="checkbox"/>	29	Maritime Policy & Management	X	0.000	0.000	0.000	0.743	0.816	SSCI
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- ◆ 政府與研究單位的白皮書、規劃報告，蒐集美國、歐盟、英國、台灣等相關政府白皮書與規劃報告。
- ◆ 研討會蒐集：主要蒐集各校交通相關領域教師所發表之研討會。
- ◆ 研討會分類：分別針對路運、軌道、海運、物流、空運、智慧型運輸系統、大眾運輸、車流理論與包含各項領域性質之研討會進行分類。



# 研討會問卷內容示意圖

	A	B	C	D	E	F
1	請於□中打■(請勾選15個)	ID	Conference Title	領域(註：全表包含所有領域)	Conference web	
2	<input type="checkbox"/>	1	Transportation Research Board Annual Meeting	全	<a href="http://www.trb.org/AboutTRB/MissionandServices.aspx">http://www.trb.org/AboutTRB/MissionandServices.aspx</a>	
3	<input type="checkbox"/>	2	World Conference on Transport Research Society	全	<a href="http://wctrs.ish-lvon.cnrs.fr/index.php?option=com_content&amp;task=view&amp;id=1&amp;Itemid=2">http://wctrs.ish-lvon.cnrs.fr/index.php?option=com_content&amp;task=view&amp;id=1&amp;Itemid=2</a>	
4	<input type="checkbox"/>	3	East Asia Society for Transportation Studies	全	<a href="http://www.easts.info/">http://www.easts.info/</a>	
5	<input type="checkbox"/>	4	IEEE International Conference on Intelligent Transportation Systems	IT	<a href="http://sites.ieee.org/its/">http://sites.ieee.org/its/</a>	
6	<input type="checkbox"/>	5	IEEE Intelligent Vehicle Symposium	IT	<a href="http://www.ieeeiv.net/">http://www.ieeeiv.net/</a>	
7	<input type="checkbox"/>	6	International Symposium on Dynamic Traffic Assignment	IT	<a href="http://www.aimsun.com/wp/?p=1990">http://www.aimsun.com/wp/?p=1990</a>	
8	<input type="checkbox"/>	7	World Congress on ITS	IT	<a href="http://www.itsworldcongress.jp/">http://www.itsworldcongress.jp/</a>	
9	<input type="checkbox"/>	8	Applications of Advanced Technologies in Transportation	IT	<a href="http://www.civil.ntua.gr/aatt/aims.html">http://www.civil.ntua.gr/aatt/aims.html</a>	
10	<input type="checkbox"/>	9	International Symposium on Transportation and Traffic Theory	Traffic flow theory	<a href="http://www.isttt.net/isttt20/">http://www.isttt.net/isttt20/</a>	
11	<input type="checkbox"/>	10	International Symposium on Logistics	Logistics	<a href="http://www.isl21.net/about.php">http://www.isl21.net/about.php</a>	
12	<input type="checkbox"/>	11	Logistics Research Network Annual Conference	Logistics	<a href="http://www.lrn2013.org.uk/">http://www.lrn2013.org.uk/</a>	
13	<input type="checkbox"/>	12	IEEE International Conference on Service Operations and Logistics	Logistics	<a href="http://www.ieeesoli.org/">http://www.ieeesoli.org/</a>	
14	<input type="checkbox"/>	13	International Congress on Logistics and SCM systems	Logistics	<a href="http://www.kscm.org/ICLS2012/#">http://www.kscm.org/ICLS2012/#</a>	
15	<input type="checkbox"/>	14	International Symposium on Maritime Logistics and Supply Chain Systems	Logistics	<a href="http://www.ise.nus.edu.sg/conference/MLog2009/about_symposium.html">http://www.ise.nus.edu.sg/conference/MLog2009/about_symposium.html</a>	
16	<input type="checkbox"/>	15	American Railway Engineering and Maintenance of Way Association Annual Conference	Railway	<a href="http://www.arena.org/">http://www.arena.org/</a>	
17	<input type="checkbox"/>	16	International Heavy Haul Conference	Railway	<a href="http://www.ihha.net/about-ihha/mission-statement">http://www.ihha.net/about-ihha/mission-statement</a>	
18	<input type="checkbox"/>	17	Joint Rail Conference	Railway	<a href="http://www.asmeconferences.org/JRC2013/index.cfm">http://www.asmeconferences.org/JRC2013/index.cfm</a>	
19	<input type="checkbox"/>	18	World Congress on Railway Research	Railway	<a href="http://www.wcrr2013.org/">http://www.wcrr2013.org/</a>	
20	<input type="checkbox"/>	19	International Association of Maritime Economists Annual Conference	Marine	<a href="http://www.maritime-economists.org/">http://www.maritime-economists.org/</a>	
21	<input type="checkbox"/>	20	Air Transport Research Society Conference	Air	<a href="http://www.atrsworld.org/aboutus.html">http://www.atrsworld.org/aboutus.html</a>	
22	<input type="checkbox"/>	21	International Conference on Advanced Systems for Public Transport	Public transport	<a href="http://www.brt.cl/event-wrap-up-12th-international-conference-on-advanced-syste">http://www.brt.cl/event-wrap-up-12th-international-conference-on-advanced-syste</a>	
23						

