Organizational Politics and Information Systems Development - a Model of Conflict

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Abstract

This paper presents a new model for better understanding how conflict and organizational politics impact on the effective development and implementation of an information system. The research study leading to this outcome is described. The results indicate that there is a definite relationship between different types of conflict and the successful progress of a project. Conflict among developers of the project was considered to be the least damaging to the project, but both conflict between users and developers and conflict between different user groups was considered to be a significant threat to the success of a project. Interestingly, a tiny minority of practitioners are beginning to assess these types of conflict, and attempt to manage them, as part of their risk management procedures. The study suggests that information practitioners must take a more proactive role in managing conflict during an information systems development.

1. Introduction

The notion of organisations as political systems is common in the management literature, but less so in the Information Technology (IT) literature. This concept suggests that organisations are most usefully understood as sites where participants interact in pursuit of a range of interests [1], [2]. Some of these interests may be common or complimentary, other interests will differ and conflict. Dunford [1] explains that organizations are political entities because different interests develop on the basis of both vertical and horizontal differentiation: horizontally because of different group and individual interests; and vertically, because interests at different hierarchical levels will often differ. This political perspective of organizations highlights the complexity and multiplicity of objectives within organizations where outcomes are likely to revolve around the ability to get one’s preferences accepted; to have the greatest influence on decisions made and directions taken and where actions can be analysed in terms of power, interests, the management of conflict, and the mobilisation of support and negotiation. Pfeffer [3] defines organizational politics as those actions and activities aimed at acquiring, developing and using power and other resources “to obtain one’s preferred outcomes in a situation in which there is uncertainty or dissensus about choices”. Power in organizations, therefore, is an integral part of the political model of organizations, and conflict is often the outcome.

An information system development is an instrument of change, and the larger the information systems project, the greater the number of people in the organization affected by the development. Therefore, the larger the information systems project, the greater the opportunity for organizational conflicts to occur and the more likely that these conflicts will impact on the success of the project. According to Robey et al [4], by introducing an information system and changing the method of processing, the political structure of the organization is inevitably affected. This suggests that any large or integrated systems development project would be fertile ground for the kind of conflict born of protecting one’s interests in an organization. According to Hirschheim and Newman [5] integrated systems offer many advantages, but they are also a source of much conflict within organizations, as they undermine existing power structures. Pichault [6] hypothesises that “in organizations where the power distribution is concentrated (centripetal systems), a technologically related organizational change project will tend to be considered as a threat and will probably lead to failure”.

The literature reporting that human and organizational factors are perceived to be a major cause of project failure is expanding [7], [5], [8], [9]. According to Newman and Sabherwal [10] information systems managers should be aware that project related factors are not the only determinants for continuing project support. Social,
psychological and structural factors may also be determinants for sustaining commitment and support. Managing the power, politics and the organizational context of information systems is increasingly recognised as being of critical importance to successful information systems development [11], [12], [13], [4], [14]. And yet, there does not appear to be a clear understanding of the extent to which these issues may impact on information systems projects.

This research study is an attempt to gain a better understanding of some of these issues, as clearly, the need for improvements in the success rate for information systems developments demands that researchers and practitioners give greater attention to the cultural and human factors involved in process redesign and information management [15], [4], [14].

2. Research Study Objectives

The research objectives for this study were derived from the findings of a comprehensive case study of a prematurely terminated, intra-organizational information systems project in a large public sector organization. The research described in this paper was designed to test the wider applicability of the case study findings.

2.1. Case study findings

The Case Study project operated in a climate of conflict at a number of levels: conflict among developers; conflict between users and developers; conflict among user groups defending their own divisional procedures; and conflict between end users and their managers. The major source of conflict was between senior user management and the rest of the participants with senior managers lobbying overtly and covertly to gain control for their divisions. The most surprising outcome of this study was that the project was most detrimentally affected by the impact of conflict among users. This level of conflict is often invisible to developers, and in danger of being dismissed as not relevant to them.

2.2. Definitions

The following terms were defined for the purpose of this study.

*Users* are defined to mean potential users of a system, or, anyone from the business area of an organization who will be directly or indirectly impacted by the development or implementation of an information system, including managers who will manage staff using the system, staff on steering committees or other committees influencing the development, and senior managers who have some decision making power in regard to the development.

