From Stars to Baht: Broadening the economic impact of astronomical data handling techniques in Thailand

Pathways to Impact

The goal of the proposed project is to maximise the economic impact of our Newton-funded research. The primary focus of the Newton project has been to use astronomical data to train Thai data science research students in handling and analysing significantly larger datasets than they had previously been exposed to. No Newton funds were requested to work with external partners, as we saw training as the first crucial step to our long term goal of developing home-grown talent to promote economic development in Thailand. In the process we have learned new skills and have researched novel databasing and machine learning techniques to overcome some of the challenges inherent to storing and analysing large, constantly-updated digital datasets. We now request GCRF funds to enable the students and staff to capitalise on these skills and adapt our techniques to increase the productivity of Thai businesses and organisations, thereby promoting Thailand's economic development.

Our work plan has been carefully designed to maximise the impact of the project. This is both in terms of maximising the impact on our external partners as well as on team members. For the former, this corresponds to maximising productivity, while for the latter this is in terms of getting exposure to working with clients – valuable experience for setting up future collaborations beyond the lifetime of the GCRF funding. Our overall strategy of working with a limited number of pre-identified external partners is based on maximising the impact of our team's *current* skills and techniques. In doing so, our resources will not be spread too thinly, enabling the team to gain a deep understanding of each partner's data and analysis needs, thereby ensuring the delivery of effective solutions. This strategy also ensures that there is already an understanding among the external partners that part of their role in the collaboration is to provide researchers and students a learning experience of working with outside clients. With the skills, techniques and experience our team will acquire from this project, we will apply for follow-on GCRF funding (from 2019) to support an open call to work with any eligible external partner. Beyond that, our team will have sufficient experience to become self-sustaining, thereby ensuring maximum impact over the long term.

As well as our overall strategy, we have also placed maximising impact at the forefront of each individual element of the workplan. By visiting the UK to present the outcome of their Newton-funded research to the GOTO collaboration, the Thai students involved in the project will gain valuable experience in comminicating with their first "client". This will be good training for working with the external partners during the GCRF project.[1] The networking event at the start of the project will enable our team to showcase our data handling/analysis skills and techniques, using GOTO as an example, while also enabling the external partners to describe the data and analysis needs. This will ensure that the whole team is aware of the needs of the client from the outset, not just the primary contact, thereby facilitating greater collaboration within the team leading to greater impact.

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[1]This visit was not budgetted-for in our Newton project as that earlier project's specific aim was to provide training in handling and analysing large datasets, not training in collaborating with external partners.