

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

**ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600**

UMI[®]

THE UNIVERSITY OF CHICAGO

TRUST & RESPECT AND WASTE

**A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL OF BUSINESS
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**

BY

ROBERT H. KENMORE

CHICAGO, ILLINOIS

MARCH 2002

UMI Number: 3039036

**Copyright 2002 by
Kenmore, Robert Herbert**

All rights reserved.

UMI[®]

UMI Microform 3039036

**Copyright 2002 by ProQuest Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.**

**ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346**

**Copyright © 2002 by Robert Kenmore
ALL RIGHTS RESERVED AND SHARED WITH SELWYN BECKER**

Acknowledgments

Harry Roberts and Bill Zangwill, for first introducing me to the potential association between waste and quality.

Dick Greene and George Easton, for their guidance. Tim Fuller and Beth Probst for their friendship.

Special thanks to George Bateman and Bill Golomski for their generous attention whenever I needed it.

Gary Becker, Ron Burt, Mihaly Csikszentmihalyi, Harry Davis, and Robin Hogarth for their willingness to speak with me about nothing in particular – their often silent and subtle encouragements were powerfully felt.

David Rockefeller for his time to meet with me in person and discuss our respective dissertations and mutual interest in the topic of waste.

Jim March for a frank exchange of ideas, and helping me to find a meaningful bridge between the worlds of business and academics.

For their patience and personal attention, Benjamin Wright and John Linacre of the MESA Psychometric Laboratory at the University of Chicago School of Education.

Bill Englehaupt for his sponsorship of our survey pre-test at Square D. Peter Hamm, President and CEO of the Council for Continuous Improvement, for introducing us to field study candidates. All of our research participants.

Elizabeth Rosenthal, for helping to administer the survey. Pedro Alvarez Martinez, Professor at Universidad de Extremadura in Badajoz, Spain for his assistance in early analysis of our pre-test survey results.

Lastly, and most important, are my closest family, of whom I consider my advisor, Sel Becker, a part.

This work is dedicated to my parents and significant others.

Abstract

A rationale is presented for focusing on psychological factors in group relations to improve organizational effectiveness, and evidence is produced that trust and respect can be associated with final performance. Hypotheses developed from the literature relate changes in trust and respect across hierarchic levels to changes in waste.

Instead of using profit as the primary measure of organizational performance, it is argued that waste may serve as a more complete indicator of outcomes than profit. Focusing on waste allows organizational problems to be assessed close to their roots, and is applicable to all forms of organization: for-profit or not, public or private.

A theoretical model is introduced, along with a survey instrument to measure the variables in the model. Both of these tools draw heavily from the literature in Total Quality Management (TQM), which offers the most developed framework available from which to investigate the assertions in this paper.

Data from a three-year study of 17 divisions within two departments of a city government are used to test the hypotheses. A strong association exists between high or increasing trust and respect and low or decreasing waste. Giving respect prior to trust increases the relationship between trust and reduced waste. Upward trust and respect are most strongly related to changes in waste, and downward trust and respect are most strongly related to changes in upward trust and respect. Peer-to-peer trust and respect do not appear to reflect prior or concurrent levels of downward or upward levels of trust and respect. Waste is divided into two types – resource and opportunity – and it is found that upward trust is most strongly related to resource waste and downward trust is most strongly related to opportunity waste.

Table of Contents

Acknowledgments.....	iii
Abstract.....	v
Table of Contents.....	vi
List of Tables	viii
List of Figures	ix
1. Introduction.....	1
Organizational Performance	2
2. Literature Review.....	6
Dependent Variable – Waste	6
Independent Variables – Trust and Respect.....	7
3. Hypotheses	10
Overview of Empirical Test of Hypotheses.....	13
4. Research Model	14
Model Development.....	14
Model Validity	16
5. Research Survey.....	18
Questionnaire Development.....	18
Variable Measurement	20
Questionnaire Validity and Reliability	20
6. Field Study	23
7. Findings.....	27
Variable Recap.....	27
Graphs	27

Correlations.....	28
Test of Hypotheses.....	32
Distinguishing Between Types of Waste.....	41
Investigating Causality.....	44
Summary Review of Findings	49
8. Discussion.....	50
Rationale Review	50
Optimal Targets of Trust and Respect	51
More on Waste	52
9. Possibilities for Future Research	54
10. Conclusion	57
APPENDIX A: Overview of the 2001 Malcolm Baldrige National Quality Award	
Criteria for Performance Excellence.....	59
APPENDIX B: Total Quality Diagnostic Audit [TQDA] Used in Field Study	
	61
APPENDIX C: Hierarchical Distribution Of Responses	
	69
APPENDIX D1: Trust & Respect and Waste – Division Summaries.....	
	72
APPENDIX D2: Trust & Respect and Waste – Individual Divisions.....	
	76
APPENDIX D3: Trust & Respect Type and Waste – Division Summaries.....	
	94
APPENDIX D4: Trust & Respect Type and Waste – Individual Divisions.....	
	98
REFERENCES	116

List of Tables

Table 1: Survey of Literature on Groups	8
Table 2: Questions and Response Categories Used to Measure Variables.....	19
Table 3: Questionnaire Reliability of Constructed Variables	22
Table 4: Research Participant Profiles.....	24
Table 5: Survey Dates and Responses	24
Table 6: Classification of Respondents.....	25
Table 7: Index of Variables and Associated Survey Questions.....	28
Table 8a: Correlation Matrix of Trust, Respect, & Waste – All Moments & Period Changes.....	29
Table 8b: Correlation Matrix of Waste & Types of Trust & Respect – First & Last & Net Change	30
Table 8c: Correlation Matrix of Total & Types of Trust, Respect, & Waste – Change in Last Period	31
Table 8bx: Beginning & Ending Waste and Types of Trust & Respect.....	38

List of Figures

Figure 1: Relationship Between Waste & Other Performance Measures.....	4
Figure 2: Research Model.....	15
Figure 3: Scatter Plots of Changes in Waste & Changes in Trust & Respect	33

1. Introduction

Do trust and respect matter to organizational performance and why should they? People are often claimed to be an organization's key asset. Certainly, personnel costs are the largest single expenditure in most organizations. Yet, for both reporting and managerial decision-making purposes, this cost is treated as an expense rather than formally classified as an asset. As such, traditional analytical tools used for investment and other financial purposes are difficult to apply to the management of human resources.

Specifically, there is reasonable confidence that individuals will perform tasks according to how well their skills and qualifications are suited to meet the challenges they face [Csikszentmihalyi (1990)].¹ This link between person and task, however, only considers the human capital brought to the workplace and does not fully describe human interactions and its effect on organizational outcomes. The fact is that social interactions also influence – sometimes positively and sometimes negatively – the potential returns to, and effectiveness of, a person's education and experience.

Social capital simply refers to the set and state of relationship characteristics held by each person in a group, but “owned jointly by the parties to a relationship” [Burt (1992)]. A component of social capital is the trust that an individual directs towards and may share (if reciprocated) with one or more others, the accumulation of which across an organization allows both the individual and the organization to function smoothly. A dictionary definition helps clarify how: trust – reliance on the integrity and veracity of a

¹ Although it is one of the ironies of organizations that the most capable people are often promoted out the positions for which their skills are best suited [Lazear (1995), p. 92], the likelihood is that only some people “rise to their level of incompetence” [observation frequently cited by a personal friend], after which they eventually fail, and that this occurs only after first having passed through the job-matching process.

thing or person; confidence (including faith and belief) in an expected outcome; placed in the care or custody of a thing or person.