*Developers* are defined to mean members of the information system project development team and their supporting and clerical staff, contractors from outside the organization who may be employed to work on the development of the project; and members of the organizations information systems department who have some responsibility for the development or ultimate maintenance of the system.

*Failure* is defined in terms of the Ewusi-Mensah and Przasnyski [16] definition of total abandonment, where a project is terminated before full implementation. This definition is consistent with Sauer's [9] definition of failure where development of an information system ceases, leaving supporters’ interests unsatisfied. For the purposes of this study, *success* is limited to “non-failure” as defined above. Although this definition clearly excludes several known categories of failure and success, it means that failure and success can be objectively declared and it was considered to be an acceptable limitation for this study.

*Conflict* is not defined for this study. Conflict can be constructive or destructive [17], [5], [18]. and rather than define it as one or the other, it was considered to be more important for respondents to be able to interpret the term as they perceive it. However, the *types* of conflict of interest to this study were defined to be Developer/Developer conflict, Developer/User conflict and User/User conflict and the *extent* of each conflict type was scaled as major, significant or minor.

*Overt* conflict is defined to be conflict that is openly visible and not concealed. *Covert* conflict is defined to be conflict that is hidden or secret, often involving an attempt to change decisions by political manoeuvring and exploitation, rather than by explicit means.

2.3. Hypotheses tested

While the research study was partly exploratory, a primary objective was to fit a model of conflict factors impacting on project success based on the findings of the case study research and five independent variables that were derived from that research. The hypotheses tested in this study all relate to those independent variables and can be summarised as follows:

H 1. The Extent of Conflict (Major, Significant or Minor) in an information systems development, together with other independent variables, has a negative impact on the probability of project success.

H 2. The Type of Conflict (Developer/Developer, Developer/User or User/User), together with
other independent variables, has a negative impact on the probability of project success.

H 3. The Openness of Conflict (overt or covert), together with other independent variables, has a negative impact on the probability of project success.

H 4. The perceived Degree of Impediment that conflict causes an information systems project, together with other independent variables, has a negative impact on the probability of project success.

H 5. The lack of Assessment and Management of Conflict, together with other independent variables, has a negative impact on the probability of project success.

3. Research Methodology

A questionnaire was prepared to gather data to meet the research objectives: to gauge the perceived importance of the openness of conflict, the extent of conflict observed among developers, between users and developers, and between different users or user groups; and the degree to which the different types of conflict impede effective project progress. Information was also sought on the detection and resolution of conflict.

A checkbox style was used for much of the survey, with some qualitative questions included. The questionnaire was divided into four parts: the first two parts dealing with overt and then covert conflict in the largest, delivered (successful) project the respondent was involved with, and the third and fourth parts dealing with overt and then covert conflict in unfinished or terminated (unsuccessful) projects. In each of these four sections, respondents were asked to report on up to 10 different types of conflict, so up to 40 cases of conflict could be identified on each questionnaire. To simplify the lengthy questionnaire and to facilitate answering the questions, a standard set of questions was repeated in each of the four parts of the questionnaire. So, for each case of conflict identified, respondents were asked about the perceived extent of that conflict (major, significant or minor) the assessment and management of that case of conflict and the perceived degree of impediment that conflict caused the information systems project in question.

Regression analysis was used to fit the model. Chance probability limits were set to be at the 10% level or less. However, because the data was derived from a relatively small sample, and the research is largely exploratory, it was decided that any results that fell just outside the 10% limit would be reconsidered and not just arbitrarily dismissed.

3.1. The sample

Senior Information Technology Managers were targeted, rather than project managers, because they were considered likely to have more comprehensive experience and a more objective view of the issues. To limit the sample to a reasonable size and eliminate any extraneous variables, the sample was limited to ACT-based Public Sector IT Mangers. (The ACT or Australian Capital Territory, is where the capital of Australia, Canberra, is located, and is equivalent to the District of Columbia in the United States.) The ACT Branch of the Australian Computer Society provided their mailing list of Public Sector IT Managers. This list included IT managers in charge of Federal and ACT Government departments and agencies. These managers were mostly at Senior Executive Service level, or just below it (equivalent to CIO level). The list was updated to reflect recent Government changes, as far as possible, by using the Government On-Line Database at the Australian Government Publishing Service web site. There were 68 IT Managers targeted with the survey.

