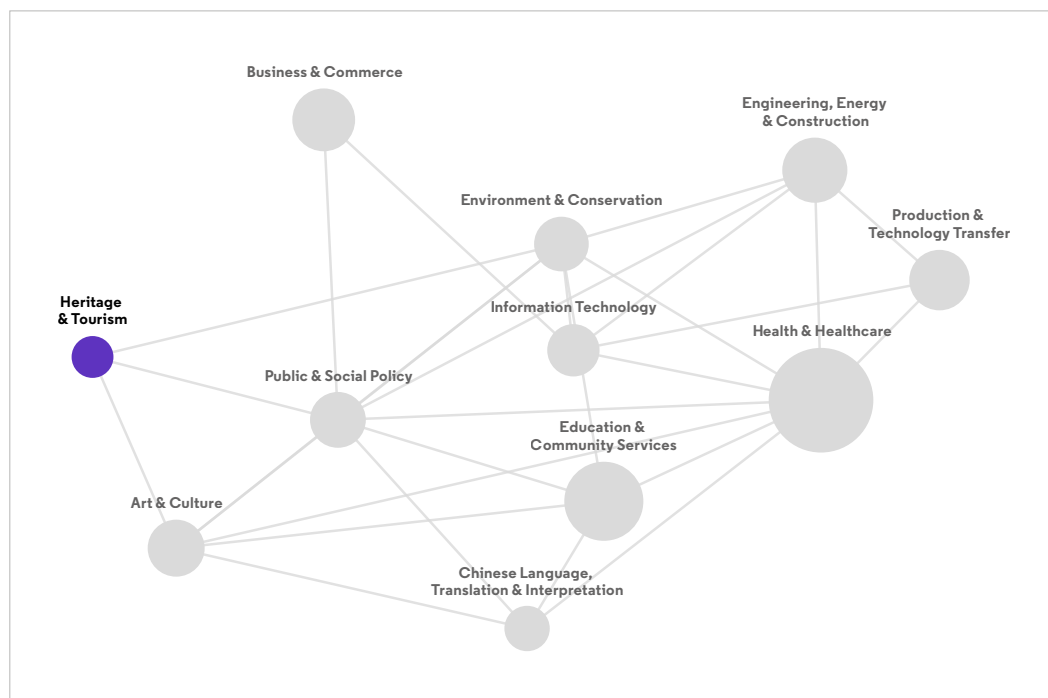# Clarivate™

The societal impact of research undertaken by Hong Kong universities:

Heritage & Tourism

A synthesis of the RAE 2020 impact case studies

Partnered with: **ELECTRIC DATA solutions** | Different Angles

This report is part of a series of outputs that examines the impact of research arising from eight universities based in Hong Kong and funded by the University Grants Committee (UGC). The report focuses on the Impact Case Studies (ICS) produced by the UGC-funded universities as part of their response to a Research Assessment Exercise (RAE) in 2020. The overarching report - *The impact of research undertaken by universities in Hong Kong: A synthesis of the RAE 2020 impact case studies* – is accompanied by 11 thematic reports that examine the nature of research impact in different areas, ranging from Arts & Culture to Health & Healthcare. The 342 impact case studies that are analysed through this body of work are also available on a searchable database that is posted on the UGC's website.

The Heritage & Tourism cluster contains 12 impact case studies (ICS) from two primary topics identified in the topic modelling. The Heritage & Tourism cluster is the smallest of the clusters analysed, representing 4% (i.e. 12/342) of ICS submitted to RAE 2020.

The impact wheel in Figure 1 illustrates how the Heritage & Tourism cluster is distributed across the 41 Units of Assessment (UoAs) used for RAE 2020. For example, not surprisingly for UoA 23 (hotel management & tourism), all three of the ICS (i.e. 100%) submitted

to the UoA were in the Heritage & Tourism cluster. Four of seven (57%) ICS in UoA 34 (history) were also included in the cluster along with two of five (40%) for UoA 26 (geography), two of nine (22%) for UoA 35 (area studies, cultural studies and other arts/humanities) and one of 11 (9%) for UoA 38 (visual arts, design, creative media, other creative arts and creative writing). The fact that the 12 ICS came from only 5 UoAs meant that the Heritage & Tourism cluster was comparatively the most concentrated across the eleven themes (which, in part, reflects the small size of the cluster).