Another component of social capital is respect. Although trust and respect share a common affect, they also differ. Again, a dictionary definition helps clarify how: respect – esteem, attention, deference, consideration, or acceptance given to a thing or person. In basic terms, trust is a measure of closeness and, if reciprocated, interdependency [Wicks, Berman, and Jones (1999)]. In comparison, it is speculated that respect can be viewed as a measure of distance (or “space”) and independency that allows diverse skills and views to co-exist.² Alternatively, trust may be thought of an accelerator and respect as a brake throughout the course of healthy human interactions. While these differences are not specifically tested, their imagery is nevertheless proposed to equip the reader with a potentially helpful framework for understanding the evidence of differences on performance by each of trust and respect that will be presented.

Organizational Performance

Before reviewing the literature or specifying the research hypotheses, it is necessary to define and explain the choice of performance measures among possible dependent variables.

Objective measures of organization-wide performance and effectiveness vary widely. Profit is the most common measure, in part because it is accepted as a desired outcome, and reasonably standard systems are in place to continuously record and report it. However, profit as a measure of ultimate organizational performance suffers from three important constraints: it does not apply to all organizations; it relies strictly on

² A broad electronic literature search did not yield any relevant support for or against this proposition.

quantifiable information; and it does not account for future outcomes and the survival prospects of the organization as well as other measures might.

Although there is little consensus over how either should be measured or distinguished in an organizational setting, productivity and efficiency are also frequently cited as targets of improvement around which research is conducted, decisions are made, and resources are allocated. However, these are most commonly used as proxies for income and spending, and are therefore intermediate causal drivers to profit.

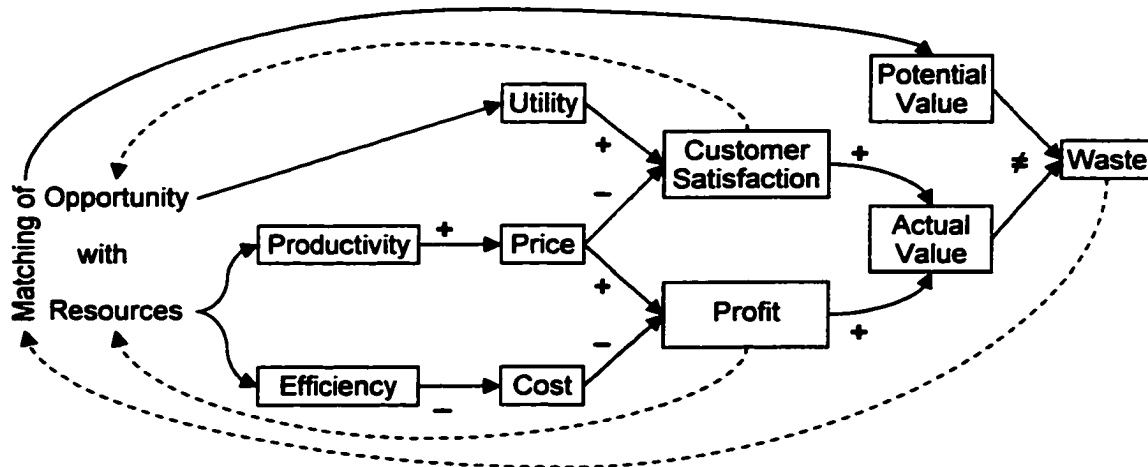
In addition to the internal indicators just mentioned, other measures of performance exist that assess organized activity from the perspective of constituents outside the organization. The most common of these include value and satisfaction. But, from a system perspective, both suffer from the complexity of representing multiple stakeholders whose interests might conflict. And the second is highly subjective and hard to interpret.³

To summarize, it is difficult to find a single measure of performance that applies to all forms of organization and that neatly ties all other measures together. *Waste* may fill this gap, and the proposition is adopted that waste represents the ultimate residue of all organizational pursuits, and that in the complete absence of waste an organization may be considered to have achieved its goals to the fullest of its potential [Zangwill & Kantor (1998); Rockefeller (1940)]. Waste may be “nonobvious” [Schonberger (1990)] and can be broken down into at least two different types [Roberts & Zangwill (1993)], resource

³ When most rigorously defined, satisfaction reflects the weighted preferences for an aggregate of attributes. Although sophisticated measurement approaches do exist, these can be very sensitive to changes in context – see, for example, introductions to the economics literature on hedonic pricing models that focus primarily on tangible goods [Berndt (1991)], or the marketing literature on SERVQUAL that focuses primarily on intangible services [Parasuraman, Zeithaml, and Berry (1988)].

waste (things done that should not be) and opportunity waste (things not done that should be).

Figure 1: Relationship Between Waste & Other Performance Measures



© 2001 Robert Kenmore & Selwyn Becker. Patent applied for and pending.

The factors that contribute to waste are depicted in Figure 1 above. This is intended to illustrate the conceptual basis for using waste as a measure of organizational performance instead of the above-mentioned alternatives. The diagram reads as follows: an opportunity to satisfy a customer demand for utility is identified and resources are supplied by the producer; these resources are allocated to achieve both productivity and efficiency, with the former focusing primarily on output quantities and price, and the latter focusing primarily on input quality and cost;⁴ after a transaction has been

⁴ For simplicity, quantity and quality are omitted from the diagram as each is thought to have cross-effects on price and cost; for instance, higher quantities can either increase cost (e.g. overhead) or decrease cost (e.g. increasing returns to scale), and higher quality can either increase price (e.g. added features) or decrease price (e.g. less waste).

consummated, producer profit and consumer satisfaction can be measured, where profit equals price minus cost and satisfaction equals utility minus price; (dotted lines) profit can be reinvested into resources, and customer satisfaction determines future producer opportunities; the combination of profit and satisfaction makes up the total value actually delivered to the marketplace by the producer.^{5&6}

At the onset, the producer strove to match resources to an opportunity, and an ideal match existed (whether understood or not) that defined a potential value that could be achieved; any difference between potential and actual value defines how much waste has been produced; (dotted line) levels of waste in turn offer feedback to each party from which to learn as the next opportunity for future exchange arises.⁷

Thus it can be seen that waste as defined in Figure 1 encompasses productivity, efficiency, and profit; and, by taking value and satisfaction into account, waste also includes a measure of potential future outcomes.

In addition to the potential advantages suggested above, a practical benefit of using waste as a measure of performance is that some aspects of it are easy for people to identify, it is universally perceived as undesirable, and differing and subjective perceptions of what is considered waste can be resolved by asking people to classify their responses (as was done in the survey described in Chapter 6).

⁵ Again, for simplicity, this diagram is restricted to an exchange between the producer and one of its many stakeholders; a more complete model would include different terms, but essentially the same framework, to reflect a producer's interdependencies with external suppliers, internal employees, investors, and even competitors.

⁶ So, in a not-for-profit or governmental organization, price \leq cost and customer satisfaction = total actual value.

⁷ Depending, in part, on which party absorbs the waste.

2. Literature Review

Dependent Variable – Waste

Apart from the references already cited in choosing waste as the preferred measure of organizational performance, there are no additional references in the academic literature. However, there is a substantial body of knowledge in the practices and principles of Total Quality Management (TQM) that implicitly and purposefully attacks waste.