## 調查內容

- ◆ 經由上述步驟所蒐集之相關期刊與研討會資料，進行基本問卷編排彙整
- ◆ 並經由領域負責人以郵件寄送給專業領域內相關教授填答。



# 調查結果

- ◆ 初步邀請各校7位學者專家勾選，經由最初的統計各問卷填答教授之結果，選出獲得3票以上的期刊與研討會，並排序。 統計結果一期刊

1	Transportation Research Part B
2	IEEE Transactions on Intelligent Transportation Systems
3	Transportation Research Part A
4	Transportation Research Part E
5	Transportation Science
6	Transportation Research Part C
7	Accident Analysis and Prevention
8	Transportation Research Part F
9	Transportation Research Part D
10	Transportmetrica
11	Journal of Advanced Transportation
12	Transport Reviews
13	Transportation
14	Networks & Spatial Economics

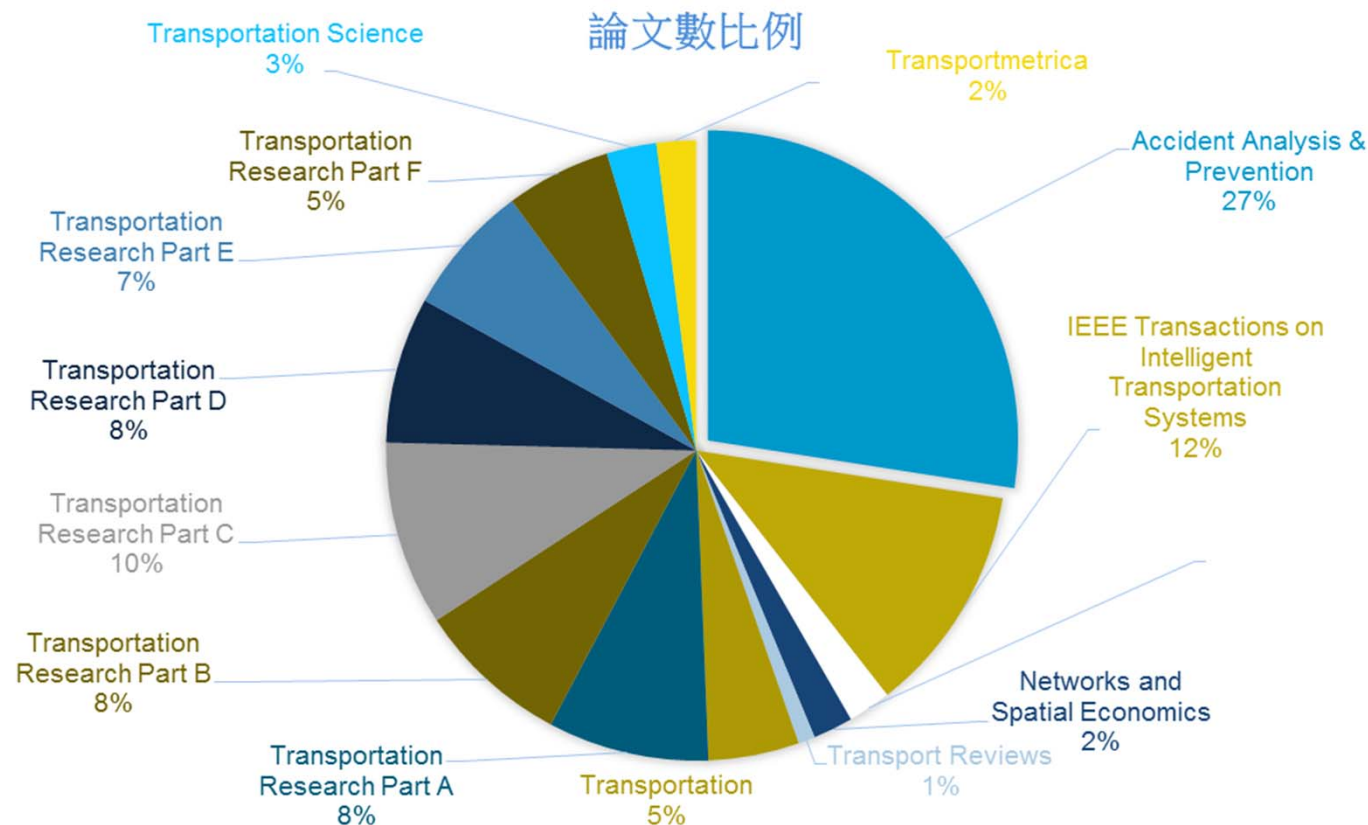


## 統計結果 — 研討會

1	Transportation Research Board Annual Meeting
2	World Conference on Transport Research Society
3	IEEE International Conference on Intelligent Transportation Systems
4	East Asia Society for Transportation Studies
5	World Congress on ITS
6	International Symposium on Transportation and Traffic Theory
7	International Symposium on Logistics
8	Air Transport Research Society Conference

# 期刊關鍵字整體統計資訊

- ◆ 本報告統整近年來由2011年至2013年已發表之交通運輸相關國際期刊，選出其最具影響力的14本期刊共計收錄了3656篇期刊論文進行分析。所選擇分析的期刊包含了政策、管理、科技與技術等各方面的重要議題。





