To Do the Right Thing for the Wrong Reason; the EUROTRA Experience

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1. The Reviewers Dilemma. T.S.Eliot put it with his accustomed economy when he made Becket reject the Third Temptation: "To do the right thing for the wrong reason". The Archbishop may have rejected the temptation but he was murdered just the same; he went on to receive his despised sanctification and also to serve his church through his posthumous reputation. The problem is particularly acute for the military historian, for so many of the outstanding heroes start on their paths to glory by disobeying orders; not perhaps the perfect example to hold up to the young man starting out on his service career. And what about the reviewer of research programmes? Does he judge the programme by what the grant applicants said they would achieve, undertook to at least attempt to carry out; or does he judge it on the results, what is actually achieved? In 1935 Edward Appleton undertook to work on a death ray, but he came up with radar. The history of science is liberally scattered with discoveries that were not what had been intended by the grant evaluators, or even by the research workers when they put in the grant application. The EUROTRA programme is one such story, much achievement but not what been intended.

Anyone who sets out to evaluate a programme, after it is over, is in danger of judging the past with the luxury of knowing the future. It is all too easy to be wise after the event and to forget that, at the time, one might have made just the same mistakes. Well, not the same ones, but perhaps others just as serious!

2. The Situation. It is tempting to call this section "The Facts", but in the EUROTRA programme community little is unambiguously agreed, even when the documents are there for all to see. People remember what they want to remember, they remember what they wanted to see in the documents and not what sometimes got recorded by an unknowing bureaucrat. The origin of the EUROTRA programme lies in the requirement of the European Commission for a machine translation programme. After all, they have the biggest translation work load of any body in the world because they have more official languages. In the mid 1970s it was decided to purchase the Systran Programme, at that time owned by Peter Toma's company working in the USA. The Commission then were faced with 6 official languages, and that had risen to 9 by the end of the EUROTRA programme in 1992; and is now 11, over 100 language pairs. Not every member of the European family wishes to read a document originating in Greek in Finish, but if it is an official document he - or, should I say, she is certainly entitled to read it in that language. This choice of Systran was not entirely without controversy, even though it was the obvious choice if one simply wanted to get on with the job, because of the development support that had been put into it by the US Air Force. The embryo European language engineering community felt they could have supplied the need, and surely Europeans should be employed to produce a tool for the "European" languages? The Commission was supporting some language engineering work at its Euratom research establishment at ISPRA in Italy, and Sergei Perschke moved to Luxembourg to become the project officer of the programme that eventually emerged as EUROTRA. In 1975 a group of representatives from some thirty Universities and research centres was called together by the Commission. A small contract was awarded to ISSCO, under the inspired leadership of Prof Maghi King, to organise a programme and to lead the EUROTRA Co-ordination Group.

Unfortunately it took the Commission five years before the approval of the European Council and Parliament was obtained for the Programme, but it was finally authorised in November 1982. Even then it was not until the autumn of 1985 that sufficient contracts had been signed with the participating countries to allow the main work programme to commence. (It is interesting to note that a distinctive feature of the EUROTRA programme was the direct involvement of the national governments. This feature was, at the same time, both the major cause of the long delay in getting the programme started, and one of the key factors in its success in that it led directly to the stimulation of national interest in their languages in

some countries.) But by the time the programme formally started in 1985 much of the key formative work had been achieved. The programme ran officially until November 1992, though some limited work was supported for a few years thereafter.

The objective of the programme was stated in the Council Decision of 1982 as a "research and development programme for the creation of a machine translation system of advanced design". On completion of the programme an "operational system prototype" should be available which would "provide the basis for development on an industrial scale". The Programme Management Committee was required to contribute to the "clarification of the user requirements". In 1987 and again in 1990 the objective was repeated as the development of "rapid and efficient computerised systems for translation and interpretation".

3. The Outcome. No operational system prototype was ever built, and from an early date the programme workers did not see the programme as one to produce such a system; they did see it as an opportunity to carry out research on language engineering, with particular reference to machine translation. Unfortunately, in hind sight it can be seen that too much emphasis was placed on grammar, and linguistics and too little on the real user need that could have led to significant results in that time frame by concentrating on computer-assistance to human translation. Virtually no work was carried out on performance evaluation, no doubt because it was considered that there was nothing to evaluate. It is particularly unfortunate that so little attention was given to building up linguistic resources; none to corpora, very little to lexica. In considering why these "mistakes" were made, why the quite explicit objectives were not achieved, it is important to bear in mind what was achieved in building up the language engineering research community in all the countries of the then European Community.