Figure 1: Impact wheel for the Heritage & Tourism cluster (n=12)
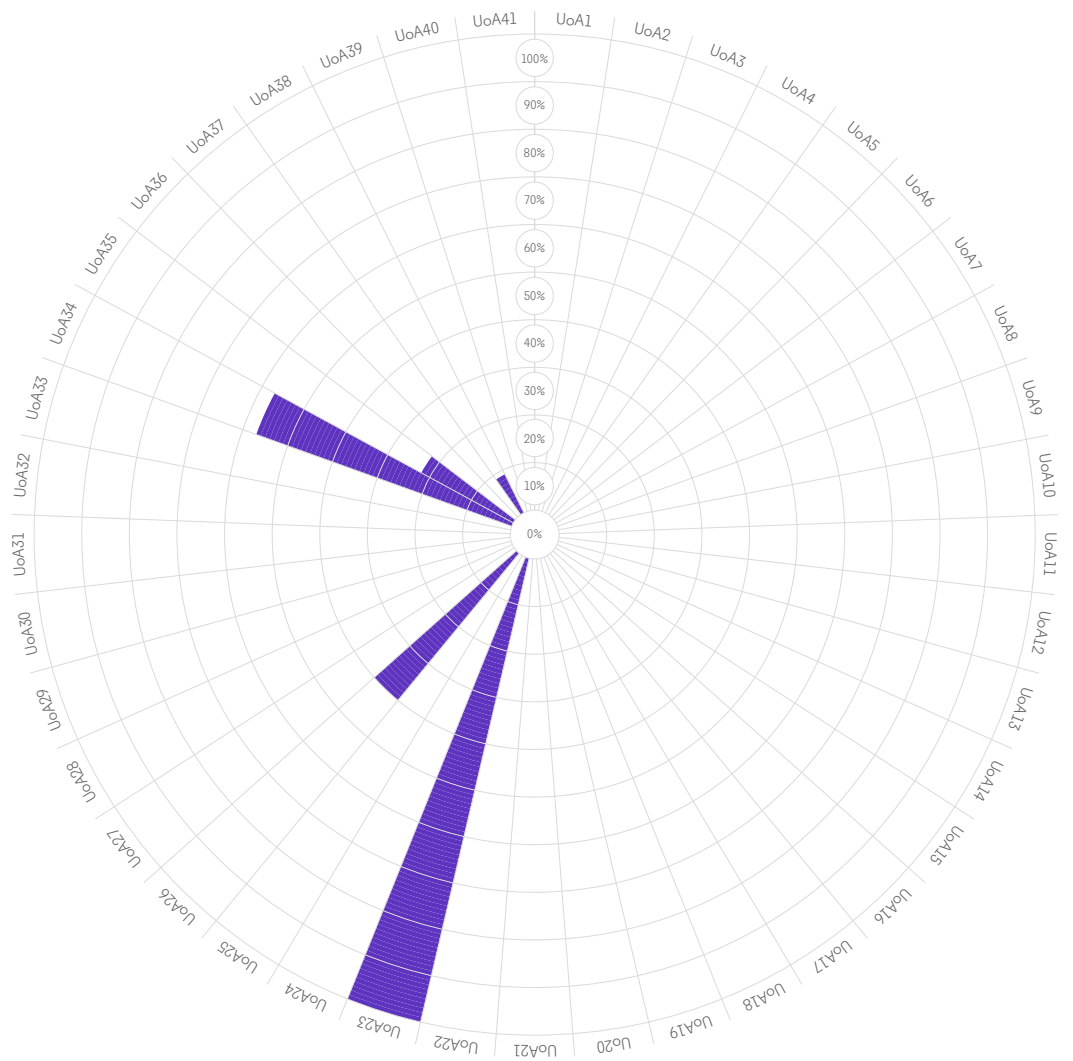
The impact of Hong Kong universities' research: **Heritage & Tourism**

Table A shows the most salient features of the case studies in terms of beneficiaries, location, type of impact and time lag. It gives the percentage of case studies in this cluster that were tagged with sub-codes under these code headings, as well as the percentage of case studies tagged with those sub-codes in the entire sample of 342.