## 期刊關鍵字整體統計資訊

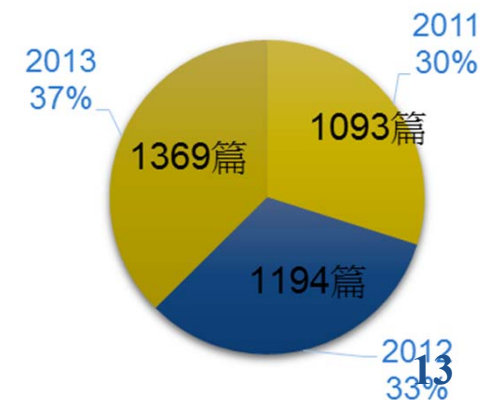
- ◆ 其中，Accident Analysis & Prevention期刊論文發表數相較於其他期刊來得高出許多，其期刊發表數占總期刊發表數的27%。
- ◆ 為避免期刊特性影響後續分析結果，本報告另外針對Accident Analysis & Prevention所提及之研究課題作探討。
- ◆ 將所有選擇的期刊蒐集其各篇論文關鍵字進行分析；本報告總共蒐集17116個關鍵字，以相同名稱進行整理後可以獲得10400個關鍵字，而後續的分析將以分類後的關鍵字來進行。

# 期刊關鍵字整體統計資訊

- ◆ 觀察各年份所發表的期刊論文數量變化有逐年增加趨勢，可以見得交通運輸相關議題越來越受到世界各地學者的重視。
- ◆ 而各別觀察每個期刊的論文數年增加率，IEEE Transactions on Intelligent Transportation Systems、Journal of Advanced Transportation、Transportation、Transportation Research Part F 與 Transportation Science 共有 10% 至 30% 論文數的小幅度增長
- ◆ 而 Accident Analysis & Prevention、Transport Reviews、Transportation Research Part A、Transportation Research Part C 與 Transportmetrica 則有超過 30% 至 200% 的年論文增加率，

這些近年所發表的論文無論在政策、管理、科技與技術各方面的議題，在交通運輸的領域中都有活躍的成長。

期刊論文發表數





## 前瞻課題之分析與探討

- ◆ 本研究的前瞻課題將以國內外相關單位的運輸政策白皮書及研究報告歸納整理。包含：
  - 美國、英國、歐洲及我國之運輸政策白皮書探討之議題；
  - 政府補助之相關研究計畫；
  - 彙整運輸相關國際型研討會。



# 前瞻課題之分析與探討

## ◆ 運輸政策白皮書

- 美國：Transportation for America, “Transportation 101: An Introduction to Federal Transportation Policy”, MARCH 2011.
- 英國：Department of Transport, UK, “The Future of Transport, a network for 2030”, 2004.
- 歐洲：The Consequences of Reduced Federal Transportation Investment, European Union, “Roadmap to a single European transport area —Towards a competitive and RESOURCCE - EFFICIENT transport system”, White Paper on transport, 2011.
- 台灣：交通部運輸研究所, “101年運輸政策白皮書”, 2012

## ◆ 政府補助相關研究

- 英國Research council UK, “Research Councils UK, Strategic Vision”, 2013.
- 歐洲European Research Council



# 前瞻課題之分析與探討

- 總體性之前瞻課題

前瞻課題	
1	Climate change research
2	Energy
3	Congestion
4	Oil dependency
5	Greenhouse emissions
6	Infrastructure
7	Competition
8	Congestion Mitigation and Air Quality (CMAQ)
9	Protecting the environment
10	High levels of passenger security with minimum hassle
11	'End-to-end' security
12	Transport of dangerous goods
13	A new funding framework for transport infrastructure



## 前瞻課題

- |    |   |
|----|---|
| 14 | Private sector engagement                           |
| 15 | Safety and security: protecting people and networks |
| 16 | A technology roadmap                                |
| 17 | An innovation and deployment strategy               |
| 18 | A regulatory framework for innovative transport     |
| 19 | A core network of strategic infrastructure          |
| 20 | Ex ante project evaluation criteria                 |
| 21 | Smart pricing and taxation                          |
| 22 | 安全管理與災害風險   |
| 23 | 防災救災與抗災能力   |
| 24 | 低碳節能運輸與營造環境   |
| 25 | 法規制度檢討與經管環境   |
| 26 | 評估機制與永續發展   |
| 27 | 特性分工與系統整合   |

# 前瞻課題之分析與探討

- 依運具區分之前瞻課題

道路交通 前瞻課題	
1	Highway Bridge Program (HBP)
2	Highways Safety Improvement Program(HSIP )
3	Interstate Maintenance(IM )
4	National Highway System (NHS)
5	Surface Transportation Program (STP)
6	Formula Grants for Other than Urbanized Areas
7	New Starts/Small Starts
8	Urbanized Area Formula Program
9	Roads: smarter travel
10	Buses: better services, easier access
11	Walking and cycling: a positive choice
12	Passengers' rights

道路交通 前瞻課題	
13	Towards a 'zero-vision' on road safety
14	Land transport security
15	Seamless door-to-door mobility
16	Mobility continuity plans
17	Travel information
18	Vehicle labelling for CO2 emissions and fuel efficiency
19	Carbon footprint calculators
20	Eco-driving and speed limits
21	Urban mobility plans
22	A framework for urban road user charging
23	城際交通路網與都市運輸
24	觀光環境與旅客
25	公共運輸接駁與無縫服務

# 前瞻課題之分析與探討

- 依運具區分之前瞻課題

鐵路運輸 前瞻課題	
1	Rail: transforming our railways
2	A true internal market for rail services
3	Rail safety
航空運輸 前瞻課題	
1	Aviation and shipping: delivering sustainable growth
2	Freight: moving goods more efficiently
3	Completion of the single European sky
4	Capacity and quality of airports
5	A socially responsible aviation sector
6	A strategy for civil aviation safety
海運及港口 前瞻課題	
1	A maritime 'blue belt' and market access to ports
2	A suitable framework for inland navigation
3	A social agenda for maritime transport