Many who work with TQM clearly intend to identify past, eliminate current, and prevent future errors in organizations [Deming (1982); Imai (1986); Juran (1988); Lillrank and Kano (1989)]. Furthermore, key ideas that have emerged from TQM include an emphasis on participative involvement from organizational leadership, employees, suppliers, and customers¹ to root out causes of “defects.”

Although not explicit, consistent and widespread references to errors and defects as targets of business activity equates closely with the management of waste. However, and with respect to the relationships shown in Figure 1, it should be noted that the TQM literature measures errors or defects and customer satisfaction separately, implying a connection and benefit to the organization, without explaining how these two variables interact with profit, value, or each other.

¹ Of particular note is the introduction to the workplace environment of the notion of internal as well as external customers, leading to the blurring of otherwise “siloed” organizational boundaries and yielding significant returns to sellers and adopters of “supply chain management” solutions.

Independent Variables – Trust and Respect

To establish an objective foundation from which to review the literature on how trust and respect relate to organizational outcomes, a search string has been constructed using the following logic.

- Broadly-speaking, people operate both at the individual and at the group level.
 - The domain of individual behavior is rooted in psychology.
 - The domain of group behavior is rooted in social psychology and sociology.
- The primary focus of this research is groups, but with special attention to how individuals behave in groups. In terms of inter-personal dynamics:
 - Trust and respect are viewed as key to the psychology of relationships.
 - Hierarchy is viewed as key to the sociology of relationships.
- Since the outcome of interest is organizational performance, the set of journals is initially restricted to the following four refereed publications (with electronic backfile dates shown in parentheses): Academy of Management Journal (1971), Academy of Management Review (1976), Administrative Science Quarterly (1971), and Sloan Management Review (1972).

Table 1 on the next page shows the exact keyword search string used along with the number of ‘hits.’ These results suggest that attention to organizational group relations and dynamics has focused more on social networks than psychological variables, and only a small portion of attention to either focuses on organizational outcomes.

Table 1: Survey of Literature on Groups

<i>Keyword search string for 4 business journals (AMJ, AMR, ASQ, & SMR) {see notes}</i>	<i>Without a focus on organizational outcomes</i>	<i>and (profit or waste or performance or productivity or efficiency or effectiveness)</i>
(team+ or group+) and (dynamic+ or relation+)	202	82
and (social or network+)	55	17
and (hierarch*)	7	3
and (psycholog*)	23	8
and (trust or respect)	10	3

Notes: "+" indicates the inclusion of plurals; "*" indicates a wildcard and inclusion of derivatives; the terms trust and respect are included in titles as well as keywords; searches on "respect" specifically exclude the term "with respect to"; searches on "trust" exclude fiduciary-type trusts.

Although the three articles most pertinent to the objective of this research do not fully represent the body of literature that needs to be explored, they do begin to provide some indication of the existing work. High levels of both trust and respect exist among team members best able to resolve different types of conflict [Jehn & Mannix (2001)] (based on evaluative ratings of team performance), a case study shows the value of trust to a Japanese auto manufacturer – in the form of cooperation and flexibility in solving daily problems – from its supplier networks during a crisis [Nishiguchi and Beaudet (1998)], and a persuasive argument is made for empirically testing the existence of “a connection, through trust, between the moral duty of managers and the output performance of organizations” [Hosmer (1995)].

Given the few articles found, the search was expanded by adding 66 journals mostly oriented towards applications in business of psychology, sociology, social psychology, behavioral science, organization behavior and development, human resources and relations, and group processes. Ten additional articles were found from the past decade. In these, leaders are encouraged to not only relinquish power and control

(i.e. downward trust) to teams by allowing them to manage themselves but also to ensure “potency, meaningfulness, and impact” [Kirkman and Rosen (2000)], trust in leader-coaches by athletes is found to have a significant effect on team performance [Dirks (2000)], follower (or upward) trust and respect (in the form of “reverence”) in leaders is seen as the direct consequence of charisma [Conger, Kanungo, and Menon (2000)], trust is viewed as central for coordinating multi-disciplinary networks in innovative environments [Newell and Swan (2000)], and trust and respect among pygmies is highlighted among their several other natural and exemplary behaviors of high performance teaming [De Vries (1999)]. Also raised are issues of trust having a moderated versus main effect on group performance – either positively through motivation [Dirks (1999)] or negatively through conflict [Porter and Lilly (1996)], and trust being difficult to maintain in times of restructurings and downsizings [Hodgetts (1996)] or post-merger “malaise” [Marks and Mirvis (1992)]. Last, in consideration of a deeply embedded social predisposition and preference for “trust, cooperation, reciprocity, and harmony” one study shows that “the intervention of voluntary grouping (versus assigned team membership) provides Chinese workers with a means of pursuing this important cultural value in their workplaces,” thereby reversing the undermining effects on workgroup solidarity of an “excessively controlling management system” which, like Japanese enterprises that share the same values but “in which collective efforts are facilitated,” “could lead to an improvement in their group performance” [Jin (1993)].

3. Hypotheses

From the literature cited, several conclusions can be drawn. First and foremost, there is corroboration that trust and respect affect group functioning (e.g. conflict management and problem-solving ability), but there is no empirical evidence of such effects ultimately extending to organizational outcomes, although there is general acceptance that it should do so [Dirks (1997)]. Furthermore, the existing work selected focuses: mostly on trust (13 on trust, 4 on respect);¹ a little on hierarchy (3 on downward relations, 6 on upward relations, 9 on peer relations²); even less on describing the distinctions between (3) and sequencing of (1) trust and respect; and (once again), not at all on directly linking any of the above to final performance – instead using group ratings, manager evaluations, judge or instructor scoring, or case studies and stories (two possible exceptions are worker output and sports season record, but neither is fully applicable to a complex organizational setting).

From the review, the following synthesis and hypotheses have been derived.³

Managers are faced with the challenge and moral obligation [{{11}}] of having to coordinate the activities of people in order to reach organizational goals. Among other things, managers will ideally: 1) issue clear and meaningful instructions; 2) articulate a consistent message and sense of purpose to motivate employees; 3) take steps to ensure

¹ See Kramer (1999) for an overview and primer of trust in organizations.

² One explicitly [Dirks (2000)], the other 8 strongly implied.

³ To ease readability, all references already cited in the previous chapter and that will be used further in the development of the hypotheses have been numbered and are shown in {brackets}, both in this chapter and in the reference section at the end of this paper.

that skills are properly matched to tasks; and 4) provide the necessary tools and infrastructure support. If the manner of providing those four requirements generates trust and respect within the organization, its workforce should act in such a way that concurrently satisfies both individual as well as organizational interests.

Relative to the desired outcome of minimizing waste, it is expected that increasing levels of trust and respect will either strengthen or reflect an organization's aptitude in the following skills, any one of which is expected to reduce waste:⁴ coordination of organizational activities through collaboration and cooperation [{7}, {8}, {11}, and {12}]; few misunderstandings through better communications [{1}]; consensus in a supportive environment [{1} and {2}]; acceptance of and reliance on informal rules [{6}]; coherence in the execution of properly defined strategies [{9}]; an ability to react quickly to unexpected circumstances or instructions [{8}]; and commitment [{10} and {13}], effort, and motivation [{7} and {12}] directed towards the success of the organization-at-large.

H1: When attitudes in organizations are characterized by increasing levels of trust and respect, lowered levels of waste should be reported.

