



Elmer's Contributions to HIMR

Government Communication Headquarters

Counter Terrorism - Stopping terrorist attacks in the UK and against our interests overseas

Cyber Security - Making the UK the safest place to live and do business online

Serious & Organised Crime - Reduce social and financial harm that serious and organised crime causes to the UK

Support to defence, managing threats from hostile states, promoting the UK's prosperity,...



A Quandary (circa 2000-2003)

GCHQ had exceptionally challenging mathematical problems to solve.

There were already a number of highly talented mathematicians at GCHQ, but far from enough to take on all the hard mathematical problems.

Problems required specialist, world-class mathematical expertise as well as combined team-input from a wide mix of mathematical disciplines.

Use of academic consultants at Cheltenham had already made good headway but GCHQ still had much more to achieve.

How could this be fixed?

The Solution

Form A New Institute

A partnership between GCHQ and the UK academic mathematics community.

The Last Time GCHQ Tried Something Like This



Modern Version Needed a Different and Innovative Approach :

Members to spend half their time pursuing classified research in support of GCHQ and the other half doing personal academic research.

Appoint Two Senior Leaders:

Director

Develop the external profile of the Institute, attract and recruit high calibre mathematicians.

Deputy Director

Formulate and “direct” the classified research.

Another Question : Who can fit the role of Director?

There were some particularly challenging tasks :

- Persuade senior mathematicians to join a new and “unusual” Institute.
(they were sure to wonder “how secure is its future?”)
- Convince pure mathematicians that yes they really can **apply** their mathematics.

The Director could not mention what the classified work actually entailed or how seemingly abstract areas of mathematics could possibly be of use.

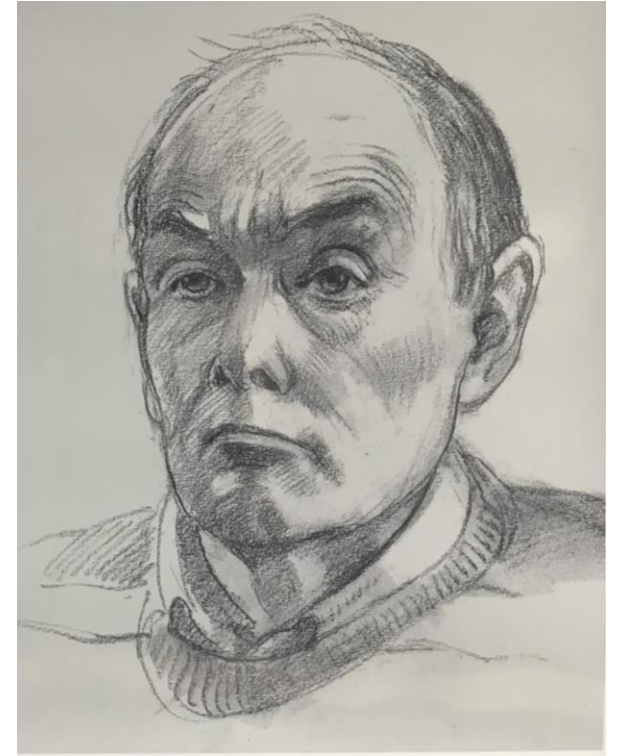
The Solution

Elmer had excellent credentials, in particular:

Played pivotal role in setting up the International Centre for Mathematical Sciences in Edinburgh; another very new-style institute.

Widely respected and well connected within academia, with wide-ranging mathematical knowledge and interests.

His high credibility meant academics could both trust in his judgments about the relevance of their mathematics and feel that the future of the new Institute would be safe in his hands.



Trial Period

To mitigate the risk of failure the new Institute was initially placed on “probation”.

All contractual arrangements were designed so that HIMR could be shut down with just three years notice.

During this trial-period the success of HIMR depended heavily on the Director’s ability to build and establish the Institute.

Elmer Instantly Rose to the Challenge

He immediately used his extensive experience and wide spectrum of academic contacts to build and establish HIMR, including:

Organising conferences, talks and seminars to give HIMR early visibility within the mathematics community.

Using these events as an opportunity to meet with visiting academics to discuss the possibility of spending time at HIMR.

Developing close working relations with Bristol University.

Achieving the successful recruitment of senior mathematicians and Research Fellows.

Elmer the Civil Servant

Elmer's formal status was that of Senior Civil Servant reporting to a member of the Directorate in Cheltenham.

There were inevitable bureaucratic obstacles , challenges and “cultural differences” to contend with whilst developing the new partnership.

Elmer was determined, admirably patient and highly successful in winning people over.