貨物運輸 前瞻課題	
1	Aviation and shipping: delivering sustainable growth
2	Freight: moving goods more efficiently
3	Road freight
4	Multimodal transport of goods: e-Freight
5	Cargo security
6	A strategy for near-'zero-emission urban logistics'
7	Multimodal freight corridors for sustainable transport networks
8	Safer shipping
9	國際運籌與競爭
10	先進管理技術與物流效率


# 熱門議題與關鍵字之分析與探討

- ◆ 關鍵字整理(Accident Analysis & Prevention除外)
- ◆ 統整近年來由2011年至2013年已發表之交通運輸相關國際期刊，選出其最具影響力的**14本期刊**共計收錄了**3656篇期刊論文**進行分析。
- ◆ 所選擇分析的期刊包含了政策、管理、科技與技術等各方面的重要議題，根據其關鍵字統整出該期刊主要探討議題。排序出現次數多的關鍵字並針對其提出相關熱門議題。



# Transportation Research Part B

- ◆ Editor in Chief:
  - Hai Yang
- ◆ Aim and vision:
  - publishes papers on all methodological aspects of the subject, particularly those that require mathematical analysis.
  - The general theme of the journal is the development and solution of problems that are adequately motivated to deal with important aspects of the design and/or analysis of transportation systems.
  - Areas covered include: traffic flow; design and analysis of transportation networks; control and scheduling; optimization; queuing theory; logistics; supply chains; development and application of statistical, econometric and mathematical models to address transportation problems; cost models; pricing and/or investment; traveler or shipper behavior; cost-benefit methodologies.



# IEEE Transactions on Intelligent Transportation Systems

- ◆ Editor in Chief:
  - Fei-Yue Wang
- ◆ Aim and vision:
  - The theoretical, experimental and operational aspects of electrical and electronics engineering and information technologies as applied to Intelligent Transportation Systems (ITS).
  - Intelligent Transportation Systems are defined as those systems utilizing synergistic technologies and systems engineering concepts to develop and improve transportation systems of all kinds.
  - The scope of this interdisciplinary activity includes the promotion, consolidation and coordination of ITS technical activities among IEEE entities, and providing a focus for cooperative activities, both internally and externally.



# Transportation Research Part A

- ◆ Editor in Chief:
  - J. de D. Ortúzar, J.M. Rose
- ◆ Aim and vision:
  - contains papers of general interest in all passenger and freight **transportation** modes: policy analysis, formulation and evaluation; planning; interaction with the political, socioeconomic and physical environment; design, management and evaluation of **transportation systems**.
  - Topics are approached from any discipline or perspective: economics, engineering, sociology, psychology, etc. Case studies, survey and expository papers are included, as are articles which contribute to unification of the field, or to an understanding of the comparative aspects of different systems.
  - Papers which assess the scope for technological innovation within a social or political framework are also published.



# Transportation Research Part E

- ◆ Editor in Chief:
  - J. Sheu
- ◆ Aim and vision:
  - Transportation Research Part E: The Logistics and Transportation Review publishes informative articles drawn from across the spectrum of logistics and transportation research. Subjects include, but are not limited to:
    - • transport economics including cost and production functions, capacity, demand, pricing, externalities, modal studies;
    - • transport infrastructure and investment appraisal;
    - • evaluation of public policies;
    - • empirical studies of management practices and performance;
    - • logistics and operations models, especially with application;
    - • logistics and supply-chain management topics.

The logo features two overlapping spheres, one larger than the other, with a blue and white color scheme. The larger sphere is in the foreground, and the smaller one is behind it, creating a sense of depth.

# Transportation Science

- ◆ Editor in Chief:
  - Michel Gendreau
- ◆ Aim and vision:
  - *Transportation Science* publishes high-quality original contributions and surveys on phenomena associated with all modes of transportation, present and prospective, including mainly all levels of planning, design, economic, operational, and social aspects.
  - *Transportation Science* focuses primarily on fundamental theories, coupled with observational and experimental studies of transportation and logistics phenomena and processes, mathematical models, advanced methodologies and novel applications in transportation and logistics systems analysis, planning and design.



# Transportation Research Part C

- ◆ Editor in Chief:
  - Yafeng Yin
- ◆ Aim and vision:
  - The focus of *Transportation Research: Part C* is high-quality, scholarly research that addresses development, applications, and implications, in the field of transportation, of emerging technologies from such fields as operations research, computer science, electronics, control systems, artificial intelligence, and telecommunications, among others.
  - The interest is not in the individual technologies or methodologies per se, but in their ultimate implications for the planning, design, operation, control, management, maintenance and rehabilitation of transportation systems, services and components.



# Transportation Research Part F

- ◆ Editor in Chief:
  - T. Lajunen, B.E. Porter, T. Özkan
- ◆ Aim and vision:
  - *Transportation Research Part F: Traffic Psychology and Behaviour* focuses on the behavioural and psychological aspects of traffic and transport.
  - The aim of the journal is to enhance theory development, improve the quality of empirical studies and to stimulate the application of research findings in practice.
  - *TRF* provides a focus and a means of communication for the considerable amount of research activities that are now being carried out in this field.
  - The journal provides a forum for transportation researchers, psychologists, ergonomists, engineers and policy-makers with an interest in traffic and transport psychology.