Since trust and respect have been distinguished by definition, and each was defined differently for survey respondents [see Table 2 on page 19], different effects by each on waste is probable. What is less clear is if one is a prerequisite for the other. It is speculated that when conflict is needed as a constructive force to induce creativity, for instance, trust acts as a safety valve of sorts to protect against a complete breakdown in

⁴ Since waste is defined here as an outcome, and trust and respect are treated as the independent variables, the issue of whether trust and respect mediate or are mediated by the other potential factors affecting organizational performance is left to one's interpretation of past or development of future research. Directional causality between the independent variables (trust and respect) and the dependent variable (waste) in this paper, however, is addressed at the end of Chapter 7 on Findings.

cooperation that can occur if the respect required to adequately consider all new ideas wears thin. Such trust could be in the process of innovation and experimentation, top management support for failure, or both. But since this study is more focused on the opposite situation – the avoidance and resolution of conflict – respect for differences is instead expected to alleviate breakdowns in attempts to foster closer cooperation [1] and [9]. The need for respect when trust is low or decreasing is especially important in post-merger situations, for instance, when enduring uncertainty, culture clashes, and network disruptions create high levels of tension and conflict [10] and [13]. In fact, it has been found that reverence (or respect) mediates the effects of charismatic behavior (akin to hyperbole) on trust, as well as satisfaction, in leaders [4].

H2: Giving respect to others prior to or concurrent with placing trust in these others should strengthen the relationship between high or increasing trust and low or decreasing waste.

In any organization, the ability and willingness to (re)direct resources begins at the top. Even in “flat” or consensus-driven organizational structures, some form of formal leadership or governance process must exist to set and modify agendas and priorities. Therefore, without top management support (downward trust) and approval (downward respect), activities by lower levels of the organization would not be expected to be as effective in reducing waste or, at least, keeping it under control. This is especially pertinent to the formation and empowering of teams to solve problems [2], [4], [9], and [12].

H3: Downward positive trust and respect from higher levels of organization should enhance the negative relationship between positive upward attitudes and reported levels of waste.

Trust and respect should foster a healthier environment in which people at the same level can safely acknowledge, learn from, and correct mistakes that inevitably do occur (e.g. less embarrassment, higher sense of shared stakes and responsibility, etc.). It is further expected that such an environment – where peers trust and respect each other – will stem from the example set by the organization’s leadership and the subsequent visible reciprocation expected by all others [{2}, {3}, and {6}]. More specifically, the synergy that collectives aspire to – whereby individual needs are equal or subordinate to group needs – is expected to occur as a direct result of the upward and downward trust and respect that has been established throughout the organization [{3}, {7}, {12}, {13}].

H4: Levels of peer-to-peer trust and respect should be positively associated with levels of downward and upward trust and respect in preceding time periods.

Overview of Empirical Test of Hypotheses

First, a model and survey have been used that were developed based on TQM and that include trust and respect and waste (introduced in the next two Chapters 4 and 5). Relevant data to test the hypotheses were then acquired from a field study (described in Chapter 6). Although the field study was broader in scope, in this paper analyses and discussion (Chapters 7 and 8) will be confined to the relationship between trust and respect, and waste.

4. Research Model

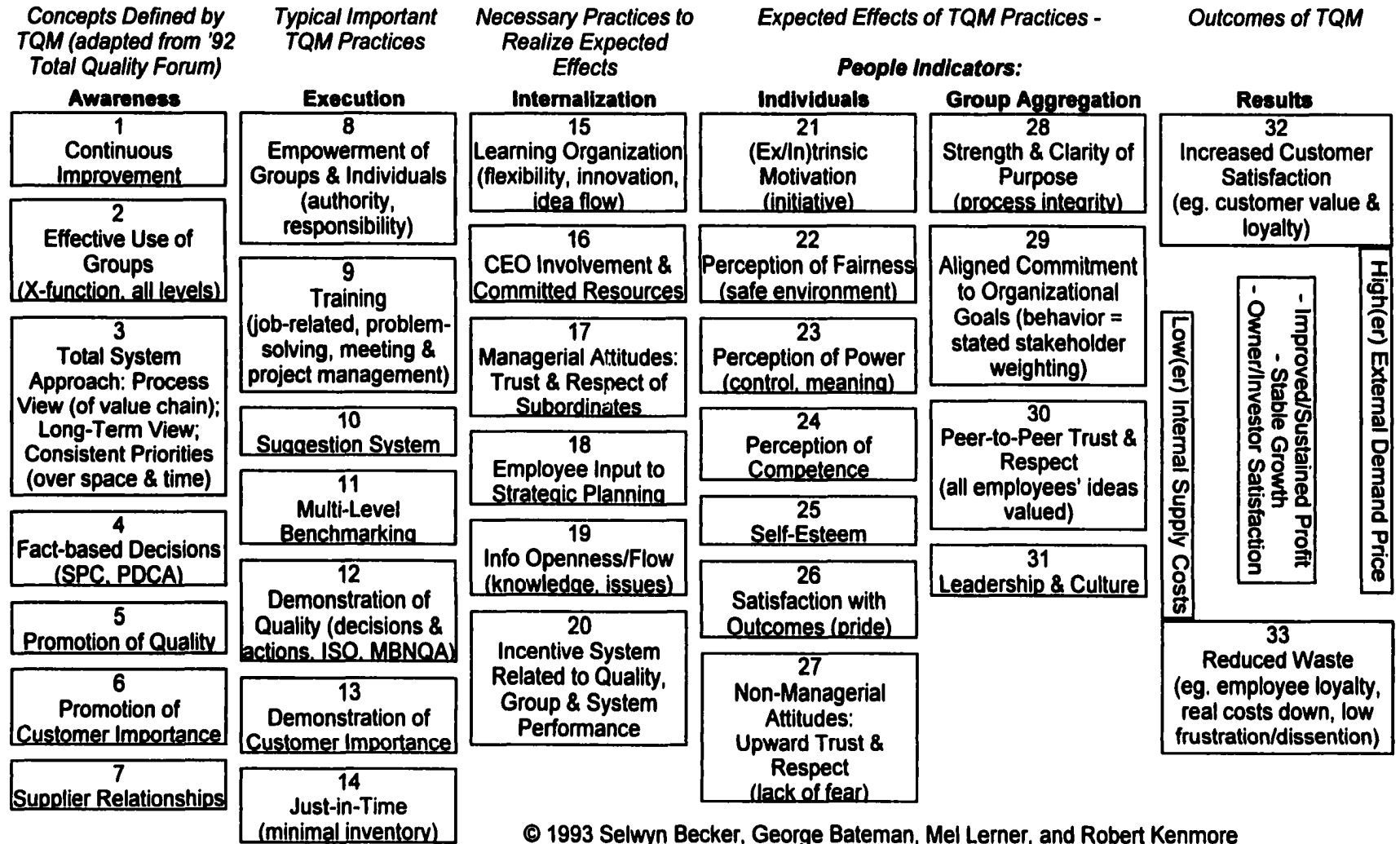
Model Development

In the U.S. the most widely accepted framework to assess quality is the Malcolm Baldrige National Quality Award (MBNQA) criteria, an overview of which can be found in Appendix A. However, these criteria do not (nor are they intended to) fully describe how TQM functions. For example, it is assumed that employee satisfaction is desirable, hence it should be measured. As to what causes employee satisfaction, the MBNQA looks at external factors like training, benefits, etc, but does not address internal psychological drivers of satisfaction. Similar lack of specificity in other Baldrige variables has prompted the development of a more complete research model that appears in Figure 2 on the next page.

