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THE IMPACT OF INTERORGANIZATIONAL RELATIONSHIPS ON THE ADOPTION AND DIFFUSION OF INTERORGANIZATIONAL SYSTEMS

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ABSTRACT

The successful adoption of inter-organizational systems (IOS) requires the cooperation of participating firms with complex business and economic relationships. This study examines the impact of inter-organizational relationships on the adoption and diffusion of a category of IOS called Electronic Data Interchange (EDI) that supports the electronic transmission of business documents between two firms.

The trade literature suggests that large customers force dependent suppliers to adopt EDI to continue to do business with them, indicating that inter-organizational relationships play a significant role in EDI adoption (Stern and Kaufmann 1985). A socio-political framework based on power dependence and inter-organizational relationship theory is used to analyze the adoption and diffusion of EDI (El-Ansary and Stern 1982). Four independent variables are used: power of the initiating firm, dependency of the adopting firm, transactional climate between the two firms, and support provided by the initiating firm.

The adoption of EDI is measured on the time dimension by categorizing the sample into two groups: early and late adopters (Rogers 1983). Since the diffusion process goes through various stages ranging from the early adaptation stage to the late infusion stage (Cooper and Zmud 1990), four variables are used for measuring it: initial diffusion, internal diffusion, external diffusion, and implementation success. While the first variable measures diffusion in the adaptation stage, the other three measure diffusion in the later stages. Based on theory, the following propositions are formulated.

- Proposition 1: The greater the dependence of the adopting firm on the initiating firm, the greater the chances of adoption of EDI by the adopting firm.
- Proposition 2: The greater the power the initiating firm has over the adopting firm, the greater the chances of adoption of EDI by the adopting firm.
- Proposition 3: The greater the dependency of adopting firm on the initiating firm, the greater the diffusion at the adaptation stage for the adopting firm.
- Proposition 4: The greater the power of the initiating firm over the adopting firm, the greater the diffusion at the adaptation stage for the adopting firm.
- Proposition 5: The better the marketing support provided by the initiating firm, the greater the diffusion in the adaptation stage for the adopting firm.
- Proposition 6: The better the transaction climate between the two firms, the greater the diffusion, both at the adaptation and infusion stage.

Separate versions of a questionnaire were created for the purchase and sales functions. To reduce method bias, two

respondents — IS and functional manager — completed two different parts of the questionnaire. The data were collected from a large scale field survey (n = 201). A subset of the total sample (n=90), consisting of firms that adopted EDI based on request/coercion from their partner that is ideally suited for our research, is used in this study.

The results of a t-test, given below, support Proposition 1, that greater dependency leads to earlier adoption.

Variable	Early Adoption	Late Adoption	t-Value	Significance	Hypothesized Direction	Actual Direction
POWER	3.30	3.06	0.87	0.38	Positive	Positive
DEPEND	4.75	4.18	1.65	0.10	Positive	Positive

Although the mean value of power is not statistically different between the two groups (Proposition 2), they are in the right direction; i.e., early adopters perceived that the initiating firm had greater power than late adopters.

The correlation values for the variables are given below.

VARIABLE	POWER	DEPEND	CLIMATE	SUPPORT	
INITIAL DIFF.	0.21**	0.21**	0.19*	0.27**	*** - p < 0.001
INT. DIFFUSION	0.10	0.03	0.22*	0.09	** - p < 0.05
EXT. DIFFUSION	0.05	0.23**	-0.16	-0.07	* - p < 0.1
IMPL. SUCCESS	0.24**	0.14	0.35***	0.07	

The correlation values indicate that initial diffusion is significantly associated with all of the four independent variables supporting Propositions 3, 4, 5, and 6. Climate is related with internal diffusion and implementation success, supporting Proposition 6.

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