4. The Mistakes? If one tries to analyse where the programme went wrong it is easy, in hind sight, to set out a series of what can now be seen, by all except those directly involved, to have been errors. It is easy, remote from the day-to-day cut and thrust of events to particularise on what might have been. It is very difficult to think back to the environment of the time to see why these choices were made or those opportunities missed.

1) The Choice of the Main Participants was to some extent inevitable. It is a peculiar problem for research programme administrators, certainly not unique to the Commission, that those who run these programmes rarely have a background in the industries and from amongst the end users the programmes are designed to serve. It is much easier to recruit from an institute or academic background. The Commission could claim, with some justice, that it was up to the national governments to name their participants in the EUROTRA programme, and of course it was much easier for those officials to name the Institutes that they had some part in funding. Moreover, they could claim that they had little choice in the matter; certainly the academic participants are convinced that they were the only people around in Europe, in the late 1970s and early 1980s, who knew anything about linguistic research, let alone be capable of building a system.

Yet there are those, and I am one of them, who consider that the choice of prime participants predetermined the outcome. By the early 1980s the software business had become quite a professional industry, even if Microsoft was still young and no credit to that industry - some would say even today. The best parts of the European software industry were quite capable of building a machine translation system, to price and even to date - if they were very lucky. They would of course have needed expert help and advice from the academics and institutes. The industry is quite used to working in harness with external experts. Not that the resulting system would have performed, to any significant degree, any better than Systran. But it would have been far better engineered than Systran was at that time - some would say it could have hardly been worse in this respect. And perhaps most important, an experienced software house would certainly have engineered the lexical database so that it could be treated as a reusable, readily updateable, separate module, as with other key parts of the system. The work could have involved an industrial consortium, of course supported by the academics. The experience of building the

system would have given that part of the European language engineering industry an experience and commercial exposure of very considerable worth. It is an important opportunity totally missed, and there is no point in ducking that issue.

This choice of the key participants is one that bedevils the Commissions language engineering programme to this day, despite the best efforts of the administrators. It is not a problem unique to this area of the Telematics programme, or of the Commissions Framework programme as a whole. It would be interesting to analyse the background of the Commissions programme administrators. How many of them have had significant experience in the industrial or commercial world they strive to assist? They are, in general, devoted servants of the communities they work so hard to serve; but they lack the hands-on experience of industry and commerce at a senior enough level to be able to appreciate what really matters at the coal-face; to understand, for example, that a good but inexperienced software house can gain inestimably from actually doing a job. How often have firms in Europe been faced with competition from the USA where their inferior competitors have a product that has stemmed from support from the DoD or some other US public agency?

2) Neglect of the Users. This was another serious mistake, but it is difficult to level it when some, perhaps most of the Commissions staff involved in administering the programme were members on secondment of SdT, the Commissions translation service. If only part of the same effort that was devoted to EUROTRA had been devoted to an integrated document handling and machine-assisted human translator system, to what in ESPRIT has become known as a Translators Work Bench, it seems probable that, given a sensible investment policy for the deployment of suitable word processors, an increase in Commissions translation efficiency could have been achieved that might have approached a doubling of output, judging by what has been achieved in well organised services elsewhere in the USA and Canada. Such a saving in the Commission alone might amount to, say, 500 x l00,000 ECU = 50 MECU per year! That would pay for quite a number of research grants. (It would even support the European Language Resources Association and the building of European language resources for quite a number of years!) Of course, such work has not got the same intellectual interest for the academics, and the failure to pursue such an approach must be attributable to the same issue of the type of key people organising and participating in the programme that is referred to above.

3) Lack of attention to Linguistic Resources. The pony express cut down on the time it took for a letter to cross the Continent by a very considerable factor. But for the steam engine to take over and speed things up by an enormous factor required a huge investment in trail track. The situation is just the same with Language Engineering, but unfortunately not so obvious. The applications of Language Engineering will not take off until there is a significant investment in building language resources, lexica, corpora, and the like - and in all the languages of Europe. Time after time promising developments fail because there is not the investment in the necessary resources. The only reason that the Commissions machine translation system performs as well as it does, relative to the much more modern competitors, is that years of investment have gone into the dictionaries; it is just a tragedy that the engineering does not enable them to be separated out and reused.