The first seven variables in the model are taken from a comprehensive review of TQM that appeared in a report of findings and recommendations presented at the fourth Total Quality Forum [The Procter & Gamble Company (1992)]. These concepts, however, share the same limitations as those of the Baldrige: they do not identify the psychological variables that make them functional in an organization. For example, TQM strongly advocates collaborative teamwork and the empowerment of cross-functional teams with little supporting explanation or evidence of why this is important. This deficiency is remedied by introducing into the model concepts from social and organizational psychology.

Figure 2: Research Model

BEHAVIORAL MODEL OF TQM FUNCTIONING: NECESSARY AND SUFFICIENT CONDITIONS
 Sequential indicators of organization-wide maturity and health



© 1993 Selwyn Becker, George Bateman, Mel Lerner, and Robert Kenmore

The second column of variables (8 through 14) lists typical practices that signal the actualization and application, or execution, of TQM. In the third phase of adoption, or internalization of TQM, six necessary and sufficient behaviors should be observed, as indicated by variables 15 through 20. The following eleven variables are grouped into two classes: subjective positive experiences expected to be reported by individuals, and more objective positive environmental dynamics that should extend to the overall organizational group, or unit.

Each variable has been worded such that an increase in its value can be expected to lead to an improvement in organizational performance, specifically through a reduction in waste. And all of the variables are expected to interact with each other to varying degrees of effect on one or both of TQM's two most important stated objectives: customer satisfaction and reduced errors or defects (i.e. waste).

Relating back to the hypotheses in the previous chapter – from variables 17, 27, and 30 – felt trust and respect are presumed to function as internal variables mediating satisfaction and effective performance. Specifically, high downward trust and respect from managers are internalized manifestations, among others, of having become aware of TQM principles and having executed its key practices. As a result, individuals across the organization are expected to respond, in part, through indications of high upward trust and respect. At the group level, an indication of prior effectiveness should be high levels of peer-to-peer trust and respect, along with the three other variables shown.

Model Validity

This model was primarily developed through: 1) a literature review of leading texts written by the most highly renowned thinkers in quality management; and 2)

circulation for feedback of the proposed model from quality management faculty and professionals.

From the perspective of existing economic and organization theories, three assumptions are made to justify the expected validity of the model presented:

- high external customer satisfaction maintains a high demand and price;
- low waste keeps internal costs in control and supply capabilities strong; and
- the balanced combination of high external customer satisfaction and low internal waste is necessary and sufficient to sustain healthy margins, growth,¹ and satisfaction for all other stakeholders.²

If the way in which an organization allocates its resources is the ultimate determinant of its overall performance then how is waste a more useful (universal) and meaningful (causal) measure of performance than profit? From the assumptions above, it is reasoned that if a supplier understands the requirements for which customers will pay to satisfy their demands, and imputes these into its production and delivery methods, it need only pay attention to the waste by-product of such methods to maintain optimal performance.³ Waste is also a better measure than profit for two other reasons: 1) it includes customer satisfaction today which positions organizations for future sales; and 2) it is under greater organizational control than profit which is subject to exogenous influences.

¹ Meant to include maturity as well as size.

² All other issues such as employee and owner satisfaction are considered either a prerequisite for or a result of high customer satisfaction and low waste.

³ Long-term and system-wide.

5. Research Survey

Questionnaire Development

In order to measure the model variables in the last chapter, a comprehensive set of questions was developed around each variable in the model.¹ In addition to relying on the collective experience of the research team, all 12 Quality Management faculty at the University of Chicago Graduate School of Business (GSB) were asked to contribute “six to ten things you would look for as indicators of quality in an organization” and their responses were matched to the model variables.

The questionnaire that emerged was presented to potential field study organizations as the “Total Quality Diagnostic Audit” (TQDA) [attached as Appendix B], a “work environment” questionnaire of several hundred questions designed for deployment to all employees of an organizational unit.²

Before beginning a formal multi-year longitudinal research study in the field, the TQDA was pre-tested and used as part of several MBA group projects at over 20 local Chicago-based organizations, one of which administered the survey to an additional 10 of its plants throughout America, plus one in Ireland. Analysis of these results permitted us to sharpen, rewrite, delete, or add questions to the survey.

¹ It should be noted that TQM takes a holistic view of organization and advocates paying simultaneous and equal attention to all the variables in the model together. In deference to this philosophy, and to satisfy the expectations of potential research participants interested in TQM, it was decided to prepare a survey around the entire model at one time.

² In order to elicit as honest and accurate information as possible, anonymity was guaranteed and a preference for actual knowledge over random guessing was emphasized.

Table 2: Questions and Response Categories Used to Measure Variables

Variables

Questions

Please circle the number that best represents how much you believe each of the following statements is true ...

Not At All True	Somewhat True	More True Than Not	True	Does Not Apply
1	2	3	4	na

TRUST

"Before answering the next questions, consider the following definition of trust – integrity, confidence/reliance/custody placed in a thing or other"

17	Managerial Attitudes: Trust & Respect of Subordinates	30	I trust people at a lower level than me (whether they report to me or not)
27	Non-Managerial Attitudes: Upward Trust & Respect	31	I trust person(s) to whom I report
		32	I trust top management
30	Peer-to-Peer Trust & Respect	29	I trust peers & co-workers

RESPECT

"Before answering the next questions, consider the following definition of respect – esteem, showing consideration, perceived competence"

17	Managerial Attitudes: Trust & Respect of Subordinates	101	I respect people at a lower level than me (whether they report to me or not)
27	Non-Managerial Attitudes: Upward Trust & Respect	102	I respect person(s) to whom I report
		103	I respect top management
30	Peer-to-Peer Trust & Respect	100	I respect peers & co-workers

WASTE

33	Resource Waste	68	My Division wastes resources (money, time, effort)
		78	When trying to cut costs, my Division cuts people rather than wasteful practices
33	Opportunity Waste	87	I feel my potential is wasted
		61	I think about quitting and looking for another job

DEMOGRAPHIC VARIABLE: HIERARCHY

4a	Please check the one box that best describes your position (job classification) in your Division: <input type="checkbox"/> Administrative & Support Staff <input type="checkbox"/> Skilled Labor <input type="checkbox"/> Professional Staff <input type="checkbox"/> Supervisor <input type="checkbox"/> Manager <input type="checkbox"/> Executive
----	--

Variable Measurement

The model variables and survey questions pertaining to the hypotheses in this paper are shown in Table 2 on the previous page. All variables except hierarchy have been measured on a 4-point scale meant to: 1) avoid ambiguities from odd-numbered scales (i.e. too many indifferent responses in the middle); and 2) limit the precision requested to a level easiest to discern.

Since it is the group's collective experience of trust and respect that is expected to affect reported encounters with waste, the unit of analysis is the organizational division. So, except for the validity and reliability analyses reported in the following section, a group score is always created by averaging the set of answers from all respondents in a given division, and all divisions are compared to one another without regard to their different sizes. Almost all conclusions derive from changes in score values for a divisional unit over time. In several cases, questions are combined to form new aggregate variables (e.g. trust = upward + downward + across), in which case only respondents who answered at least two questions have been included.

Questionnaire Validity and Reliability

In addition to the face validity of the variable labels and question wording, both factor (validity) and alpha (reliability) indices have been computed for each group of items to be used as variables in statistical analyses. This approach has been employed simply to assess how well variables that are represented by more than one question have been measured, and factor scores are not used in producing or analyzing study results.