4. Findings

Ultimately, 27 valid responses were received and analysed, reflecting a 40% response rate. These 27 respondents reported 393 instances, or cases, of conflict in projects with which they had been associated. A profile of the respondents experience was derived from the demographic questions: 30% of respondents had more than 20 years of IT experience, 44% between 11 and 20 years, and 22% between 6 and 10 years; 52% had between 6 and 10 years of IT Management experience and 9% had between 11 and 20 years. Altogether the respondents represented more than 329 years of IT experience and more than 187 years of IT management experience. In regard to the type of information systems projects the respondents had been involved with: 96% of respondents had been involved with IS projects that had been successfully delivered and utilised by the users (more than 183 projects); and 80% of respondents had been involved with prematurely terminated projects, (more than 50 projects). Altogether, the responses represented experiences with more than 250 IS projects.

4.1. Logistic regression

Where a response to a regression analysis is binary, the researcher wishes to determine the role of a set of regressor variables on the binary response, and there is a need to predict, or estimate the probability of one of the two possible responses for a combination of regressor variables, then Logistic Regression is an appropriate approach [19]. Logistic regression analysis is used to investigate the relationship between a response variable
and the explanatory variables [20]. The data gathered for this stage of the research study can be regarded as a number of exploratory, independent variables, and a binary response (success or failure). As such, this procedure was considered to be the most appropriate for the analysis of the gathered data and the formulation of a model of conflict.

4.2. The procedure used

The SAS statistical package was used for this analysis, and the Logistic Procedure is explained in detail in Chapter 27 of the SAS manual. The Logistic Procedure fits a straight line regression model for binary response data. The linear logistic model has the form:

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) = \alpha + \beta \cdot x$$

where $\alpha$ is the intercept parameter, $\beta$ is the vector of slope parameters, and $p$ is the probability of a successful response.

The Procedure prints a profile of the response levels and prints simple statistics for all explanatory variables in the model statement. Before estimation begins, the Logistic Procedure calculates the global score statistic for testing the joint significance of all explanatory variables in the model statement. Maximum Likelihood Estimates (MLEs) of the regression parameters are computed using the Iteratively Reweighted Least Squares (IRLS) algorithm. The estimated covariance matrix of the MLEs is obtained by inverting the expected value of the hessian matrix for the last iteration. Univariate tests based on these estimates are run and a standardised estimate for each slope parameter is also calculated, as is a score test for testing the straight lines assumption. The -2 Log Likelihood (-2 Log L) for the model is printed for fitting the intercepts only, for fitting a model with intercepts and explanatory variables and for the contribution of the explanatory variables only. The -2 Log L statistic, which measures the fit for the model with intercepts and variables is the best measure for showing how well the model fits the data overall. However, profiles based on Akaike Information Criterion (AIC) and Schwartz Criterion (SC) are also provided. Finally, the likelihood ratio chi-squared statistic, for testing the joint significance of the regressor variables, is calculated and output [20]).

4.3. Data preparation

For each instance of conflict identified by a respondent, the following associated responses were recorded: the perceived Extent of the conflict, the Degree of perceived Impediment, Conflict Assessment and Management, Openness of Conflict, Type of Conflict and whether the project in question was a Failure (terminated) or a Success (large, completed) project. The resulting table contained 393 rows of data, or cases. Each of the independent variables examined in this study consisted of values, or categories, arranged into numbered nominal or ordinal scales. For the survey, the values on the scales were presented in a hypothesised, increasing order of magnitude. For the Logistic Regression, the values on the scales for each variable became, as follows (the smallest, baseline variable values do not appear in the output tables, nor are they labelled [], as the computed parameter estimate is a measurement from the baseline value in each variable):

- the Extent of Conflict (minor, significant [extent2], or major [extent3]);
- the perceived Degree of Impediment that conflict causes a project (none or little, significant or major [ndegree2], prime reason for termination (of a failed project) [ndegree3]);
- the form of Conflict Assessment and Management used (none, conflict not detected (for covert conflict) [mgt2], conflict detected but ignored [mgt3], conflict formally assessed as part of the project risk management procedures [mgt4], conflict resolution attempted [mgt5], and conflict resolved [mgt6]);
- openness of the conflict (overt or covert [ovcov]); and
- type of conflict (Developer/Developer; Developer/User [type2] or User/User [type3]).

