PHILIPS RESEARCH

Long-Term University Partnerships Sought

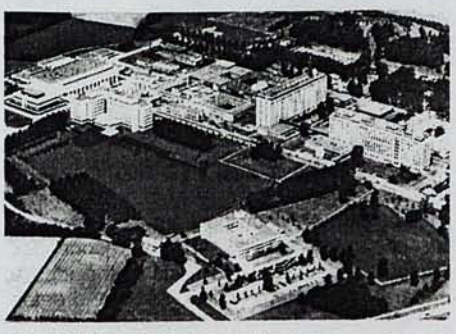
Restructuring has given clearer responsibilities to Product Divisions and business units in the Philips company. This move to a more decentralized structure has attracted attention as there are fewer corporate-level staff. But the research activities in Philips are still coordinated centrally on the Board of Philips Electronics, and Philips Research comprising five laboratories in The Netherlands, the UK, France, Germany, and the USA (2900 total staff) is run at present as an interdisciplinary, international, industrial research organization.

Some 1% of sales income is currently spent on research; this was formerly budgeted at the corporate level and the main recent change in policy has been to fund two-thirds from contracts with the company's five Product Divisions. Dr. K. Bulthuis, Senior Managing Director of the Philips Natuurkundig Laboratorium in Eindhoven and responsible for Corporate Research, says the plan is to keep the present structure. Philips Research is also partly supported by European Community (EC) funding and some 5% of the budget now comes from EC programmes. This effectively means that 10% of projects are linked at the European level: Dr. Bulthuis considers this a "comfortable" limit, allowing an effective rôle in defining relevant programmes.

Dr. Bulthuis sees research as being an "antenna" able to translate a selection of discoveries and developments into business opportunities for the company. He also feels that the emphasis in physics is increasingly technological and it is no longer appropriate to simply employ bright people in research "and see what happens". The challenge is that Philips will still need to "move the boundaries": the company has always recognised that "one must innovate to compete successively in the electronics industry". Having the intellectual property rights to inventions is strategically important as they can be used for cross-licensing. So Corporate Research is instrumental in maintaining a strong patent portfolio, important for "hands free" manufacturing within the company. It also contributes to new areas of activity that can be transferred to the Product Divisions.

University Collaboration to Double

How then will research planning evolve? The answer is clear: there will now be a much stronger emphasis on collaboration with universities. Dr. J.P. Hurault, a Managing Director based at the Eindhoven laboratory, has been assigned to define and execute an external research progamme to "magnify and enhance" cooperation aimed to benefit all of Philips. He says university collaboration has up to now been largely unstructured, in many cases developing *via* personal contacts. This is, of course, not a bad approach *per se*, but the need is to include university relations as part of R. and D. planning. Dr. Hurault estimates that Philips presently has 100-150 contracts worldwide with universities; he expects the number to double fairly soon. So of the total professional scientific and technical staff of some 1500, the number "strongly coupled" with universities will increase to 200 and more.



The Philips Natuurrkundig Laboratorium in Eindhoven, The Netherlands.

Dr. K. Bulthuis, Senior Managing Director of the Philips Natuurrkundig Laboratorium in Eindhoven.

Operating this level of collaboration with universities means careful planning and represents a great deal of work; but other companies, notably Digital Equipment Corporation in the USA, have shown that it can be handled effectively. The company itself will concentrate on aspects in which contributions coming from universities are expected to be less significant. In the case of production technology, Dr. Bulthius speaks of the importance, for example, of "manufacturability and miniaturisation". Planning at Philips is also in terms of a capability portfolio balancing long and short-term needs. Here there is some difference with the university culture, which is "long-term, discipline oriented". Moreover, a university's main mission is education, which is usually along disciplinary lines, whereas industry must increasingly "combine results". Basic research is not ruled out in industry, but it must be done in the context of a broader perspective, with people shifting between long- and short-term topics. Dr. Bulthius gave as examples novel design methods for IC circuits and computer-aided materials development for magnetic sensors (see page 43 for a report by R. Coehoorn on magnetoresistive multilayers).

Several Issues Need to be Addressed

The emphasis on greater collaboration with universities understandably raises some delicate issues. Take intellectual property rights: Dr. Hurault notes that universities generally recognise that Philips has the mission to exploit results generated by joint project work. They consequently often grant the company the sole ownership of the corresponding patents. Specific arrangements have also to be addressed in the framework of the local legal requirements, as well with respect to participation by national funding agencies.

Regarding publication rights: universities and their funding agencies usually favour unrestricted publishing. Indeed, students supported by The Netherlands' Foundation for Fundamental Research on Matter (FOM) have the right to publish (*Editor's note:* FOM supports about 50% of Holland's Ph.D. students). Working on the basis of a "strategic cooperation based on mutual confidence", the policy up to now has been to have both sides approve publication. It may need to be redefined to handle cases where students work directly on contract as well as on a jointly funded project. Dr. Bulthuis says Philips aims to continue to encourage excellence by having staff able to contribute in some fields at a "world-class level". Philips Research will still publish and have the resources to operate a reputable internal review system, so Dr. Hurault feels publication is not a major issue.

Philips will not try to direct research within a given university. It will instead seek collaboration in areas in which the company is active and can offer capacity to absorb discoveries. Neither will it manage directly project work in a university, but instead identify a "champion" from within the company's ranks, who will stay in close contact with university colleagues. Dr. Bulthuis would discourage universities from taking on industrial research solely for financial reasons, for they should balance their own programmes according to a variety of factors involving scientific excellence as well as industrial relevance.

Dr. Hurault plans to issue a brochure that will outline guidelines for university cooperation. He does not envisage anything so formal as a call for proposals but an "expansion in an interactive way". Evolution will involve existing contacts being redirected and maybe expanded, and priorities established, the ultimate goal being to converge towards a set of long-term partnerships with universities offering the desired complimentarity. In this perspective, university research groups are encouraged to contact the Philips labs if they feel collaboration may be mutually beneficial.

Formal Announcement

The Ninth General Meeting of the Members of EPS will be held in Florence on Tuesday, 14 September 1993.

Applicants for membership awaiting acceptance will be admitted provided the first membership fee has been paid.

Members are invited to make proposals for topics to be placed on the Agenda in time for publication in the May issue of *Europhysics News*.

Preliminary Agenda

1. **Report of the President**
2. **Report of the Secretary**
3. **Report of the Treasurer**
4. **Discussion of subjects of general interest according to suggestions and proposals put forward by Members.**