Factor analysis extracts from multiple items a latent, or unobservable, variable with singular meaning, and further assigns a numerical hierarchical ranking, or 'loading,' that represents the correlation of each item to the new 'factor', or underlying dimension.

Cronbach's alpha reports the internal consistency of each set of items used to construct these factors.

Table 3 on the next page reports the alpha score, factor variance, factor loadings, and selected descriptive statistics for each constructed variable presented in the findings that will follow.³ These results are derived by using individuals as the unit of analysis and only include the first set of responses from persons identified as having participated in more than one round of surveying, so as to avoid any redundancy bias.⁴

Target benchmark values were determined and are shown in the second row of the table. Wherever possible, these were set through an investigation of typically acceptable parameters used by researchers conducting similar studies.

With the possible exception of resource waste, around which analyses should be performed cautiously, all variables constructed from multiple questions appear valid and reliable for the purposes of this research.

³ The factor analysis settings used in SPSS were: principal components method; analyze correlation matrix; no rotation; exclude missing cases listwise.

⁴ Maximum N = 787 = 1st response from 366 repeat respondents + 323 self-identified as 1st time respondents + ½ (randomly selected) X 196 persons whose identity could not be determined.

Table 3: Questionnaire Reliability of Constructed Variables

<i>Variable Description</i>	<i>#Items</i>	<i>Factor Items*</i>	<i>Loadings</i>	<i>%Variance</i>	<i>Alpha</i>	<i>N</i>	<i>F**</i>
TARGETS:	> 2		> .7	> 50	> .7	>500	hi
Trust	4	30,31,29,32	.83,.81,.75,.69	59.3	.764	704	111
Upward Trust	2	31,32	.88,.88	77.7	.713	731	150
Respect	4	101,102,100,103	.86,.84,.79,.75	65.9	.816	719	136
Upward Respect	2	102,103	.94,.94	81.7	.774	736	114
Waste	4	87,61,78,68	.78,.75,.70,.66	52.2	.691	564	75
Resource Waste	2	78,68	.81,.81	65.4	.460	601	74
Opportunity Waste	2	61,87	.85,.85	72.5	.621	706	22

* Question numbers rank ordered from left to right according to diminishing strength of factor loadings. ** All F are significant at the 0.005 level.

6. Field Study

In 1995, members of the Council for Continuous Improvement (of which the GSB was a member) were solicited to take part in a formal multi-year study. Ultimately, two agencies within a city government in a western state remained throughout the course of this planned study. Initially, five organizations – 3 for-profit (1 large public, 1 medium public, 1 small private), and 2 non-profit – agreed to participate and took part in the first round of data collection. Although not a large sample, this cross-section might have allowed some interesting comparisons. However, the for-profits all chose to withdraw their involvement earlier than the non-profits.

The organizations that participated in this research were all actively engaged in TQM improvement programs and, to a greater and lesser degree, had established problem-solving groups with greater and lesser degrees of empowerment from above and commitment from within.

From 1996 through 1999, four rounds of the TQDA survey were administered to the two sister organizations. Initially, the TQDA was to be administered every 6 months but this was changed for scheduling reasons. Furthermore, some custom modifications were made to the survey throughout, none of which were material to the analyses that follow.

Table 4 on the following page lists the 1996 staff sizes of the two participating agencies and their 17 total divisional units (the study N). The capital letters shown in the topmost row and the numbers shown in the leftmost column are reference codes used from here forward to represent each organization and division.

Table 4: Research Participant Profiles

DIV ORG	A	B	C	D	E	F	G	H	I	J	K	Sum
1	180	56	45	43	32	21	18	9	8	7	3	422
2	150	100	30	15	13	8						306

Table 5 below shows the dates of each round and number of responses from each divisional unit. Hierarchical level details appear in Appendix C, indicating good cross-representation, and from which it is concluded that non-responses may be treated as random.

Table 5: Survey Dates and Responses

Orgs/Divisions	Rounds				Average Responses	Response Rates*
	1	2	3	4		
1	7/96	1/97	7/97	4/99**		
1 - A	75	74	30	75	64	35.3%
1 - B	45	55	43	47	48	84.8%
1 - C	39	41	29	***	36	80.7%
1 - D	27	38	28	***	31	72.1%
1 - E	13	11	2	12	10	29.7%
1 - F	13	15	10	16	14	64.3%
1 - G	17	16	19	19	18	98.6%
1 - H	9	10	11	11	10	113.9%
1 - I	7	8	8	7	8	93.8%
1 - J	7	6	6	9	7	100.0%
1 - K	3	3	*****	3	3	100.0%
{unidentified}****	6	6	4	0	5	
Org 1 - Total	261	283	190	199	233	62.0%
2	9/96	1/97	7/97	1/99**		
2 - A	51	44	33	81	52	34.8%
2 - B	40	38	38	19	34	33.8%
2 - C	30	38	27	37	33	110.0%
2 - D	13	12	8	8	10	68.3%
2 - E	10	11	8	*****	10	74.4%
2 - F	6	7	5	6	6	75.0%
{unidentified}****	12	25	20	7	16	
Org 2 - Total	162	175	139	158	159	51.8%
Grand Total	423	458	329	357	392	

* As a percent of 1996 staff sizes, across all rounds of participation. ** Self-administered. *** TS [1-D] merged into ADMIN [1-C], and 113 omitted. **** Repeat respondents who identified their unit in one round but not another were assigned to the same unit as that identified. ***** Did not participate.

In all, 1,680 valid surveys form the dataset. Of these, 927 were provided by 366 people who answered the same survey in more than one round. It was possible to identify these respondents through a code that combines birthdates with three digits of their social security numbers. Some judgment was used when only partial information was provided.

Table 6 classifies respondents according to their identity and independence from each other. This is to establish a sense for the proportion of repeat respondents who participated in more than one round of data collection.

Table 6: Classification of Respondents

	$\sqrt{1^{st}}$ Time	Count	Sub-Totals	
1st survey from repeat respondents:	343	366		
Next surveys from repeat respondents:	0	561	927	Longitudinal @ Individual
Some identification information:	224	379		
Org 1, Round 4 - no identification:	78	312		
All other - no identification:	21	62	753	Independent over time
Total Usable Surveys:	666	1680		Longitudinal @ Group

Overall data integrity is, of course, a major concern.¹ Questionnaires that were either empty or in which answers were all the same have been discarded. Surveys have also been excluded if no answers were provided to any of the questions associated with the variables of interest: trust, respect, and waste. Finally, responses for downward trust

¹ It is worth noting that a significant amount of time and effort were necessary to manually enter roughly 500,000 handwritten pieces of data contained in the original paper surveys (including the 3 organizations that withdrew their participation early). Notwithstanding the labor intensity that has been applied in order to preserve the quality as well as quantity of the information collected, the benefits of offering respondents anonymity has incurred a cost by limiting the ability to resolve occasional inconsistencies in their answers to questions. This is mentioned for two reasons: 1) to specially acknowledge the hundreds of hours of assistance that were graciously and tirelessly provided by Pattie McNatt Kenmore, along with the thousands of dollars of support provided by my advisor's research budget; and 2) to establish the electronic availability of this unique and potentially productive dataset, within which algorithms are embedded and key codes and imperfections are fully documented.

and respect from people at the lowest two levels (of six) – representing almost 90% of all participants – were removed due to lack of meaning, as well as significance.