4.4. Preliminary decisions

In the preliminary analysis it became clear that the 65 cases where the value for the Degree of Impediment variable was “prime reason for termination” caused problems in the fitting routine, since they all, obviously, were associated with a failed project. This led to a point on the boundary of the scale of probabilities which distorted the other values for this variable. Since there was quite clearly a 100% probability of failure when the degree of impediment was identified as “prime reason for termination”, these 65 cases where removed from further analyses. This reduced the raw data to a table of 328 lines.

4.5. Regression results

The data was loaded into the SAS Logistic Regression Procedure to screen out variables and fit the model. Each variable was removed one by one to see which variables had the biggest effect on the model. A manual stepwise and backward procedure was used to screen out variables. T-values were calculated separately for each run of the Procedure. All other things being constant, if one value...
of a variable is significant, then associated values of that variable are also significant.

In the first instance, all variables were fitted, and it became clear that the Ovcov variable was probably not important to the model as it had a large standard error in relation to the size of the parameter and a t-value calculated at -0.1947 (closer to zero than any of the other variables in this first run). The Procedure was run again without the Ovcov variable, and although the measure of goodness of fit increased slightly, the difference in the -2 Log L score for the fit with intercepts and variables was only 0.037. A Chi-squared test on that result with one degree of freedom gives a chance probability score of 0.8475 (85% chance probability) indicating that the presence of the Ovcov variable was not significant. Clearly, the openness of the conflict does not contribute significantly to the probability of project success. On the basis of the data collected for this study, whether the conflict is conducted overtly or covertly appears to be irrelevant. The data, therefore, did not support the hypothesis H 3. This variable was removed from the model for subsequent fittings.

Type of Conflict appeared to be the next borderline variable with a t-value of -1.4956 for Type2 and -1.9446 for Type3, so it was the next variable selected for screening. The Procedure was run again without the Ovcov variable and without the Type variable. In this case, the measure of goodness of fit increased with a difference in the -2 Log L score of 4.066. A Chi-squared test on that result with two degrees of freedom gave a chance probability score of 0.1309 which is not significant at 0.1 (10%) but significant at 0.15 (15%) suggesting that the Type variable was indeed a borderline part of the model. The Procedure was then run with and without the Type variable and it became clear that in both cases, the fit of the remaining variables was basically unchanged. Since the retention of the borderline Type did not impact on the other variables, the chance significance was not far outside the 10% limit, and the inclusion of the variable would enrich the model - Type was not discarded. In this way, the hypothesis H 2 was supported by the data, and therefore proved. The remaining final analyses, were then run again with Type retained.

The next variable screened was Degree of Impediment. With ndegree2 giving a t-value close to three in each of the first three fits (-3.0623, -3.0585 and -2.9926, respectively), this variable seemed to play a significant role in the model. This was confirmed when the Procedure was run without the Degree variable (and without the Ovcov variable). In this case, the measure of goodness of fit increased noticeably with a difference in the -2 Log L score of 11.016. A Chi-squared test on that result with one degree of freedom gives a chance probability score of 0.0009 which is clearly significant at 0.1 (10%) proving that the Degree variable was indeed a significant part of the model. This verified hypothesis H4. Degree was retained for the remaining analyses.

The next variable examined was the variable for the Extent of Conflict. With t-values for Extent2 ranging from -1.8851 to -2.665 for the last four runs of the Procedure, this variable also seemed likely to play a significant role in the model. When the Procedure was run again, this time without the Extent variable (and without Ovcov), the measure of goodness of fit increased again with a difference in the -2 Log L score of 15.763. A Chi-squared test on that result with two degrees of freedom gave a chance probability score of 0.0004 which is certainly significant at 0.1 (10%) validating hypothesis H 1. The Extent variable was retained for the remaining analyses.