# Transportation Research Part D

- ◆ Editor in Chief:
  - H.O. Gao
- ◆ Aim and vision:
  - *Transportation Research Part D: Transport and Environment* publishes original research on the environmental impacts of transportation, policy responses to those impacts, and their implications for the design, planning, and management of transportation systems.
  - It covers all aspects of the interaction between transportation and the environment.
  - For example, it includes papers ranging in their coverage from the local and immediate effects of transportation networks on the environments of specific geographical areas, to the widest global implications of natural resource depletion and atmospheric pollution.



# Transportmetrica

- ◆ Editor in Chief:
  - William H.K. Lam
- ◆ Aim and vision:
  - *Transportmetrica A* provides a forum for original discourse in transport science.
  - The international journal's focus is on the scientific approach to transport research methodology and empirical analysis of moving people and goods.
  - Papers related to all aspects of transportation are welcome. A rigorous peer review that involves editor screening and anonymous refereeing for submitted articles facilitates quality output.



# Journal of Advanced Transportation

- ◆ Editor in Chief:
  - S. C. (Chan) Wirasinghe and William H. K. Lam
- ◆ Aim and vision:
  - The *Journal of Advanced Transportation* is a fully peer reviewed international journal in the general areas of transportation, engineering, transportation networks, transportation planning and transportation systems analysis.
  - Mainly, all land and air modes of passenger transportation are of interest.
  - It publishes current and innovative papers on analysis, operations, optimization and planning of transport & traffic systems and networks as well as economics, technology and safety of transport. Urban transit systems, pedestrian studies, traffic flow theory, traffic control and management, air transport and Intelligent Transport Systems (ITS) are some topics of interest.

The logo features two overlapping spheres, one larger than the other, with a blue and white color scheme. The larger sphere is in the foreground, and the smaller one is behind it, partially obscured.

# Transport Reviews

- ◆ Editor in Chief:
  - David Banister
- ◆ Aim and vision:
  - *Transport Reviews* is an international review journal covering all aspects of transport.
  - It provides authoritative and up to date research-based reviews of transport related topics that are informative to those that are knowledgeable in the subject area.
  - It also provides a means by which experts from different backgrounds can find out about the subject area, so the papers should be accessible to a wide ranging readership.



# Transportation

- ◆ Editor in Chief:
  - Kay W. **Axhausen**
- ◆ Aim and vision:
  - We have a particular focus on *transportation policy analysis* and *travel behaviour* in the context of ground transportation, we willingly consider all good quality papers that are highly relevant to transportation policy, planning and practice with a clear focus on innovation, on extending the international pool of knowledge and understanding.
  - Our interest is not only with transportation policies - and systems and services – but also with their social, economic and environmental impacts, However, papers about the application of established procedures to, or the development of plans or policies for, specific locations are unlikely to prove acceptable unless they report experience which will be of real benefit those working elsewhere.



# Networks & Spatial Economics

- ◆ Editor in Chief:
  - Terry L. Friesz
- ◆ Aim and vision:
  - *Networks and Spatial Economics (NETS)* is devoted to the mathematical and numerical study of economic activities facilitated by human infrastructure, broadly defined to include technologies pertinent to information, telecommunications, the Internet, transportation, energy storage and transmission, and water resources.
  - Because the spatial organization of infrastructure most generally takes the form of networks, the journal encourages submissions that employ a network perspective. However, non-network continuum models are also recognized as an important tradition that has provided great insight into spatial economic phenomena; consequently, the journal welcomes with equal enthusiasm submissions based on continuum models.

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
1	<p><u>Traffic flow theory</u></p> <p>交通是道路上行人和機動車輛行進與互動的現象，如和探討車流、車速和密度之間的關係，以求減少各種事故並提升效率是個重要的課題。</p>	<p>Spatial (48)</p> <p>Traffic flow(42)</p>	198
2	<p><u>Traffic safety</u></p> <p>交通安全是所有提高交通的安全性（包括參加交通的人以及交通工具）的措施的總稱。如何透過相關手段以提升駕駛人的行車安全並降低風險是不能忽視的議題。</p>	<p>Risk(63)</p> <p>Safety(41)</p>	150
3	<p><u>Public Transport</u></p> <p>在私人運具持續成長造成道路壅塞及空氣汙染的影響下，發展具可及性、可靠及有效率的大眾運輸可以讓我們擁有更高品質的生活環境，因此包括運輸系統營運及使用者需求等相關的議題在近幾年廣泛的被討論。</p>	<p>Transit(76)</p> <p>Public Transport (51)</p>	137
4	<p><u>Climate impact and sustainability</u></p> <p>氣候變遷對於人類活動、經濟及社會的影響，以及永續發展的行動。</p>	<p>Sustainability(37)</p> <p>Reliability(33)</p> <p>Robust(29)</p>	99
5	<p><u>Stochastic and Random theory</u></p> <p>隨機的概念被應用在各種領域的研究，而在交通領域的探討主要有隨機網路、隨機效果、隨機程序、隨機參數與隨機模型等。</p>	<p>Random(29)</p> <p>Stochastic(69)</p>	98
6	<p><u>Congestion</u></p> <p>交通擁擠現象之研究與交通擁擠問題之管理方式探討：包含交通擁擠管理、擁擠收費與擁擠車流。</p>	<p>Congestion (37)</p> <p>Congestion Pricing (22)</p>	77 <b>34</b>