7. Findings

In this section a combination of visual and quantitative study results is presented. Whenever possible, interpretations will include some regressions for support; but given the number of regressors and small N (further reduced by missing values), some R-squares are very high and reflect an oversimplification in that they do not consider any other variables in the research model on which the survey was based. As such, these equations are not presented as proof of explained variance as much as to show the direction and importance of the different independent variables on the dependent variable of interest.

Variable Recap

Table 7 on the next page lists and summarizes in the form of an index: the variable abbreviations used in the findings and discussion that follow; the meaning of each; the survey question(s) associated with each; and the model variable number(s) associated with each.

Graphs

In Appendices D1-4, a series of graphs visually shows the relationship between trust, respect, and both types of waste (including a third line for the combined measure). These graphs are organized as follows: Appendix D1 – summaries of all 17 divisions, of 9 divisions whose waste declined (i.e. did better) between the time the study was launched (time = 0) and the conclusion of the last survey (time = 3), and of 8 divisions whose waste increased (i.e. did worse) over the same periods; Appendix D2 – details of changes in trust and respect and waste throughout the study at each of the 17 divisions in

the sample; Appendices D3&4 – the same as Appendices D1&2, except that trust and respect have been broken down by, and can be tracked according to, their component types – upward, downward, and peer-to-peer.

Table 7: Index of Variables and Associated Survey Questions

<u>Variable Abbreviation*</u>	<u>Variable Meaning</u>	<u>Survey Question(s) [from Table 2]</u>	<u>Model Variable(s) [from Figure2]</u>
T	Trust	29,30,31,32	17,27,30
TDOWN	Downward trust	30	17
TUP	Upward trust	31,32	27
TPEER	Peer-to-peer trust	29	30
R	Respect	100,101,102,103	17,27,30
RDOWN	Downward respect	101	17
RUP	Upward respect	102,103	27
RPEER	Peer-to-peer respect	100	30
W	Waste	68,78,61,87	33
WRES	Wasted resources	68,78	33
WOPP	Wasted opportunities	61,87	33

* Other codes: # = moment in time (0, 1, 2, or 3 [note: add 1 for survey round number]); "d" = period change. Examples: RDOWN2d = change over period 2 in downward respect, from time 1 to time 2, or between the second and third survey rounds; T1 = the measure of trust recorded at time 1, as a result of the second survey round; Wd (note: a "d" following a variable name without any # before it) = net change in waste from the beginning (time 0) through the end (time 3) of the study, or over all 3 periods, or between the first and last survey rounds.

Correlations

Tables 8a, 8b, and 8c show the correlations between the score values of all variables in this study each time a survey was performed along with the changes in these values ("d") in between each survey round. Table 8a includes aggregate measures of trust, respect, and waste for each survey round and across all periods between survey rounds. Table 8b limits recorded points in time to only the first and last survey rounds, with net changes in between, and reports these for the three types of trust and respect mentioned above. Table 8c reports correlations between final period changes in each type of trust and respect, each type of waste, and summary measures of trust and respect.

Table 8a: Correlation Matrix of Trust, Respect, & Waste – All Moments & Period Changes

T1d	**-.56																		
T1	**-.71	.19																	
T2d	-.07	-.27	-.31																
T2	*.54	-.03	**-.60	**-.58															
T3d	.11	-.16	.01	*.51	-.38														
T3	*.60	-.18	*.57	-.03	.47	**-.64													
R0	**-.72	-.22	**-.67	.01	*.57	-.18	.28												
R1d	-.19	.40	.12	-.14	-.07	.24	.22	*.42											
R1	*.45	.20	**-.70	-.15	*.52	.08	.44	*.47	**-.61										
R2d	.08	.06	.15	**-.58	**-.62	-.47	.06	*.48	-.41	.02									
R2	.26	.28	*.54	.39	**-.79	-.32	.35	**-.58	-.02	**-.83									
R3d	.12	-.39	-.12	-.45	-.45	**-.84	.43	-.25	.05	-.20	**-.68	**-.66							
R3	**-.63	-.24	*.57	-.15	.35	**-.69	**-.92	.39	.21	*.53	.08	.32	*.50						
W0	**-.61	.15	**-.60	.14	*.46	.21	-.23	*.49	-.17	**-.59	.00	-.15	.12	-.33					
W1d	.30	*.54	-.10	.32	.15	.08	.26	-.06	.16	.11	.06	.07	-.08	.17	-.01				
W1	-.20	-.29	*.49	.32	-.11	.17	.01	-.38	.00	-.33	.05	-.02	.00	-.11	**-.68	**-.73			
W2d	-.07	-.05	-.12	*.44	*.47	.20	-.19	-.22	-.01	-.24	**-.71	**-.71	*.48	-.22	-.25	*.51	*.54		
W2	-.16	*.46	*.57	-.16	**-.63	.40	-.18	*.51	.14	-.37	**-.73	**-.80	*.56	-.23	.32	.27	.39	*.57	
W3d	.10	-.05	.08	.35	.34	**-.77	-.45	.43	*.60	-.25	**-.66	.38	**-.69	-.43	-.30	-.13	-.25	-.32	*.62
W3	-.25	-.19	-.40	.26	-.11	**-.66	**-.66	-.07	**-.71	**-.72	.24	-.17	-.43	**-.76	.33	-.10	.16	.06	.00
		T0	T1d	T1	T2d	T2	T3d	T3		R0	R1d	R1	R2d	R2	R3d	R3			
		W0	W1d	W1	W2d	W2	W3d	W3		W0	W1d	W1	W2d	W2	W3d				

Notes: All N are between 13 and 17 divisions (inclusive); one-tailed significance at **.01 level or *.05-level* as shown.

Table 8c: Correlation Matrix of Total & Types of Trust, Respect, & Waste – Change in Last Period

TDOWN3d	*.62									
TPEER3d	.29	.52								
RUP3d	** .83	*.64	.38							
RDOWN3d	-.11	.31	*.64	.06						
RPEER3d	.47	.38	** .72	*.61	** .87					
WRES3d	** -.82	-.51	-.06	-.45	.07	-.23				
WOPP3d	** -.80	** -.84	-.24	** -.82	.00	-.45	*.55			
T3d	** .88	** .79	** .70	** .81	.32	** .71	** -.63	** -.73		
R3d	** .75	.53	*.56	** .93	*.68	** .85	-.40	** -.72	** .84	
	TU3d	TD3d	TP3d	RU3d	RD3d	RP3d	WR3d	WO3d	T3d	

Notes: All N are between 10 and 13 divisions (inclusive); one-tailed significance at **.01 level or *.05-level as shown.

Test of Hypotheses

The relationship between trust and respect is examined, to confirm that a difference between trust and respect does indeed appear in the data. Their association is seen to increase in each period (Table 8a), and this association is strongest between upward trust and respect and weakest between downward trust and respect, with peer-to-peer trust and respect in the middle (Tables 8b and 8c). This suggests that while there is a clear relationship between trust and respect, they do not measure identical types of affinity within groups, and respondents were able to make this distinction.

H1: When attitudes in organizations are characterized by increasing levels of trust {T} and respect {R}, lowered levels of waste {W} should be reported.¹

The graphs in Appendices D1 and D2 appear to support the first hypothesis. This is especially true in the third and last period of the study, and this finding is attributed to two facts: 1) the significantly longer duration separating the fourth and third survey rounds (17 – 20 months), as compared to the time that elapsed between all previous survey rounds (3 – 5 months), thus allowing much more time for participating divisions to digest feedback results from earlier rounds; and 2) the increasing independence of levels of waste from one point in time to the next [from Table 8a: $\text{corr}(W_0, W_1) = .68$; $\text{corr}(W_0, W_2) = .32$; $\text{corr}(W_0, W_3) = .33$; $\text{corr}(W_1, W_2) = .39$; $\text{corr}(W_1, W_3) = .16$; $\text{corr}(W_2, W_3) = .00$].