The 12 case studies in this cluster benefited three key sectors under the classification of the Hong Kong Standard Industrial Classification: 75% Arts, entertainment and recreation, 33% Education and 33% Professional, scientific and technical activities. The key socioeconomic group were citizens/communities (50%), children (25%), and other (17%). The key decision taker groups that were involved were government departments/agencies (67%) and other (25%). Beyond Hong Kong (83%) and Mainland China (8%) these case studies primarily had an impact in Australia (25%). The most salient type of impact was changing public attitudes, behaviours, or knowledge (67%), followed by informing government policy (58%), informing new procedure, practice or protocol (58%) and changing policymakers' attitudes, behaviours or knowledge (33%). On average, the research in this cluster was started in 2009, compared to 2006 for the whole sample. The median publication date for this cluster was 2013, slightly ahead of the whole sample (2015).

On reading the ICS in the Heritage & Tourism cluster it was evident that the majority of ICS could be grouped into three main subthemes: Heritage & Education; Museums & Exhibitions; and, Tourism.

Table A: Some salient features of research impact identified in the Heritage & Tourism cluster (n = 12)

Beneficiaries of impact (top mentions)	% of <u>cluster</u> impact case studies	% of <u>all</u> impact case studies
Hong Kong Standard Industrial Classification		
Arts, entertainment and recreation	75%	14%
Education	33%	18%
Professional, scientific and technical activities	33%	13%
Sociodemographic group		
Citizens/communities	50%	17%
Children (under 18)	25%	20%
Other	17%	2%
Decision taker group		
Government departments/agencies	67%	31%
Other	25%	4%
Location of impact	**% of <u>cluster</u> impact case studies**	**% of <u>all</u> impact case studies**
Hong Kong	83%	75%
Greater Bay Area (excluding Hong Kong)	0%	3%
Mainland China (excluding Hong Kong and GBA)	8%	12%
Australia	25%	12%
Type of impact (top mentions)	**% of <u>cluster</u> impact case studies**	**% of <u>all</u> impact case studies**
Change public attitudes, behaviours or knowledge	67%	30%
Informing government policy	58%	23%
Inform procedure, practice or protocol	58%	52%
Change policymakers' attitudes, behaviours or knowledge	33%	11%
Elapsed time	**Cluster**	**All**
Median year of research commencement	2009	2006
Median year of publication date	2013	2015

Heritage & Education

One example of an educational impact is the Hong Kong and South China Historical Research Programme (HKSCHRP) created by the History Department of Lingnan University. The group's research has focused on Hong Kong local histories, which included the stories of a variety of prominent historical figures and events such as: (1) the history of Wong Chuk Hang, a district in the southern part of Hong Kong Island, (2) the war crimes of the Japanese Army in Hong Kong, (3) the study of historical and cultural heritage of Tuen Mun, one of the oldest districts in Hong Kong, and (4) life in Hong Kong people's public rental housing. The work has had a broad impact on the public understanding and awareness of the region's local history, including on the education of primary and secondary school children in Hong Kong.

Thanks to the donation of HK$14.83m (cUS$ 1.9m) from The Hong Kong Jockey Club Charities, the HKSCHRP established the "Jockey Club Hong Kong History Learning Programme". This three-year programme worked with about 60 primary and secondary schools on the implementation of related teaching and learning activities that delved into the breadth of Hong Kong history. There are now four online teaching kits, with 75 topics covering areas in geography, politics, economy, society, cultural, biography, buildings and other thematic records, for lower primary school, higher primary school, middle school and high school respectively. Although these teaching kits were designed for primary and secondary schools, they are freely available for download to anyone. As a result, the teaching kits have been downloaded by the public over 1,000 times since July 2018.