The EUROTRA programme was an opportunity to have established a framework and a methodology for producing machine usable, portable, resources for all the languages involved. Even on the research grounds that were chosen for the EUROTRA campaign, much could have been done to have forged a methodology and a network of dedicated individuals who could have formed the basis on which the large investment in language resources that is vital if Language Engineering is to take off in Europe could have been built. Unfortunately this aspect was relatively ignored, compared with the investment in grammars and in formalisms. It is not so glamorous, and is work that requires more perspiration than inspiration. Again, it is possible to speculate that the involvement of the commercial and semi-commercial bodies who produce the human-readable lexica might have produced a better result The failure to appreciate that the development in hardware performance had moved on to the point where corpora bashing had become a valuable route to the provision of language resources is unfortunate but not

a mistake for which the programme directorate can be blamed, except to the extent that more attention to the resources aspect of the programme might have led to an earlier appreciation of the importance of corpora. (If I am honest I have to add that far from making it easier to have spotted the new development, I suspect that more investment would simply have created more people with an in-built investment in not changing from a traditional linguistic approach).

However, I would not wish to suggest that nothing came out of the linguistic resources aspect of EUROTRA. The Commission has now brought together the various interests in European Language Resources, written lexica and corpora, spoken material, and terminologies. The European Language Resources Association has been formed, and is now in business. The fact that people involved in the field across Europe had got to know each other through Commission projects like GRAAL, GENELEX, - yes, and EUROTRA has enabled the human foundation to be put in place on which ELRA and the Commission can build. One can now create a scenario in which the Commission makes a major investment in European language resources, and then makes the resulting material available to whoever in Europe can make good use of it. It is a close analogy to the way the governments choose to make use of our taxes for the investment in the infrastructure of roads that enables us to speed across Europe in our cars. It requires some imagination to do the same for the language engineering infrastructure, but the opportunity is now there.

5. The Achievements. It is always difficult to put a value on intangible assets, and there is a tendency to write off the Commission programmes like ESPRIT because it was claimed that they were going to be the saviour of the European IT industry, whose position may have stabilised in the last few years, but can hardly be said to have shown a great revival. When one looks at the way the IT communities of Europe now naturally turns to talk to their peers across Europe, are prepared to work together, know how to make multinational and multi cultural co-operation work, then it is clear that the programmes have had a great, if curiously unsung success in changing the social and cultural face of Europe.

In the case of EUROTRA the programme led to a wave of interest in language engineering in all the countries of the Community. Countries who had no “national champion” in the field found it desirable to create one; in several countries the government took a serious interest in their language when there had been very little before. Not all the institutes who thrived on the programme have survived its demise, but most have, and some have found a new lease of life in dealing with real customers.

It is a challenge for Europe to cope with its many languages and cultures; co-operation does not come easy for peoples and perhaps especially governments who have competed, even fought over the years. But EUROTRA brought the language engineers of Europe together in countless working parties and ad-hoc collaborations. As always, a few individuals bore the brunt of the task of creating and administering collaboration; Bente Maegaard stands out in this regard. It is a noticeable feature of the European landscape that now the leaders and workers of the language engineering community know each other and find it easy to collaborate.

Co-operation with the industrial and commercial world was not a noticeable feature of the programme but some did build up in the programme, and more has been encouraged by subsequent Commission programmes. This is a very important feature of the European scene, for if the commercial world is to take the lead in getting language engineering into use, it needs the academic world at its elbow, showing it the way to go. We sometimes forget just how much collaboration across this barrier has been established, perhaps because it has become a natural feature of European life, at least in parts of the IT world.

6. The Balance of Achievement. No system was ever built within the programme, though work outside the programme, in particular at the Danish Center for Sprogteknologi, has demonstrated that a practical system for a limited domain could be built without too much extra effort on the basis of what was achieved in the programme. The building up of a language research and engineering community in all the countries of the European Community was the major achievement of the programme. When the history books come to be written the EUROTRA programme will be seen as the pivotal action that led to a strong research community in the language engineering field, who know each other well, and are used to co-operating together. This is of inestimable importance not just for the language engineering community but for the cultural future of Europe. Even if the members of the Council and Parliament who looked for a tangible product out of the programme are cynical about the outcome, the founding fathers of the European Union would have cause for quite satisfaction if they could know the way programmes like EUROTRA have changed the face of Europe in terms of the creation of a quite natural collaboration of the experts from different lands, who not so long ago only met each other only on the field of battle.