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
7	<p><b><u>Car Emission and Fuel Consumption</u></b></p> <p>汽車溫室氣體排放之相關議題探討：包含車輛溫室氣體排放模式、溫室氣體排放模式預測與分析、車輛引擎燃油消耗模式以及溫室氣體減少政策議題探討。</p>	CO2 Emissions (18) Greenhouse Gas Emissions (19)	72
8	<p><b><u>Intelligent Transport Systems</u></b></p> <p>科技的發展使得智慧型運輸系統可以廣泛的應用，提供創新的運輸服務及交通管理的方法，讓使用者可以得到更多的訊息，能更有效率的使用運輸系統及確保運輸安全。</p>	Intelligent Transportation Systems (57)	60
9	<p><b><u>MIP&amp;IP Application</u></b></p> <p>整數規劃及混合整數規劃實際應用在許多交通相關問題，整數規劃，分為線性與二次規畫法。混和整數規畫分為線性與非線性。</p>	Mixed Integer Programming (11) Mixed Integer Linear Programming (16)	59
10	<p><b><u>Optimization</u></b></p> <p>在資源限制下，現今許多交通運輸相關模型如何更有效的求得最佳解。</p>	Optimization (34)	56
11	<p><b><u>Traffic assignment</u></b></p> <p>交通指派考慮到在運輸網路中起訖點間的路徑選擇。</p>	equilibrium(34)	54
12	<p><b><u>Travel time</u></b></p> <p>人、車與物在運輸活動中的時間成本與花費向來是衡量硬體設施與服務設計的一種方式，以旅行時間分析運輸之行為與成效是探討運輸活動的方向之一。</p>	Travel time(53)	53
			<b>35</b>

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
13	<p><b><u>Bus System and Operation</u></b></p> <p>探討公車營運與管理之相關議題：包含公車專用道、公車站牌設置與管理、公車捷運系統之研究以及公車排班等相關議題。</p>	<p>Bus Bunching (5)</p> <p>Bus Rapid Transit (5)</p>	52
14	<p><b><u>Traffic simulation</u></b></p> <p>透過交通模擬設計各種情境，了解供給與需求之互動，進而預測交通行為，並設計交通控制策略以改善可能發生之交通問題。</p>	<p>Simulation(43)</p> <p>Traffic simulation(9)</p>	52
15	<p><b><u>Pedestrian</u></b></p> <p>傳統在運輸規劃中常以機動車輛為主，行人的權益常常被忽略，為追求公平，因此行人的安全、行為、活動、以及號誌控制等相關問題逐漸被重視。</p>	<p>Pedestrian (14)</p> <p>Pedestrian Detection (7)</p>	51
16	<p><b><u>Discrete Choice</u></b></p> <p>個體選擇模式方法論之應用與分析。</p>	<p>Discrete Choice (18)</p>	49
17	<p><b><u>Dynamic Traffic Assignment</u></b></p> <p>動態交通量指派方法之相關應用：包含動態交通量指派模式與網路、動態交通模擬與動態使用者均衡指派模式。</p>	<p>Dynamic Traffic Assignment (32)</p> <p>Equilibrium (10)</p>	47
18	<p><b><u>Freight</u></b></p> <p>貨物運輸之相關議題研究。</p>	<p>Freight Mode Choice (3)</p> <p>Freight Transportation (9)</p>	47
19	<p><b><u>Driver Behavior</u></b></p> <p>道路駕駛者之駕駛行為議題，探討駕駛者因自身情緒、身體狀況與外在環境因素，影響駕駛者操控車輛加速、減速與方向轉換之車輛移動狀態。</p>	<p>Driver Behavior (9)</p>	43

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
20	<p><b><u>Bicycle</u></b></p> <p>自行車營運與管理之相關議題，包含：自行車車流探討、公共自行車系統、自行車專用道與自行車相關設施。</p>	<p>Bicycle (8)</p> <p>Bicycle Commuting (1)</p> <p>Bicycle Facilities (2)</p>	40
21	<p><b><u>Container</u></b></p> <p>貨櫃運輸系統營運與管理之相關議題，包含：貨櫃集散場營運與管理、貨櫃碼頭、貨櫃運輸之排程。</p>	<p>Container Shipping (5)</p> <p>Container Terminal (8)</p>	40
22	<p><b><u>Air Traffic</u></b></p> <p>航空運輸系統相關議題，包含：飛航流量管理、空中交通管制與空中交通模擬。</p>	<p>Air Traffic Control (10)</p> <p>Air Traffic Management (16)</p>	39
23	<p><b><u>Route choice</u></b></p> <p>為了決定設施的需求及成本及效益，我們必須了解網路中每條路徑節線上旅運者的數量。</p>	<p>Route choice(39)</p>	39
24	<p><b><u>Queuing</u></b></p> <p>人口增加及私人運具成長造成交通壅擠及車輛排隊的現象，因此排隊長度估計、管理、控制及紓解的相關議題廣泛討論。</p>	<p>Queue (12)</p> <p>Queuing Network (4)</p>	36
25	<p><b><u>Global Positioning System</u></b></p> <p>全球定位系統的車輛導航應用於商業車輛的調度、監控系統及防盜系統，而應用於個人通訊設備導航則讓使用者能更有效率的旅行。</p>	<p>Global Positioning System (25)</p>	35
26	<p><b><u>Traffic control</u></b></p> <p>新的交通控制技術及個案研究。</p>	<p>Traffic control(21)</p> <p>Traffic congestion(12)</p>	33 <b>37</b>