Another example was a project undertaken by South China Research Center at The Hong Kong University of Science and Technology. This, interestingly, had additional impact on a broader project developing an inventory of Intangible Cultural Heritage (ICH). The focus of this ICS was a project commissioned by the Hong Kong government to catalogue the ICH within the region. This followed the 2006 point at which the UNESCO Convention for the Safeguarding of Intangible Cultural Heritage came into force globally, with signatories required to make a full inventory

of items to safeguard. The team identified 800 cases, of which 480 items were ratified by the government in 2014 in the first Intangible Cultural Heritage Inventory of Hong Kong. The work that led to this inventory resulted in the South China Research Center receiving HK$718,350 (cUS$91k) from the Hong Kong Jockey Club to fund its activities in the Tai O Traditional Dragon Boat Parade and a Heritage Education Program. This grant supported five field trips per year to Tai O for a total of 150 secondary students to understand ICH and local society; an annual field trip and training workshop for 25 secondary school teachers; field tours for 150 visitors during the Dragon Boat Water Parade; and annual publication of 7,000 booklets introducing the Dragon Boat Water Parade and local history.

Museums & exhibitions

An example of how research in Hong Kong has supported international and national museums comes from an ICS that described the use of interactive and immersive technologies to allow visitors to experience cultural artefacts in their original, historical context. The researchers, from City University of Hong Kong, developed the use of virtual and augmented reality to showcase specific cultural heritage forms and sites globally. This approach was first used in Australia through the development of a 3D, 360-degree, VR, interactive and immersive projection and exhibition display funded by the Australian Research Council. The display has exhibited at 48 international venues, including The Smithsonian in Washington and is a permanent installation at Museums Victoria in Melbourne and at the Centre for Art and Media (ZKM) in Karlsruhe. Drawing on this experience, the researchers then created a cultural heritage museum in Hampi, India and instigated the first Dunhuang Caves digital heritage preservation project, which was subsequently taken over by the Chinese government, and has fundamentally reshaped the nature of cultural heritage preservation and display in Hong Kong.

The exhibition, "Rising Above: The Kinsey African-American Art & History Collection", was held at the University Museum and Art Gallery between December 2016 and February 2017 and attracted over 15,000

visitors from Hong Kong and abroad. The exhibition is one of the world's largest and most important private collections of African American art and history, and for the first time was exhibited outside of the United States, in Hong Kong, due to the research interests, connections and commitment of a researcher based at The University of Hong Kong. His research focuses on the remembrance of difficult and traumatic histories and the national imagination in the United States, as well as how these histories are excluded from institutionalised forms of public memory (i.e. memorials, museums). The exhibition featured over 120 items from the Collection, which is widely recognised as one of the largest collections of artefacts relating to African-American history in the world. Over 13,600 visitors saw "Rising Above"; over 400 attended guided tours of the exhibition in Cantonese, English, and Mandarin (including primary and secondary schools in Hong Kong and members of supporting organisations such as the Asia Society, the HKU Museum Society, American Airlines and Goldman Sachs); 240 attended the Rising Above lecture series; over 1,000 went to concerts featuring African-American music; and 500 attended gallery receptions and other special events. The exhibition and related events resulted in significant social and cultural impacts by educating the Hong Kong public about the experiences of African-Americans and their contributions to American history and culture. They raised awareness of the importance of racial justice and equality and fostered an appreciation of the ethical, social, and cultural value of diversity.

