

Managing collaborative R&D projects development of a practical management tool

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Abstract

In an environment of globalisation, intense competition and rising R&D costs, collaboration has become an essential means of sustaining technological growth. However, there are many difficulties inherent in managing projects across organisational boundaries. While research has identified a range of management “success” factors, little attention has been given to how such knowledge could be applied in the everyday context of a collaborative project. Based on case studies by the authors involving the automotive and aerospace industries, this paper reports on the development of a management tool designed to provide practical guidance on the effective management of collaborative R&D projects.

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1. Introduction

Against a background of increasing international competition and rapid technological change, the UK government has, since the 1980s, been actively encouraging collaboration between academia and industry, as a means of improving innovation efficiency and thereby enhancing wealth creation [1]. However, collaborations between often diverse organisations are difficult to manage [2] and the cultural differences between academia and industry present particular difficulties [3]. Thus, the contrast between an increasing prevalence of university–industry collaborative R&D projects and equally prevalent reports of failure, has driven considerable research in the identification of management “success” factors [3,4].

However, very little work has been done pertaining to how this knowledge could be applied in practice, to bring about improvements in collaboration management. This paper reports on the development of a framework for the effective management of collaborative R&D projects, based on both this extensive body of knowledge and case study work. The framework tool is then tested through a further case study involving the food and drink industry.

2. The current body of knowledge

It has been suggested that the key to successful collaboration lies in the way in which they are managed [5]; a view which is reflected throughout the literature, in the identification of a wide range of management “success” factors. A review of published research concerning *industry–industry* collaboration revealed a number of “success” factors which are essentially generic, being applicable across a wide range of collaborative formats, e.g. strategic alliances, joint ventures, research consortia [4–6] and industry sectors, e.g., biotechnology, pharmaceuticals, electronics, telecommunications, information technology, automotive engineering,

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aerospace, and oil-exploration [3,5,7]. These “success” factors can be categorised into a series of themes, Fig. 1. For example, Fig. 1 shows that the *choice of partner* theme includes “compatibility of culture and mode of operation” as a success factor. Since incompatibilities between companies often result in misunderstandings, suspicion and conflict [7]. The theme referred to as *universal success factors* differs from the others in that it is less specific, consisting of factors such as *flexibility* and *commitment* which are regarded as having an all-pervading influence across all elements and all stages of the life cycle of a collaborative project.

By contrast, research concerning *university–industry* collaboration has concentrated primarily on the existence and effects of the so-called “cultural gap” [3]. The factors identified included conflicts over ownership of intellectual property (IP), academic freedom to publish, and differences of priorities, time horizons and areas of research focus. However, aside from the cultural issues, a UK study by Engineering and Physical Sciences Research Council (EPSRC) [8], revealed findings that were similar to those reported for industry–industry collaborations, thus indicating that an overlap existed between (management) factors affecting the success of industry–industry collaborations and those of *university–industry* collaborations.

This suggests that good practice knowledge from both fields can be combined into a comprehensive model for the success of university–industry collaborations. However, this hypothesis needed to be tested. A series of case studies were therefore conducted in order to identify and classify factors found to affect the success of university–industry technological collaborations.

3. Case study research

Warwick Manufacturing Group (WMG) has, since its foundation in 1980, established a substantial involvement in and a reputation for collaborative research with industry. Since the primary focus of this work is on collaborative R&D, six collaborative research projects involving WMG and a number of industrial partners were therefore selected for study as part of a multiple-case research design.

The study was designed to test the influence that the “success” factors identified in the literature had on the outcome in each case. Five of the six case studies were part of a large collaborative programme involving WMG and some 25 companies from the automotive industry. These projects were therefore set-up in a very similar way, but were each perceived very differently in terms of “success” or “failure”, making them appropriate subjects for studying the effects of management “success” factors. The sixth case extended the study to the aerospace industry, providing an opportunity to investigate the influence of the management “success” factors across two different industries [9].

In each of the cases studied, project participants from the collaborating companies, academic researchers, and where applicable, any technical staff having direct involvement in the projects, were subject to questionnaire-structured interviews. The interview data was supplemented by documentation in the form of minutes of progress meetings, company records and direct observation of project progress meetings, in order to ensure adequate triangulation of evidence [10].

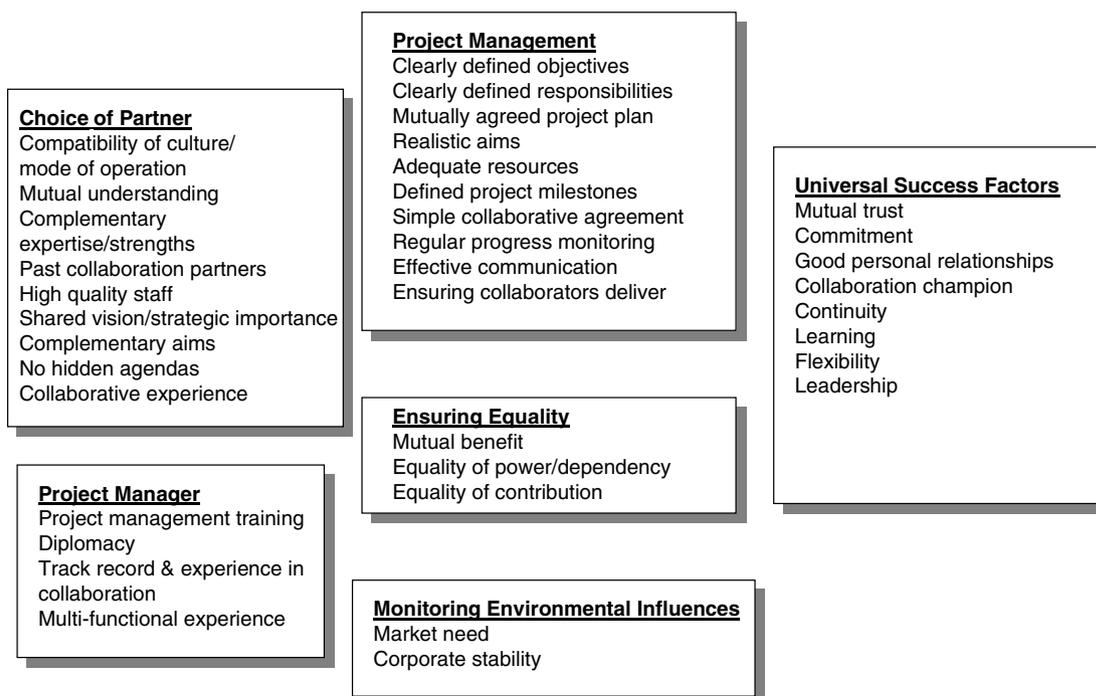


Fig. 1. Management “success” factors identified from the literature.

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