Conflict Assessment and Management was the last variable screened. This variable had small t-values for Mgt3 and Mgt4, but significant values for other values including t-values ranging from 1.8301 to 3.9656 for Mgt5 in the last five runs of the Procedure. When run without the Management variable (and without the Ovcov variable) the measure of goodness of fit increased noticeably with a difference in the -2 Log L score of 15.115. A Chi-squared test on that result with five degrees of freedom gave a chance probability score of 0.0099, significant at much less than the required 0.1 (10%), showing that the Management variable was an important part of the model. This outcome supports hypothesis H 5. Conflict Assessment and Management was, therefore, also retained for the model. Model fitting information for this final, best fit of the model is shown in Table 1.

The Logistic Procedure produced the following, best fit estimates for the model as shown in Table 2 (t-values were calculated separately). The Parameter Estimates show the amount that the log odds of success changes from the baseline reading to each value within each variable group. Errors give an indication of variability.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Intercept Only</th>
<th>Intercept and Covariates</th>
<th>Chi2 for Covariates</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIC</td>
<td>357.113</td>
<td>339.015</td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>360.906</td>
<td>380.739</td>
<td></td>
</tr>
<tr>
<td>-2 Log L</td>
<td>355.113</td>
<td>317.01538.098 with 1 DF (p=0.0001)</td>
<td></td>
</tr>
</tbody>
</table>
Chance probability is also listed for each variable (as discussed in the text above).

Table 2. Analysis of Maximum Likelihood Estimates (MLEs)

<table>
<thead>
<tr>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>intercept</td>
</tr>
<tr>
<td>Extent of extent2</td>
</tr>
<tr>
<td>Conflict: extent3</td>
</tr>
<tr>
<td>Degree of Impediment ndegree2</td>
</tr>
<tr>
<td>Conflict mgt2</td>
</tr>
<tr>
<td>Assess'nt mgt3 and mgt4</td>
</tr>
<tr>
<td>Manage'nt mgt5 and mgt6</td>
</tr>
<tr>
<td>Type of type2</td>
</tr>
<tr>
<td>Conflict type3</td>
</tr>
<tr>
<td>Parameter Estimate</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>2.3186</td>
</tr>
<tr>
<td>-0.8737</td>
</tr>
<tr>
<td>0.6044</td>
</tr>
<tr>
<td>-1.2956</td>
</tr>
<tr>
<td>2.0582</td>
</tr>
<tr>
<td>0.1315</td>
</tr>
<tr>
<td>0.3132</td>
</tr>
<tr>
<td>1.1499</td>
</tr>
<tr>
<td>1.209</td>
</tr>
<tr>
<td>-0.6129</td>
</tr>
<tr>
<td>-0.766</td>
</tr>
</tbody>
</table>

Using the estimates, probability (p) of success can be calculated as:

\[
p = \frac{1}{1 + e^{\text{logit}(p)}}
\]

This formula can be applied to any values in this set of variables to predict the probability of success of a project. The graphical representation of this model is shown in Figure 1.

5. A Model of Conflict in Information Systems Development

Hypotheses H1, H2, H4 and H5 were all proved by this research study. However, that data gathered did not support Hypothesis H3 which states that openness of conflict impacts on the probability of project success. Whether conflict was conducted covertly or overtly was not significant in the data gathered for this study.

The outcome of the regression analysis is a new model of conflict in information systems development. From Table 2 it is possible to assess the relative importance of the variables in the model by using the chance probability figures. In this way, it can be seen that the most important variable in the model is the Extent of the Conflict; then the next important is the perceived Degree of Impediment that conflict causes a Project; then the form of Conflict Assessment and Management used; and finally, the Type of Conflict. To determine the relative importance of the values within the variables, further analysis was necessary, and this is discussed later in this section.

5.1. Formula for the model

Using the parameter estimates, it is possible to calculate the estimated logit of the probability of a project succeeding. The logit transformation is a linearisation of the logistic function which allows for estimates of probability [19]. The formula for the model can therefore be written as:

\[
\text{Logit } (p) = 2.3186 - 0.8737 \times \text{Extent2} + 0.6044 \times \text{Extent3} - 1.2956 \times \text{Ndegree2} + 2.0582 \times \text{Mgt2} + \\
0.1315 \times \text{Mgt3} + 0.3132 \times \text{Mgt4} + 1.1499 \times \text{Mgt5} + 1.2090 \times \text{Mgt6} - 0.6129 \times \text{Type2} - 0.7660 \times \text{Type3}
\]

5.2. Independent variables in the model

The raw data in the table used for regression analysis was used to determine the observed probabilities of success, examining one independent variable at a time. The 65 rows of data responses recording “prime reason for termination” for the perceived Degree of Impediment were returned to the table for this analysis.

