

8-15-1997

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## Recommended Citation

Page, Steve, "BPR: Forging the Cultural Metamorphosis" (1997). *AMCIS 1997 Proceedings*. 61.  
<http://aisel.aisnet.org/amcis1997/61>

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# **BPR: Forging the Cultural Metamorphosis**

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**Abstract**

*Business Process Re-engineering (BPR) has received much debate in the literature, following from Hammer's (1990) seminal, 'Re-engineering work: don't automate - obliterate'. Nevertheless, research has shown that management in organisations generally has little awareness of the social and cultural needs of the workforce when computerised information systems (IS) are built and implemented as part of a BPR exercise. However, the consequence of BPR, indeed its primary aim, is to change work patterns and how the organisation operates. This is not a technical process, nor should it be perceived as a management exercise. Rather, it should embody a change of mind-set within an organisation that will engender a cultural shift concomitant with the needs of the organisation's metamorphosis into a new polymorph. In this way, the organisation's workforce are more likely to embrace the new structure - thereby adding to the likelihood of a successful BPR exercise. But, which elements are important? I have recently undertaken research in the UK which has highlighted a number of important issues that should be considered when developing and implementing an IS. This paper discusses some of these issues, and their importance to BPR.*

## **Introduction**

The days have long gone when organisations could rely on 'doing things the old way'. Computer technology has changed forever the way that organisations operate. BPR is a way of bringing about change in an organisation to make it leaner and fitter as we face the next millennium - this is inexorably linked with the introduction of new/modified computer enabled IS.

Empirical research demonstrates that computer technology introduced into an organisation impacts upon the workforce, e.g. Baroudi et al. (1986), or Raghunathan & King (1988). However, I believe the technology itself to be agnostic with regard to its impact on the workforce. Rather, as discussed in Page (1996a) the way that computer technology is *introduced* into the social arena, that forms the backbone of the organisation, will largely determine its degree of success.

The literature is copulent with texts and papers discussing 'culture', ranging from the macro, e.g. Hofstede's (1980) discussion of 'national cultures', through Brown's (1995) discussion of 'organisational culture', to the micro, e.g. William Foote Whyte's famous (1943) exposition of 'individual culture'. However, when we look for works discussing 'Information Systems Culture', the literature is parsimonious, as stated in Page (1995a; 1996a). Why this should be the case is enigmatic to the author, given the number of system failures that abound, e.g. Lyytinen & Hirschheim (1987), or Sauer (1993), and discussions that relate these to a failure to address cultural 'fit', e.g. Pliskin (1993).

As Pliskin (1993) demonstrates, the lack of management awareness of the social needs of an organisation's workers has led to a cultural gap between the workforce and management. In a previous paper (Page, 1995b) when discussing strategic IS and their impact on the workforce, I coined the term 'culture chasm'; I believe there is even less awareness of 'actual' organisational culture by strategic management, than by middle management or line managers. Yet it is these same strategic managers who will request and oversee any BPR exercise. If this exercise is to reap rewards then a means must be found of closing this culture

chasm. The following discussions have highlighted some primary issues that go towards achieving this important goal.

## Research Instrument

The discussion in this paper forms a section of a piece of on-going research that is looking at the socio-technical and cultural aspects of IS. The research instrument used was a mailed, self-administered questionnaire, which was aimed at end-users, managers and senior executives. It consisted of 25 fairly closed questions, designed to assess the degree to which computer systems were used and liked by respondents. The research involved 93 companies in the UK; specifically the most successful UK companies - based on 1994 turnover. The rationale for this approach was that I felt that if these financially successful companies had implemented successful systems then there were lessons to be learned for less successful companies. After two reminders, the total number of usable responses was 191, or 20.6% of the total population surveyed.