Tourism

The three ICS that were submitted from the unit of assessment on hotel management & tourism (UoA23) all used different quantitative approaches to support decision making in tourism. All three ICS came from The Hong Kong Polytechnic University. One of the ICS described the impact of research that led to a model that aided accurate tourism demand forecasts, helping national tourism organisations and private businesses to formulate their operational strategies in the Asia Pacific region. The Pacific Asia Travel Association (PATA) commissioned the research team, in collaboration with colleagues from the University of Surrey in the UK, to establish a forecasting system that generated quarterly and annual forecasts of visitor arrivals to more than 40 destinations within the Asia Pacific region. This information was used by regional governments to inform local tourism policy. For example, based on the PATA Visitor Arrival Forecasts, China Tourism Academy and National Tourism Data Center, the think tank of the China Tourism Administration (CNTA) (now the Ministry of Culture and Tourism (MCT)), used the forecasts of tourism demand in the Belt and Road region to formulate government policy. Specifically, the PATA Visitor Forecasts identified long term growth in tourist flows between Mainland China, Russia, Mongolia and Pakistan. The other two ICS from The Hong Kong Polytechnic University developed a widely used indicators to assess tourism satisfaction and a model that segmented the market for cultural tourism that has been widely applied across Asia, Europe and North America.

Another example of how research impacted on tourism was identified in an ICS submitted from the geography unit of assessment (UoA23) that examined the geological history of Hong Kong, spanning the last 400 million years. This research led to the first ever local geological guidebooks and changed public and government attitudes, contributing to policy changes that led to the establishment of the Hong Kong Geopark. Today, the Hong Kong Geopark attracts 1.4–1.5 million people annually and has been the subject of a number of TV documentaries. Parallel research into the Kenya Rift also produced detailed geological histories and new knowledge on environmental processes, changing mind-sets concerning geoconservation with local government officials and supporting the development of a geopark and the cultivation of geotourism in the country.

The characteristics and translation of the underpinning research

Table B provides the salient features of the underpinning research. It provides bibliometrics as well as information on the impetus for the research and mechanisms/channels of dissemination.

30 outputs from this cluster are indexed on the Web of Science, which have a mean citation score of 2.21. The median citation score is 1.33, which is lower than the median of 1.59 for all case studies. Key international collaborators included the United States (19%), the UK (19%), and Australia (16%). 33% of the research in this cluster was commissioned, and 17% was in response to demand for better protocols, practices, and policies. The research was often driven by investigator curiosity (33%) and followed from previous work (25%). The main forms of co-production and collaboration were domestic partnership (17%). The researcher was involved in the impact through collaboration with the sector (42%) and by being referenced as an expert or advisor (17%). The research findings were disseminated primarily media coverage (83%) and educational and training materials (50%). The ideas and products arising from the research were formally recommended by a recognised body in 8% of cases.

Table B: Some salient features of the underpinning research identified in the Heritage & Tourism cluster (n = 12)

Analysis of underpinning research	Cluster impact case studies	All impact case studies
Bibliometrics indicators		
Number of outputs indexed on Web of Science	30	1445
Mean citation score	2.21	4.45
Median citation score	1.33	1.59
Collaborators location (top mentions, excluding China)		
USA	19%	18%
UK	19%	8%
Australia	16%	5%
Impetus for research (top mentions)	**% of cluster impact case studies**	**% of all impact case studies**
Pull factors		
Commissioned	33%	16%
Demand for better protocols/practices/policies	17%	8%
Push factors		
Investigator initiated research (curiosity)	33%	12%
Follow on from research team's previous work	25%	12%
Mechanisms/channels of impact (top mentions)	**% of cluster impact case studies**	**% of all impact case studies**
Coproduction & collaboration		
Domestic (mainland) partnership	17%	6%
Researcher involvement		
Collaboration with sector	42%	20%
Referenced as expert, practitioner or adviser	17%	33%
Dissemination of research findings		
Media coverage	83%	48%
Educational and training materials	50%	32%
Codification of impact eg prizes, patents etc.		
Idea/product/invention formally recommended by recognised body	8%	12%

The alluvial diagram in Figure 2 links the underpinning research (as classified by discipline using the 23 Web of Science, Essential Science Indicators (ESI), journal categories) to the 11 clusters identified through the topic modelling and the 13 Panels used in RAE 2020. The Heritage & Tourism cluster has been highlighted, with the impact pathways for the other clusters greyed out. Figure 2 illustrates the multidisciplinary nature of research impact; multiple journal categories feed into the cluster and the cluster contributes to ICS submitted to a range of RAE panels.

