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Chancellor’s Fund

# Project Application Form

Please complete and return this form to the Development and Alumni Office at the address shown overleaf. A **two page** expansion of the project summary may be attached.

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| Applicant’s Name | Dr Jonathan William Minton | | | | | | | | |
| School/ Institute/ Service | SSPS | | | | | | | | |
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| If your School/ Institute/ Service has received previous funding from the Chancellor’s Fund, please indicate: | | | | | | | | | |
| Date of the Award |  | | Amount of Funding Provided | | | | | £ | |
|  |  | | | | | | | | |
| Title of Project | Data as Sculpture: Using 3D printing and milling to reify demographic landscapes and reveal complex social-spatial structure | | | | | | | | |
| If your project requires ethical approval from an official body, has this been granted ? | | Yes | | 🞏 | No | 🞏 |  | | |
| Purpose of Project (maximum 100 words) | This project will explore the potential benefits of using 3D printing and milling to turn complex statistical data into something that students, researchers, and practitioners can explore with their hands as well as their eyes.  The motivating example and initial application would be in using 3D printing and milling to turn Lexis maps, used by demographers to understand changes in ageing and mortality, into physical sculptures, where event risk variations across the Lexis surface are encoded as varying heights. Peaks, valleys, troughs and scars in these sculptures reveal important information which graphs on a page will not. | | | | | | | | |
| Who will benefit from this project? | Anyone interested in how society changes in the longer term will benefit, as demographic changes affect social and political issues ranging from healthcare, labour market activity, family size, migration, and lived experiences throughout the life course.  Anyone who needs to understand and teach complex statistical data will benefit, both from the physical objects produced using the funds, which will be free to share within the college, and also from the knowledge gained about how to produce further statistical sculptures.  See also the commercial benefits section on the following page. | | | | | | | | |
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| Total Cost of Project | £5000 | | | Amount Applied for from the Chancellor’s Fund | | | | | £5000 |
| Any funds secured to date | £5000 | | | Source of funds secured to date | | | | |  |
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| Breakdown of Costs (attach detailed budget if appropriate) | Funding is needed to cover the cost of labour, facilities and material. The more funding is available, the more opportunity there will be to experiment with a range of materials and milling/printing technologies. Different technologies and material will produce sculptures with different advantages and disadvantages. For example, some may be more appropriate for presentation to a class, others may be better suited for handling, and others may be suitable for public exhibit.  I have been in discussion with Maklab, based in Glasgow city centre. As this is a new approach to tactile data visualisation these funds are needed to explore the comparative benefits of using a range of methods of fabrication and a range of fabrication materials. Given the newness of the approach Maklab were only able to provide very approximate costing of around £100 per fabrication. However, even if this cost is an underestimate a significant number of usable statistical sculptures, produced in a variety of media and using a range of fabrication technologies, should result from this research.  The main output, however, will be the knowledge and experience of fabrication gained from the exercise, which can be shared with others in the school and college whenever they want to use these methods for their own research. | | | | | | | | |
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| Background Information (include details of previous or ongoing projects that have received support from the Chancellor’s Fund) | This research grows out of the following publications:   * Minton, J, Vanderbloemen L, Dorling D (2013), ‘Visualising Europe’s Demographic Scars’, *International Journal of Epidemiology* 42 (4): 1164-1176 <http://ije.oxfordjournals.org/content/42/4/1164.full> * Minton J (2013) ‘Logs, lifelines, and lie factors’, *Environment and Planning A* 45(11) 2539-2543. <http://www.envplan.com/abstract.cgi?id=a130208g>   The latter includes the following visualisation, based on Italian demographic data.    Some snapshots of a rendering of this data source using the CAD software Meshlab, and in the format needed for 3D printing and milling are shown at the end of this document. They provide an impression of what the visualisation would look like if it were fabricated by being cut from a wooden cube. Each of the features cut out of this ‘Lexis Cube’ provides complex statistical information about age, period and cohort effects. | | | | | | | | |
| Is it expected that this project will have commercial benefits? | Yes. Good quality fabrications of these data are expected to be popular with potential customers across the world, and to sell much above cost price. The demographic data are available for almost 40 countries, separately for males and females. Population size data as well as mortality data can also be presented in this way, and so there are over 150 Lexis Cubes of this kind which could be sold to universities, schools, and private collectors across the world. If an institution wishes to order a full collection of Lexis Cubes then this would bring in substantial revenues to the University of Glasgow.  Given the intuitive aesthetic appeal of renderings of some of these data, applications and opportunities for exhibit and promotion in galleries and museums, as works of art and sculptures for public exhibit, should also be considered. The initial funding provided by The Chancellor’s Fund would provide a solid foundation on which these commercial opportunities will be able to develop. | | | | | | | | |

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| **ENDORSEMENTS**  Please ensure that sections A & B are completed for all applications. Section C must be completed for applications of over £30,000 | | | | | | | | | | |
| **Section A – Applicant Contact Details** | | | | | | | | | | |
| Name | Dr Jonathan William Minton | | | | Post Held | | | | | Research Fellow |
| Address for Correspondence | | | Room 710, Adam Smith Building | | | | | | | |
| University of Glasgow | | | | | | | |
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|  | | | | | | | |
| Tel. (day) | | 07866022543 | | | Email | | | [Jonathan.minton@glasgow.ac.uk](mailto:Jonathan.minton@glasgow.ac.uk) | | |
| Signed | |  | | | Date | | | 12/2/2014 | | |
| As part of the assessment process, a representative of the Chancellor’s Fund may contact the applicant for further information and clarification. This will take place either by telephone or as a personal visit at a mutually convenient time. | | | | | | | | | | |
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| **Section B – Endorsement by Head of School/ Institute/ Service** | | | | | | | | | | |
| Name |  | | | | Post Held | | | | |  |
| Address for Correspondence | | |  | | | | | | | |
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|  | | | | | | | |
| Tel. (day) | |  | | | Email | |  | | | |
| **Statement:** I confirm that this project supports the School/ College/ Institute/ Service’s strategic objectives. I understand that if more than one application is received from a School/ Institute/ Service, I will be asked to prioritise the applications. | | | | | | | | | | |
| Signed |  | | | | | Date | | |  | |
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| **Section C – To be completed by Head of College if application is in excess of £30,000** | | | | | | | | | | |
| Name |  | | | | College | | | |  | |
| Address for Correspondence | | |  | | | | | | | |
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|  | | | | | | | |
| Tel. (day) | |  | | | Email | |  | | | |
| **Statement:** I confirm that this project supports the School/ College/ Institute/ Service’s strategic objectives. If necessary, I am available to discuss this application | | | | | | | | | | |
| Signed |  | | | | | Date | | |  | |
| **Please return the signed and completed form by the deadline date to:** | | | | Clerk to Chancellor’s Fund Advisory Board  University of Glasgow Development and Alumni Office  3 The Square  Glasgow G12 8QQ | | | | | | |

# Appendix: Example renderings of a Lexis Cube