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
27	<p><b><u>Mobility</u></b></p> <p>機動性是指旅行到很多不同的目的地的能力。機動性提供人們較廣泛的路徑選擇以滿足特殊的需求，但因私人機動車輛急速成長及都市的擴張，世界各地的機動性都面臨著交通癱瘓的問題。</p>	Mobility (15)	31
28	<p><b><u>Supply Chain</u></b></p> <p>創新的概念及策略應用於供應鏈的設計及管理。</p>	Supply Chain (31)	31
29	<p><b><u>Mode Choice</u></b></p> <p>運具選擇是旅運者依據偏好及選擇行為作為理論選擇較大效用的運具。此種需求模式可以讓運輸系統提供者有更好的規劃。</p>	Mode Choice (25)	30
30	<p><b><u>Logistics</u></b></p> <p>在現今資訊發達的環境下，人旅次可能因此減少，但物流實體的流通活動不會減少，因此如何創造更好的價值、滿足顧客及社會需求更為重要。</p>	Logistics (13)	29
31	<p><b><u>Hybrid Electric Vehicles (HEV) Plug-in hybrid (PHEV)</u></b></p> <p>近年節能減碳議題被重視，油電混合動力車及插電式混合動力汽車(可以從輸電網路上向內部電池充電)，能源來自汽油及電池，可以降低碳排放量。</p>	Vehicle (10) Hybrid Electric Vehicle (7)	28
32	<p><b><u>Micro simulation</u></b></p> <p>微觀車流模擬模式能合理地重現道路上之車輛運行特性與駕駛行為，因此可作為交通工程師規劃交通管制措施，及設計交通控制策略時的客觀評估工具。</p>	Micro Simulation (24)	26
			<b>38</b>



# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
33	<b><u>Intelligent Vehicles</u></b> 智慧車輛透過先進 ICT 技術，朝向安全、便利與環保發展。	Intelligent Vehicle (22)	25
34	<b><u>Genetic Algorithm</u></b> 遺傳演算法是模仿自然界生物進化機制發展起來的隨機全局搜索和優化方法，在問題求解中被廣泛使用。	Genetic Algorithm (21)	24
35	<b><u>Latent Class</u></b> 潛在變數為無法直接觀測到的性質，可以加入模式中讓實際行為更真實的被表達出來，例如：運具選擇模式	Latent Class (9) Latent Variable (7)	24
36	<b><u>Pricing</u></b> 一個有效率的方法應用於管理運輸需求及其他目標，例如：減少道路交通對環境衝擊及促進公共運輸發展。	Road pricing(18)	18
37	<b><u>Quality and level of service</u></b> 應用於交叉路口、大眾運輸、配送中心及其他相關設施，服務品質的評估是一個建造更佳的交通環境給使用者的方法。	Service quality(10) Service level(4)	14



# 熱門議題與關鍵字之分析與探討

- ◆ **Accident Analysis & Prevention 關鍵字整理**
- ◆ 統整近年來由2011年至2013年已發表之交通運輸相關國際期刊，選出其最具影響力的14本期刊共計收錄了3656篇期刊論文進行分析。所選擇分析的期刊包含了政策、管理、科技與技術等各方面的重要議題，根據其關鍵字統整出該期刊主要探討議題。排序出現次數多的關鍵字並針對其提出相關熱門議題。



# Accident Analysis and Prevention

- ◆ Editor in Chief:
  - M. Abdel-Aty
- ◆ Aim and vision:
  - *Accident Analysis & Prevention* provides wide coverage of the general areas relating to accidental injury and damage, including the pre-injury and immediate post-injury phases.
  - Published papers deal with medical, legal, economic, educational, behavioral, theoretical or empirical aspects of transportation accidents, as well as with accidents at other sites.
  - Selected topics within the scope of the Journal may include: studies of human, environmental and vehicular factors influencing the occurrence, type and severity of accidents and injury; the design, implementation and evaluation of countermeasures; biomechanics of impact and human tolerance limits to injury; modelling and statistical analysis of accident data; policy, planning and decision-making in safety.