## Research Hypotheses

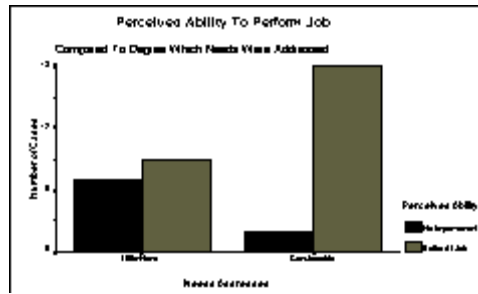
*(Ho) One: The degree to which a stakeholder perceives that his computer system assists him in performing his job is not related to the degree to which his needs were addressed when the system was being developed.*

*(Ho) Two: The degree to which a stakeholder perceives that his computer system assists him in performing his job is not related to the degree of involvement enjoyed by the stakeholder when the system was being implemented.*

## Results & Discussion

Data analysis was performed using SPSS, version 6.01. For statistical analysis purposes, the standard Pearson chi-squared test was used. In both cases, alpha ( $\alpha$ ) was set at .05 to test at the 95% confidence level. The observed significance level is given as  $p$ . The survey instrument was designed to elicit nominal data from the respondent, e.g. gender, or job role, in addition to ordinal data, e.g. to what degree were you? The ordinal data questions used a 5-point Likert-type scale, with possible responses such as: 1 = not at all; 2 = not much; 3 = moderate; 4 = quite a lot; and 5 = considerable. Where appropriate, re-coding was performed to produce a 2x2 table for analysis. In addition, for (Ho) One, where the number of respondents ( $n$ ) was small, Fisher's Exact Test was applied.

*(Ho) One:* For this test,  $n$  was small (36), so Fisher's Exact Test was used. The ordinal data responses to the Likert scale questions for each variable were re-coded to give a 2x2 table of nominal data, suitable for Fisher's. Thus, ability is classified as either 'no change' or 'better at job', and the degree to which the stakeholder's needs were addressed when the computer system was being developed is classified as 'little/none' and 'moderate/considerable'. The results of the test after re-coding reported  $n=36$ ,  $\alpha=0.05$ , and  $p=0.020$  (to 3 s.f.). Therefore, as  $p < \alpha$  the null hypothesis (*Ho) One* is rejected, and for this study, the relationship demonstrates statistical significance between the stakeholder's perceived level to which his computer system assists him in performing his job, and the degree to which his needs were addressed during the system's development, when tested at the 95% confidence level. The results of the re-coded 2x2 cross-tabulation are represented graphically in Figure 1.



**Figure 1: Perceived Ability Against Needs Addressed During Development**

*(Ho) Two:* For this test,  $n$  was moderate (54). The ordinal data responses to the Likert scale questions for each variable were re-coded to give a 2x2 table of nominal data. Thus, ability is classified as either 'no change' or 'better at job', and the degree to which the stakeholder was involved when the computer system was implemented is classified as 'little/none' and 'moderate/considerable'. The results of the test after re-coding reported  $n=54$ ,  $\chi^2=0.05$ , and  $p=0.018$  (to 3 s.f.). Therefore, as  $p < \alpha$  the null hypothesis (*Ho) Two* is rejected, and for this study, the relationship demonstrates statistical significance between the stakeholder's perceived level to which his computer system assists him in performing his job, and the degree to which he was involved during the system's implementation, when tested at the 95% confidence level. The results of the re-coded 2x2 cross-tabulation are represented graphically in Figure 2.



**Figure 2: Perceived Ability Against Involvement During Implementation**

### Conclusions

This research has demonstrated that there is statistical significance between the degree to which a stakeholder's needs are addressed during development, and the degree to which the stakeholder perceives that the computer system assists him in performing his job. Therefore, when undertaking any BPR exercise, it would appear to be imperative that stakeholders' needs are fully considered and suitably addressed if the final delivered system is to be seen as useful by stakeholders. As I have already stated (Page, 1996a; 1996b; 1997), if a system is not seen as useful, it will probably be resisted. This could seriously undermine the BPR exercise.

Also demonstrated in this research is that there is a statistically significant relationship between the degree to which a stakeholder is involved during implementation, and the degree to which the stakeholder perceives that the computer system assists him in performing his job. Thus, when BPR has taken place, managers should ensure that any new/modified systems are implemented with the full involvement of stakeholders.

Clearly further research needs to be undertaken to examine what other links there are between successful computer systems and successful BPR exercises in organisations. Additionally, and perhaps more importantly, research is needed to assess whether (and if so, which) links exist between system failures and unsuccessful BPR exercises!

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