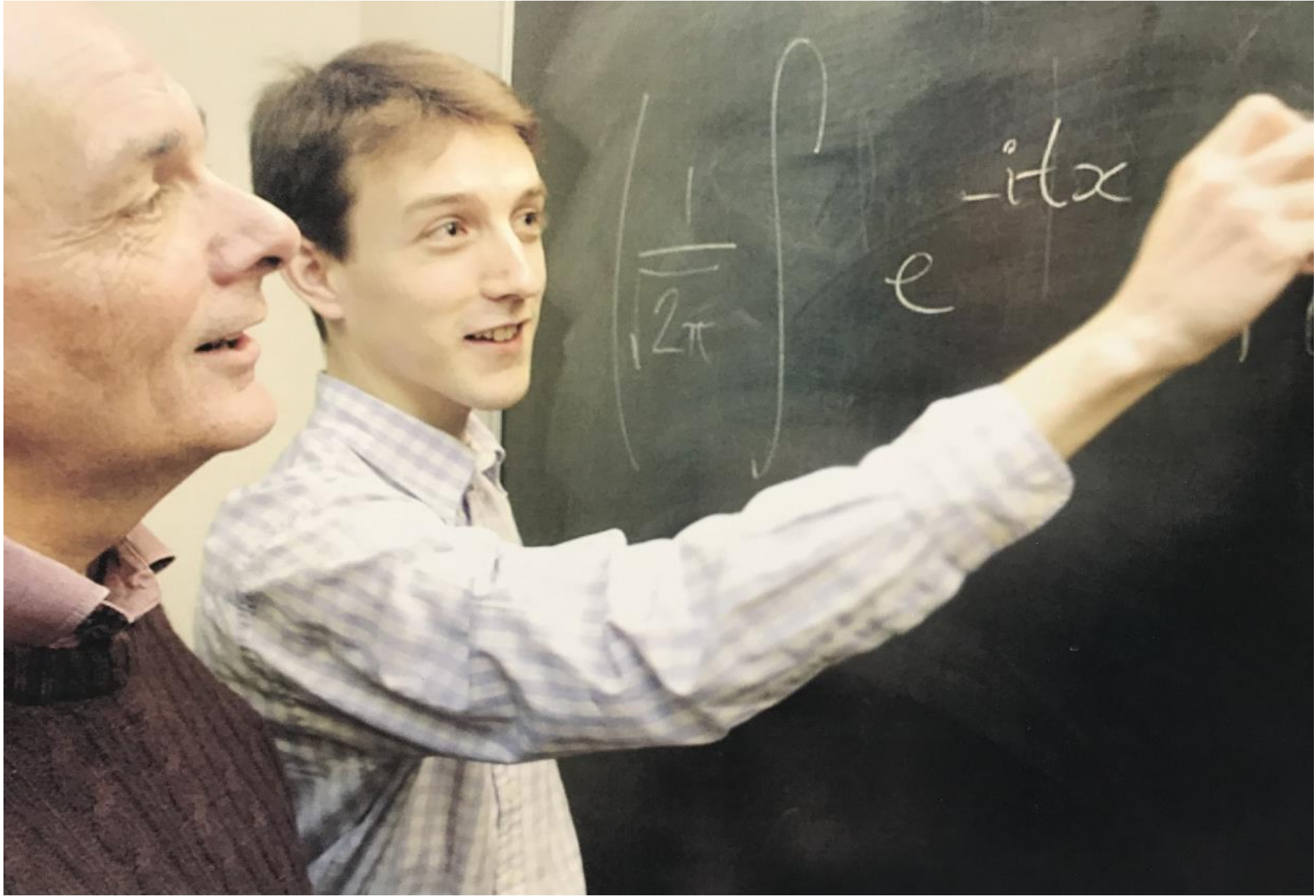
For example: He successfully made the case to Cheltenham that in order for senior academics to spend long periods of time at HIMR there needed to be sufficiently generous release and secondment arrangements.

First Advisory-Board Review 2005/6

- “The original concept of HIMR has proved viable and successful..”
- “Excellent quality of conferences and workshops. The speakers for these events were outstanding and compare favorably with those at leading research institutes worldwide”
- “The relationship with the University of Bristol and Department of Mathematics has been excellent”
- “The future potential of the Institute is rich. The first year has laid down the foundations of an active and effective research establishment ... new breakthroughs”

The Other Side of HIMR's Work

- Elmer was up to speed with and followed the internal classified research right from the start.
- He took particular delight in seeing how effectively Research Fellows could move outside their comfort zones and get to grips with unfamiliar and highly challenging problems.
- He added a very human touch to the Institute as it grappled with these new challenges.



Elmer's Reign ends 2009.....



Elmer as HIMR Consultant

Following his time as Director Elmer continued to work at HIMR as a part-time consultant making mathematical contributions to the classified research.

From a personal perspective he was a friend, mentor and invaluable source of advice. In particular supporting me with his insightful observations, advice (and great sense of humour) through a very challenging period of HIMR leadership.



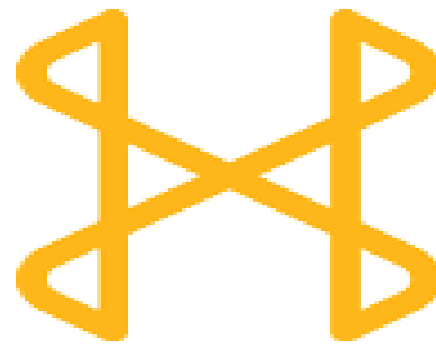
Elmer's Legacy

Building on Elmer's contributions as first Director HIMR has gone from strength to strength.

- Major advances on the classified work: high impact on UK safety, intelligence and security
- 2011: Institute made permanent
- 2012: Expand into new London site
- Members from over 25 UK universities
- More than eight universities host Heilbronn Research Fellows
- Ever growing profile and contributions to UK mathematics
- 2019: Expand into new Manchester site

The Heilbronn Institute (HIMR)

The Heilbronn Institute supports mathematics in the UK through Research Fellowships and sabbatical opportunities for mathematicians and data scientists, and through a programme of conferences, workshops and focused research activities



**Heilbronn
Institute for
Mathematical
Research**

Elmer's Legacy

27 January 2020 : Announcement by Prime Minister

“A significant boost to the UK's world-leading mathematical sciences community”

Additional investment in HIMR, expected to be £4 million per annum :

- Double support for PhD students
- Expand Heilbronn Doctoral Training Partnership
- Significantly increase number of Heilbronn Research Fellowships
- Increase HIMR support and grants for UK mathematical events across UK

Summary

Elmer's contributions were substantial.

He was key to establishing a highly successful National Institute with major consequential benefits to UK Mathematics and National Security.