# 熱門議題與關鍵字之分析與探討

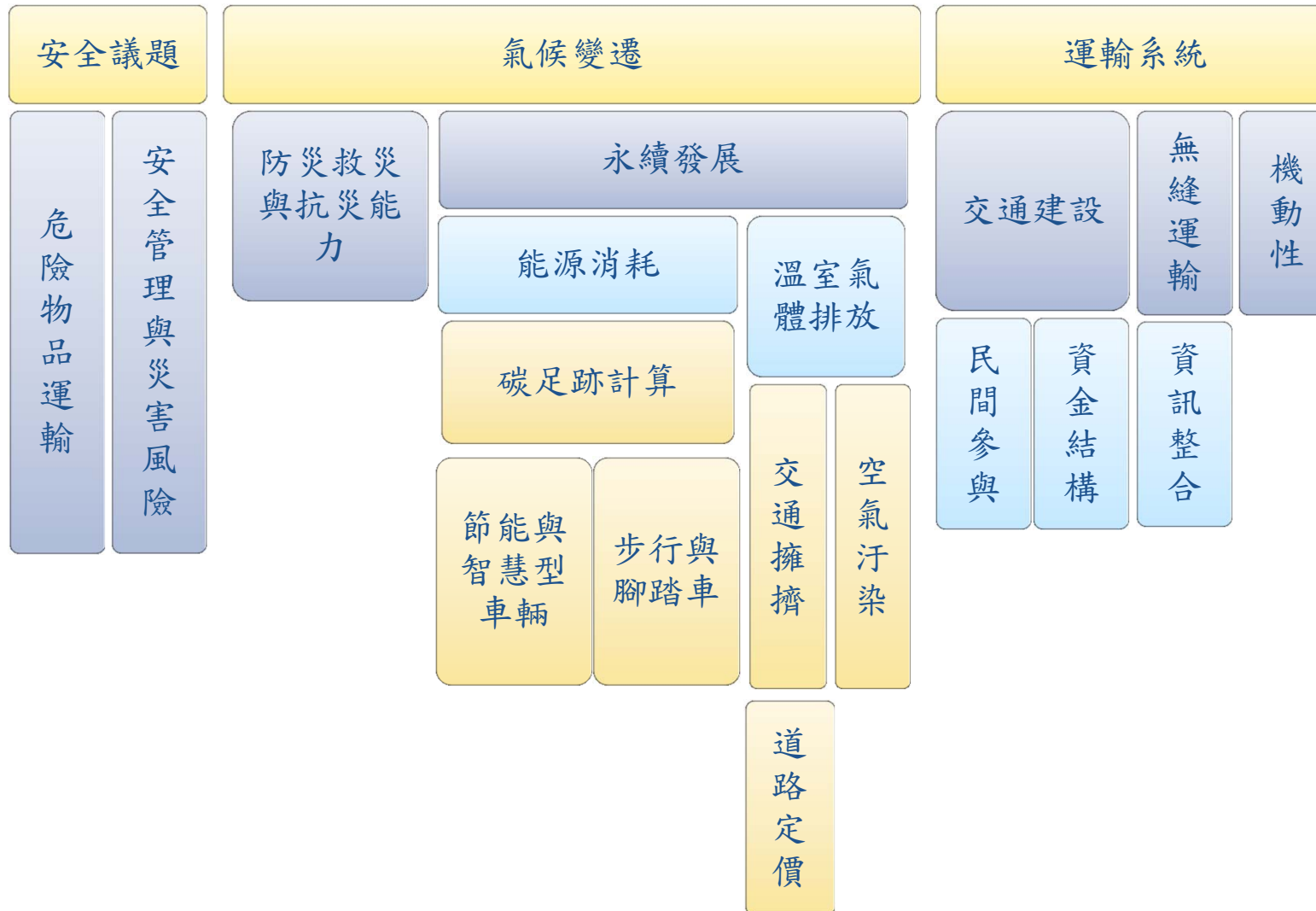
ID	議題	關鍵字	篇數
1	<b><u>Accidents management and prevention.</u></b> 緊急事故管理與避免。	Accident (73) Crash (106) Injury (98)	277
2	<b><u>Risk</u></b> 探討行為、駕駛人、政策、態度等因素對於風險影響的相關研究，以及相關指標之訂定。	Risk (157) Prevention (31) Hazard (36)	224
3	<b><u>Vulnerable road users</u></b> 探討弱勢道路使用族群的營運管理及道路工程。	Young Drivers(40) Old Drivers(41) Pedestrians (68) Child (33)	182
4	<b><u>Safety</u></b> 探討與道路、氣候變遷、駕駛行為、政策規範、安全績效等與安全相關之課題	Safety (130)	130
5	<b><u>The impacts of driving behavior on internal human factors.</u></b> 影響駕駛者駕駛行為之內部因素探討，如：超速、疲勞、酒駕等。	Drinking(16) Sleep (29) Speeding (29) Fatigue (22) Behavior (14)	110
6	<b><u>Transportation modes—bicycle</u></b> 自行車/腳踏車相關管理議題與應用。	Cycling (32) Bicycle (46)	78

# 熱門議題與關鍵字之分析與探討

ID	議題	關鍵字	篇數
7	<b><u>The impacts of driving behavior on external factors.</u></b> 影響駕駛者駕駛行為之外部因素探討，如：酒清、藥物、行動設備等	Mobile Phone/Device(9) Alcohol(42) Drugs(13)	64
8	<b><u>Traffic simulation on real traffic situation.</u></b> 駕駛模擬器對於駕駛行為或道路設施之模擬實驗與相關應用。	Simulate/Simulator(49)	49
9	<b><u>Cognition</u></b> 用路人認知態度對於駕駛行為、安全議題影響因素之相關研究。	Cognition (37)	37
10	<b><u>Naturalistic Driving</u></b> 透過自然觀察法應用於駕駛行為特性上之研究。	Naturalistic (25)	25
11	<b><u>Method of logistic regression model.</u></b> 使用羅吉特迴歸模式方法探討運具選擇或情境方案發生之研究。	Logistic regression/model (20)	20
12	<b><u>The issues under emergency situation.</u></b> 緊急疏散與交通擁擠現象之研究。	Emergency (13) Evacuation (1) Congestion (2)	15

# 結論

◆ 根據本研究整理之前瞻議題探討課題可分為三大部分，



# 結論

- ◆ 熱門議題部分整理13種期刊關鍵字及內容可以將議題分類為四部分，分別是道路交通相關、研究工具與方法、氣候變遷及運輸模式。

## 道路交通相關

交通安全

- 駕駛行為

交通流理論

交通控制

路徑選擇

旅行時間

ITS

## 研究工具與方法

交通模擬

- 動態交通模

運具選擇

- 個體選擇模

交通指派

- 動態交通指

MIP&IP之應用

基因演算法

隨機理論

排隊理論

潛在變數

服務水準

最佳化

GPS

## 氣候變遷

交通擁擠

- 道路定價
- 機動性

永續發展

- 溫室氣體

結能與智慧型車輛

能源消耗

## 運輸模式

貨物運輸

- 貨櫃運輸
- 供應鏈

大眾運輸

- 公車系

航空運輸

腳踏車

行人



# 問題與建議

