

(La)T_EX case study

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Abstract T_EX, a typesetting system, was developed by Donald E. Knuth in the 70s. It was released with an open source license and has become the reference in scientific publishing.

This case study is sponsored by the CNRS, the French research agency, and is supported by the University of Toulouse in France and the School of Information Management and Systems in Berkeley. It serves as a critical examination of the stylized facts uncovered in previous studies of other open source software projects, such as Linux, an operating system, and Apache, a server.

The comparison centers on the historical development of the project, the organization, formal and informal, that supports it, the motivations of the developers, and the various dynamics that are at work and influence the project.

Finally, the case study explores the economic impact of the T_EX software, through T_EX based commercial applications, and its use in the typesetting industry and various institutions. It focuses on how the open source nature of the program made a difference compared with what would have happened had it been commercial software.

The main focus of this case study are the way the project was led, how the lead developers influenced the projects development, how some factors, such as the license and the way the program was supported and distributed, had an impact on its success, how forking and centrifugal forces were harnessed, and finally, how various classes of users cohabited in the T_EX users community.

The main findings are that, as the original leaders, Knuth and Lamport, relinquished their role, there was no formal way to transmit the leadership and a problem of credibility for people who wanted to take the lead, and couldn't initiate a snowballing effect in their favor. Psychological factors and inertia were also important, as well as the license terms to explain the lack of direction in the development of the project. The continued development of the project had a freezing effect on the satellite projects, due to the uncertainty over which way the core project would go. But when the development was stopped, satellite projects couldn't get the core to change in order to fit their needs.

Another important finding is the role of the people who are controlling the distribution, since that distribution had a major impact on the success of the project.

Finally, this case study shows how an open source project, which is the subject of many competing uses, as the basis of some commercial development or for use by the publishing industry, sees the many projects linked to it managed in very different ways according to the preoccupations of its developers.