Figure 2: Alluvial diagram linking underpinning research with clusters and panels.
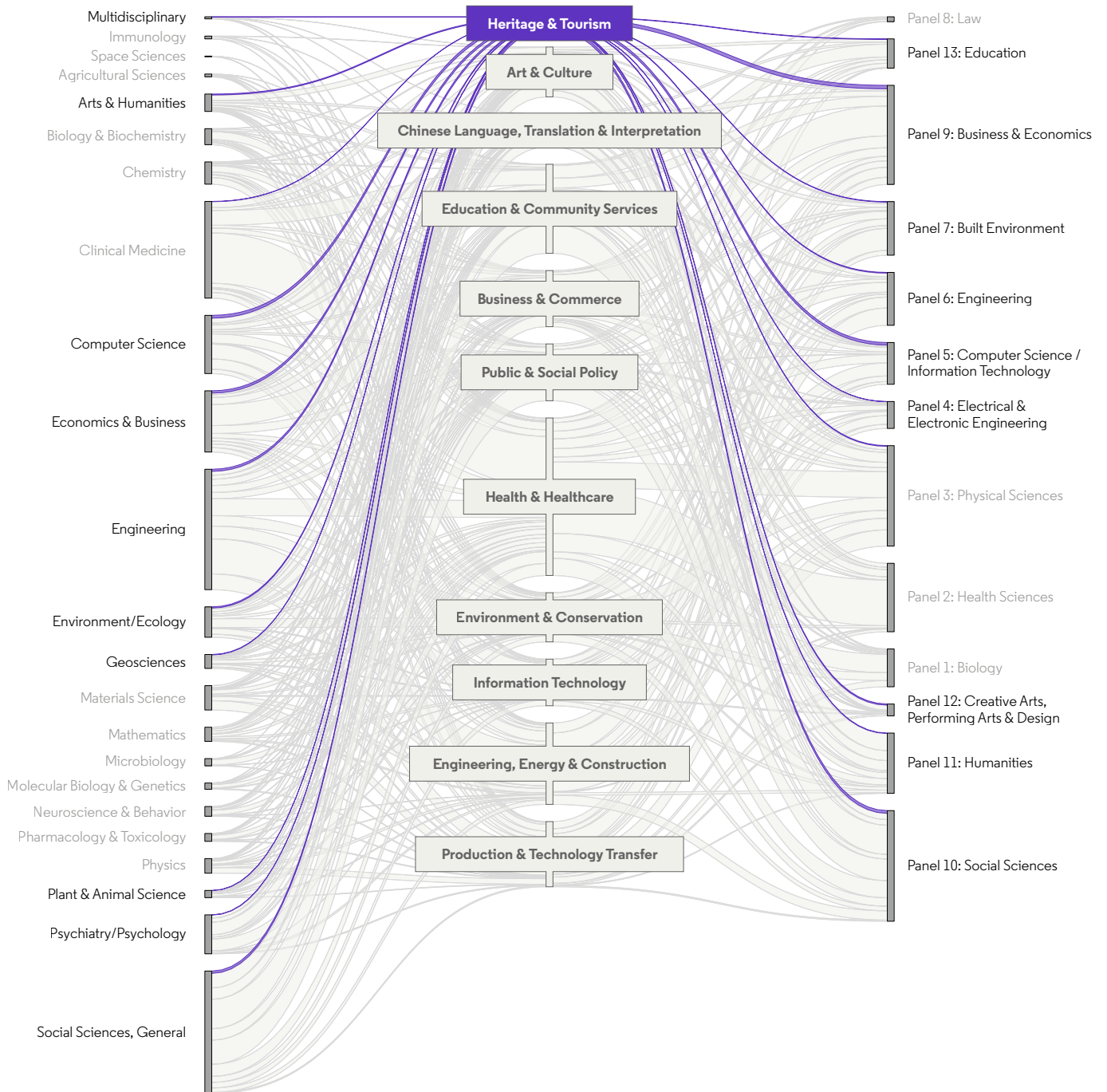
Methodological annex

