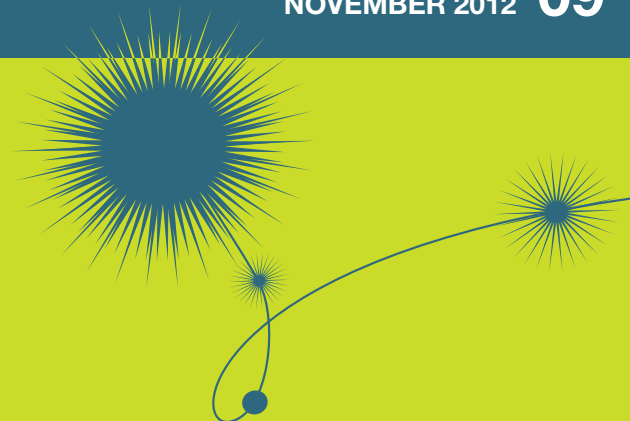


# Publicly Funded Principal Investigators: Inhibiting Factors in Leading Research Projects



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## Summary:

Publicly funded research benefits individual scientists through supporting the creation of new knowledge. Research institutions benefit through the strengthening of relationships with key research stakeholders. The public benefits through increased capacity for scientific and technology problem solving, the supply of talented graduates and researchers and the incremental GDP growth from the commercialisation of research. A core actor is the principal investigator (PI) who secures public funding to conduct research. Little is understood about the inhibiting factors that publicly funded PIs face given the research autonomy offered by publicly funded research. Our study finds that there are three key PI inhibiting factors 1) political and environmental, 2) institutional and 3) project based. We find that traditional knowledge, skills and technical know-how of publicly funded PIs are insufficient to deal with the increasing managerial demands and expectations. Public funding is no longer the 'freest form of support' as suggested by Hackett (1990) and the inhibiting factors experienced by publicly funded PIs limits their research autonomy.

## Research Context

For academics, taking on the role as PI represents an important landmark in their career. Peers, the funding agency, their institution and external stakeholders see becoming a publicly funded PI as prestigious. The key tasks of publicly funded PIs include leading a research programme, overseeing the day to day management of the project, supervising and sometimes mentoring staff conduct, signing off on the project's budgets and financial management, ensuring all deliverables and deadlines are met, and submitting technical documentation and progress reports. PIs are also expected to take on more significant leadership and managerial roles, whereby they must design and schedule the research project, coordinate and direct a research team, liaise with stakeholders and act as a primary contact point with the funding agency, and flag and respond to institutional or project issues. Publicly funded PIs operate within the dual sets of control mechanisms and bureaucracies prescribed by their own institution and that of the public funding agency.

Investigating PIs of publicly funded research projects involved compiling a dataset of publicly funded research projects in Ireland's science, engineering and technology sector over the period 2006-2011 which were multi-annual and collaborative (preferable with industry) and costed at over €250,000. Based on this sample, a final sample of thirty projects was identified with PIs who were cross -disciplined, -gendered, -aged, and at different stages in their career.

### Key Findings

From our data analysis we identified three categories of inhibitors that publicly funded PIs experience - political and environmental, institutional and project based.

### Political and Environmental Factors

- *Tensions technology transfer/scientific production:* The predominant direction and focus of publicly funded PIs was on conducting research, developing new knowledge and discoveries while funding agency expectations were on technology transfer.
- *Competing stakeholder interests:* PIs found themselves balancing the competing expectations from industry partners and funding agencies as the research project rolled out.
- *IP Valuation:* Excessive valuation of IP and a conservative managerial approach by the University Technology Transfer Offices (TTOs) can inhibit the exploitation of technology transfer opportunities.
- *Administration and support of publicly funded projects:* Unreliability of research support in the form of short notices given for funding calls, inappropriate timing of funding calls in the academic calendar and delays in releasing contracts and payments for projects. These issues created tensions publicly funded PI about balancing workload and competing in further public funding research calls.

### Institutional Inhibitors

We found three significant institutional inhibiting factors that publicly funded PIs experienced – *technology transfer support, tailored support for the PI role and human capital support*. It should be noted that all the organisations of the PIs in our study had centralised administration services such as finance, human resources and technology transfer.

- *Dedicated Technology transfer support* available to them: (1) TTOs seems more to be focused on as in IP protection and

not less on marketing the technology opportunity. (2) The expectation among PIs is that TTOs should have the experience and expertise to push technology towards the market once it has been protected. However, the majority of PIs found that it is lacking.

- *Inadequate support for the PI:* PIs where frustrated by the organisational constraints of their institutions and frequently identified the support they received as “not helpful” and “compliance” based. This compliance was aligned to public funding agency requirements, and lacked ‘flexibility’ and ‘proactive’ support for PIs in delivering on their projects.
- *Human capital:* The recruitment of research officers was seen as a “crucial task for the PI” and one that required significant attention and management. Some PIs found this process “cumbersome” with the time between advertising and filling the post often far too long in the context of the project timelines. Also a lack of defined career paths for researchers was seen as an inhibitor with PIs experiencing a high turnover of researchers, and the subsequent loss of tacit knowledge and expertise. This undermines the sustainability and impact of the research effort, particularly where research programmes are built on a series of publicly funded projects.

### Project Inhibitors

The most significant project-level inhibitors among all PIs in our study were *administration, a lack of dedicated professional development support and the power of industry partners*.

- *Administration:* The administrative burden of publicly funded projects is significant and requires significant operational execution and problem solving capabilities. PIs noted that they spend their time “fixing problems”, “writing reports” and “collating information” with one PI describing their role as a “glorified secretary.” All respondents in our study highlighted that their time is increasingly consumed by administration rather than research.

- *Lack of dedicated professional development support:* PIs in our study participated in “generic training and professional development” activities focused on writing competitive proposal bids, and project management. For the majority of PIs in our study development relating to research leadership and management involved “self learning” and learning through experience, rather than any tailored and formalised training support that they received from their institution or funding agency.
- *Power of industry partners:* The power of industry partners over projects can be difficult for PIs to deal with. Securing industry partners and maintaining their interest throughout the project can be very difficult. The mismatch between industry and project timeline can be an inhibiting factor for some publicly funded PIs, where companies need more immediate outcomes.

### Some Recommendations

- *Professional Development:* PIs need to be better prepared for their role through professionalisation within their disciplines and tailored support structures that enhance their research management capabilities to compliment their research leadership.
- *Dedicated Support for PI Role:* support in pre-funding application phases is often not followed by dedicated support for the management of (especially large scale and complex) projects. These supports need to be reconfigured so there is a better balance for the PI between research leadership and research management roles.
- *Funding Agencies Engagement Models:* funding agencies need to engage with PIs in a both a challenging and supportive way. More consideration in funding calls should be given to the leadership and managerial capabilities of applicants but also the dedicated supports institutions really can provide.

### About us

The InterTradeIreland All-Island Innovation Programme - Community of Researchers is an initiative to bring together academics, postgraduate students, policy makers and business people who are interested in innovation in Ireland. We aim to ‘create a virtual community to strengthen innovation studies research in Ireland and its contribution to strategy, practice and policy.’ This research briefing series is one way of achieving this aim along with meetings, workshops and postgraduate research awards.

For more information about the InterTradeIreland All-Island Innovation Programme and the Community of Researchers visit [www.intertradeireland.com/all-island-innovation-programme/](http://www.intertradeireland.com/all-island-innovation-programme/) or you can contact Bernadette McGahon on 028 3083 4168 (048 from Ireland).



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