5.3. Extent of conflict

The probability of success derived from the observations shows that a project with Minor conflict has a 0.746 (75%) probability of succeeding; with Significant conflict a 0.596 (60%) probability of succeeding, and with Major conflict a 0.586 (59%) chance of succeeding. Although the difference between Significant and Major extent of conflict is minimal, there is clearly an increasing probability of failure as the extent of conflict increases. This trend can be seen in the bar graph representing this data in Figure 2. The Chi-squared analysis of this data returns a chi-squared statistic of 8.883 which, with two degrees of freedom, gives a
chance probability of 0.0118, well within the 10% limit set for this study.

Figure 2. Extent of conflict - probability of success

5.4. Perceived degree of impediment

The observations for Degree of Impediment that conflict causes a project show that in projects with None or Little perceived impediment, the probability of success is 0.888 (89%), with Significant or Major impediment, this falls to 0.729 (73%) and obviously, when the impediment caused by conflict is seen to be the Prime Reason for Termination of the project, then the probability of success is 0. This is shown in Figure 3 where an area graph is used rather than a bar graph to illustrate the zero probability of success. The graph shows how the probability of failure increases as the perceived degree of impediment increases. Chi-squared analysis gives a chance probability at 0.0001, well within the 10% limit set for this study.

Figure 3. Perceived degree of impediment - probability of success

5.5. Assessment and management of conflict

With six different values or categories in this variable there are more fluctuations in the probabilities. In projects where some conflict was successfully resolved, there is a 0.871 (87%) probability of success. This is an interesting outcome given the very small rates of resolution observed by respondents (for example, in large, successful projects, only 24% of identified Developer/Developer conflict, 13% of Developer/User conflict, and 8% of User/User conflict was successfully resolved). Where resolution of conflict has been Attempted, probability of success is 0.652 (65%). Where conflict is Formally Assessed as part of the project’s risk management procedures probability of success is 0.611 (61%). If conflict is Detected, but Ignored (in successful projects), the probability of success is 0.651 (65%) which is slightly larger than the 0.615 (62%) probability of success when conflict is Not Detected in time to act on it (where conflict is covert). When No Action at all is taken in regard to conflict in a project, the probability of success falls to 0.444 (44%). Despite the slight fluctuations, it is clear that, on the basis of the observed data, the probability of success increases as more is done to attempt to manage and resolve the conflict. The bar chart in Figure 4 illustrates this trend. Chi-squared analysis gives a chance probability of 0.002, well within the 10% limit.

Figure 4. Management of conflict - probability of success
5.6. Type of conflict

The observed data shows that in projects where Developer/Developer conflict exists, there is a 0.704 (70%) probability of success; where Developer/User conflict exists a 0.634 (63%) probability of success; and where User/User conflict exists a 0.610 (61%) probability of success, suggesting that the probability of failure increases if conflict involves users, and in particular among user groups. This trend is illustrated in the bar chart in Figure 5.

![Bar Chart](image)

**Figure 5. Type of conflict - probability of success**

However, a chi-squared analysis shows a chance probability of 0.299 - well outside the 10% limit set for this study. This suggest that, for the data gathered, the differences in probability of success among the three different types are not significant. Nevertheless, it seems clear that there is, in fact, an important difference between the probability of success where conflict is among developers, and the probability of success where conflict involves users or user groups. To test the validity of this statement, the data was collapsed into two categories: conflict among developers and conflict that involves users, and a one-tailed hypothesis test applied.

The one-tailed hypothesis test is applied when a rejection region (for a null hypothesis) consists of test statistics or sample statistics in a particular direction. These tests are also called directional tests and are applied when the basic question involves terms like “more-than” or “increased” or “declines” [21]. In this instance, the null hypothesis being tested is

\[ H_0: P_{DD} = P_U, \]

where \( P \) is probability of success, \( D/D \) is conflict among developers, and \( U \) is conflict involving users which includes both Developer/User conflict and User/User conflict. The directional hypothesis is:

\[ H_1: P_{DD} > P_U, \]

where \( P_{DD} = 69/98 = 0.7041 \), and \( P_U = 183/295 = 0.6203 \).