This synthesised impact report presents a cross-cases analysis of the salient features in 342 impact case studies (ICS) provided by Hong Kong universities as part of the RAE 2020 evaluation. A sequential multi-method approach was employed. The first component involved quantitative topic modelling, followed by directed content analysis. This approach allowed the essence of the impact generated by Hong Kong universities to be captured and synthesised. It is important to note that the analysis and conclusions of these reports are based on the impact as described in the ICS. That is, the authors of this report took the case studies at face value and did not verify or question the narratives provided. A summary of the methodology is given below. For more detailed information on the methodological elements of this study, please see the overarching impact report.

Quantitative topic modelling

Quantitative topic modelling was used to identify overarching topics in the ICS. Topic modelling is a language processing technique applied to document sets to understand the different combinations of words or phrases (topics) that are present. It is a data driven approach, meaning results are not dependent on pre-conceived notions of structure, but are instead derived from the data itself.

Python, Scikit Learn, and Gensim packages were used to implement the topic modelling. Text from section 4 (Details of Impact) from the ICS was normalized (i.e. removal of punctuation and special characters), and domain specific stop-words were removed (i.e. words that are used frequently across the case studies). Various implementations of the topic modelling algorithm were tested, and the Non-negative matrix factorization [NMF] was found to produce the most usable results. After testing multiple models using this algorithm, and manual review by the authors, the number of topics was set to 35 to provide a balance between the breadth of groupings and granularity of topics.

In discussion with UGC, the research team developed an initial taxonomy by grouping similar topics into broader 'clusters'. For example, the topics 'finance', 'accountancy and governance', and 'economics' were grouped into a cluster titled 'business & commerce'. Topic clusters were set at the outset of the analysis to ensure cognitively similar cases were read together, thereby improving the quality of coding, analysis, and impact reports. This classification system then informed the coding and testing of case studies.

Directed content analysis

Qualitative directed content analysis was then used to elucidate the salient characteristics of the impact narratives. This involved an iterative process of examining case studies and developing a code book to categorise their inherent features. The code book was derived from the existing literature and the domain expertise of the authors. It included four overarching categories: a) research, which captured funding source and impetus for research; b) time lags, which captured the elapsed time between the research and its impact; c) mechanisms/channels of impact, which included forms of collaboration and dissemination; and d) impact, which included beneficiary groups (e.g. young people, women, ethnic minorities), location and reach (e.g. Hong Kong, Mainland China, elsewhere), and the nature of impact (e.g. commercial, policy, practice).

Using the cloud based qualitative analysis software, Dedoose, each case study was read, and relevant excerpts were 'tagged' with the relevant codes. Multiple codes and subcodes were attributed to individual case studies. This allowed all case studies that had been tagged with a particular code (e.g. a particular beneficiary group) to be considered as a group. Two of the study's authors undertook the reading and coding (JG and KW). Inter coder reliability was ensured by double coding 10% of the cases (i.e. each author codes the same case study) and through regular coding meetings that were used to compare code applications and adjust the code book as required. The code book was thus a 'living document' that was reviewed and revised iteratively. This process allowed for cross case analysis that was the basis of synthesised impact reports. A code co-occurrence matrix was used to identify where the overarching codes intersect (for example, instances where particular topics are associated with particular beneficiary groups). The properties of the ICS were systematically examined, and evidence was gathered by assigning segments of text to unique codes within the broader coding categories. This process allowed for cross case analysis that formed the basis of this synthesised impact report.

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