The one-tailed test produced a z value of 1.4975, which gives a chance probability of 0.0668 which allows us to reject the null hypothesis and accept the directional hypothesis with a significance value well within the 10% limit set for the study. This data, together with the descriptive statistics, supports the proposition that Developer/Developer conflict has a smaller negative impact on the probability of project success than any conflict involving users; and that User/Developer conflict has a greater negative impact on the probability of project success than Developer/Developer conflict. Based on the information derived from the observed probabilities, and the better understanding it provides about the independent variables in the model, it is possible to postulate a final, enriched Model of conflict, as shown in Figure 6.

![Diagram](image)

**Figure 6. Final model of conflict factors contributing to project success**

Further statistical analysis both descriptive and inferential revealed some interesting links and associations between the variables. This analysis is the subject of another paper, but some of the findings are reproduced here:
• Developer/User conflict is most frequently formally assessed as part of a project’s risk assessment procedures. User/User conflict is more frequently formally assessed than Developer/Developer conflict (although not as frequently as Developer/User conflict).

• Developer/Developer conflict is more frequently detected than conflict involving users. User/User conflict is less frequently detected than conflict involving developers.

• Project Managers attempt to resolve conflict involving users more frequently than they will attempt to resolve Developer/Developer conflict.

• Developer/Developer conflict is more frequently resolved than conflict involving users. User/User conflict is less frequently resolved than conflict involving developers.

• User/User conflict of a major or significant extent has the most detrimental effect on perceived degree of impediment to successful project progress.

• User/User conflict is the most potentially damaging type of conflict in an information systems development environment (greatest extent and least resolved). Developer/Developer conflict is the least potentially damaging type of conflict in an information systems development environment (smallest extent and most resolved).

• Information systems projects involving the centralisation or integration of information resources that would change the way these resources would be controlled in the organization are more frequently associated with conflict than other types of information systems projects.

6. Conclusion

This paper describes a research study investigating the extent to which conflict is perceived to pose a risk to information systems projects. A predictive model of conflict was fitted showing that the independent variables: Extent of the Conflict; perceived Degree of Impediment; Assessment and Management of Conflict; and finally, the Type of Conflict all impact on the probability of project success.

The study had some definite limitations, including narrow definitions of failure and success. However, this is likely to result in the impact of conflict being minimised in this study, with the true impact of conflict in information systems development being much greater than the results presented here.

Some new theories of conflict were derived from the research study, and these need to be tested in further research. They can largely be summarised by the following:

• The greater the extent of conflict in an information systems development environment and the greater the perceived degree of impediment to the project, the greater the negative impact on the probability of project success.

• The more effectively conflict is managed and the more resolution is attempted in an information systems development, the more probability of success increases.

• Conflict involving users has the greatest negative impact on the probability of success of an information systems development. This includes User/User conflict which is at least equal to, and may even exceed the negative impact of Developer/User conflict in an information systems development environment.

• User/User conflict is the most potentially damaging type of conflict in an information systems development environment. This type of conflict is less frequently detected and resolved than conflict involving developers.

While Developer/User conflict is most often recognised as a risk to information systems projects, User/User conflict is increasingly becoming the focus of formal risk assessment procedures and conflict management while conflict among developers is virtually ignored. Conflict among the users participating in an information systems project development and the role this plays in project failure is not as well documented as conflict between users and developers and not always recognised as being part of a project manager’s domain. Many developers still believe that organizational politics is not their concern. To facilitate a successful implementation, developers should make it their business to gain a clear understanding of who is likely to win and who is likely to lose from a potential information systems development [5], [22]. If developers ignore the politics endemic in large, intra-organizational developments they risk the project becoming embroiled in a number of destructive, time consuming disputes.

Project managers attempt to resolve less than half of the detected conflict in an information systems project, and the success rate for resolving conflict of all types is woefully small. Unfortunately, many project managers still do not accept that there is a need to involve themselves in this aspect of organizational dynamics and many still consider this to be a “management” problem,
and not of particular concern to systems staff. It is hoped that the results of this study can convince them otherwise.

7. References