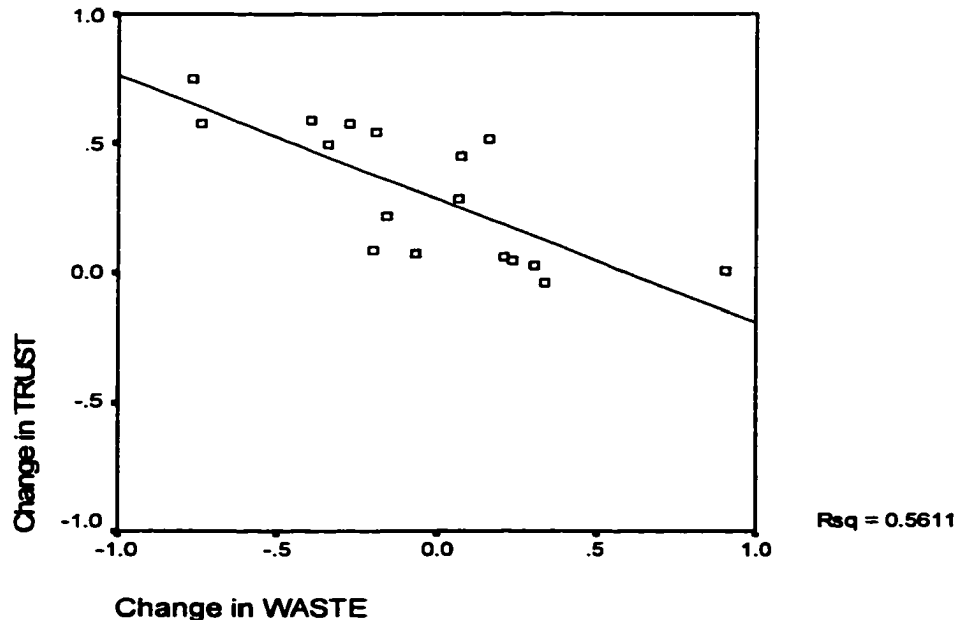
Although lags are expected between changes in trust and respect and predicted changes in waste, Table 8a appears to show strong concurrence among these variables. If

¹ In other words, an increasing combined average score for questions 29, 30, 31, and 32 [Trust] and 100, 101, 102, and 103 [Respect] should be related to a decreasing combined average score for questions 68, 78, 61, and 87 [Waste].

one reviews the diagonal between waste and trust ($W_0 | W_3$ & $T_0 | T_3$) as well as between waste and respect ($W_0 | W_3$ & $R_0 | R_3$), 13 of the 14 relationships are negative; 12 of which are significant, ranging from -.44 through -.80, and averaging -.63. As to the single anomaly associating a rise in respect over the first period with a rise in waste during the same period, it is suspected that a stubbornly increasing momentum in waste preceded and motivated participation in this study, and that it took one period of involvement to reverse this trend.

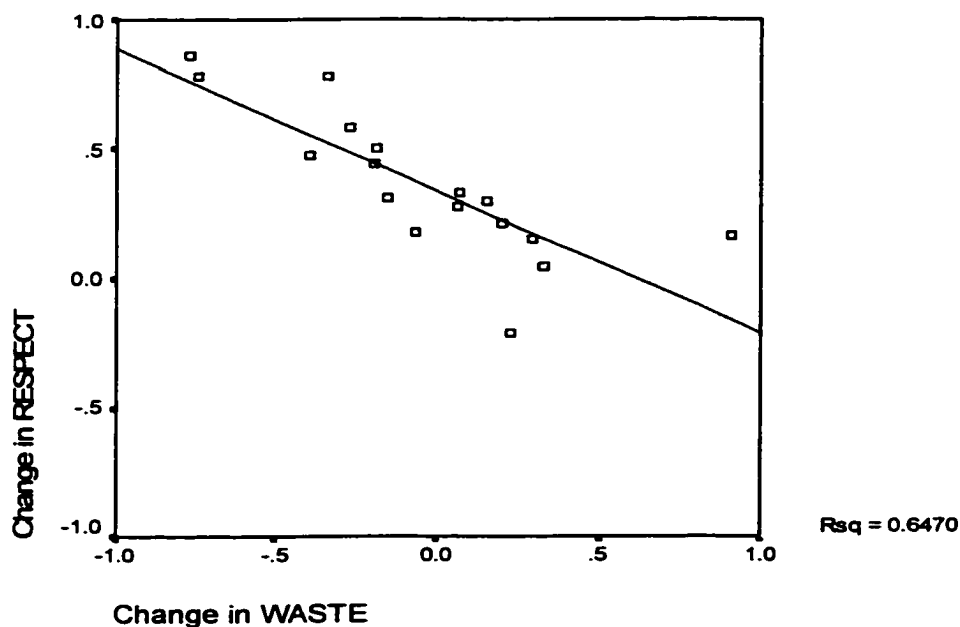
Figure 3 below and on the next page clearly illustrates that as trust and respect increase levels of waste decrease,² from which it is concluded that the first hypothesis is supported.

Figure 3: Scatter Plots of Changes in Waste & Changes in Trust & Respect



² These plots show net difference between our first and last readings.

Figure 3 continued:
Scatter Plots of Changes in Waste & Changes in Trust & Respect



H2: Giving respect $\{R_{n \text{ or } n-x}\}$ to others prior to or concurrent with placing trust $\{T_n\}$ in these others should strengthen the relationship between high or increasing trust $\{T\}$ and low or decreasing waste $\{W\}$.³

Some evidence of the second hypothesis can again be found in a review of the line graphs in Appendix D2, where in all but two cases (1E & 1I), respect is always higher than trust throughout the study.⁴ Furthermore, examination of the two exceptions

³ In other words, the relationship between changes in the combined average score for questions 29, 30, 31, and 32 [Trust] and changes in the combined average score for questions 68, 78, 61, and 87 [Waste] is expected to be negative but weaker when changes in the combined average score for questions 100, 101, 102, and 103 [Respect] is low in the same or previous time periods than when changes in the combined average score for questions 100, 101, 102, and 103 [Respect] is high in the same or previous time periods.

⁴ Although not exact, this particular condition of respect exceeding trust is treated as equivalent to having preceded it.

appears to reinforce this evidence. Division 1E experienced both the most dramatic increase and decrease in waste among the study sample, ending up with a net improvement. What is particularly interesting is that while both trust and respect decreased sharply and then just as precipitously increased together, levels of respect dipped below those of trust at the point of greatest waste. With division 1I, levels of trust remain slightly below levels of respect for the first period, surpass them in the second, and then drop below again in the third, all while waste increases over the second and third periods.

Since 15 of the 17 cases do not show a pattern of trust prior to respect, it is not possible to provide a straightforward and direct test of this hypothesis. However, because there are multiple measures of trust and respect over time, and trust and respect both consistently rise in the first period but differ in direction by the end,⁵ prior levels of the trust variable can be compared with subsequent levels of respect (and vice-versa), and the effects that these pairings have on waste can be determined.

The two regressions on the next page compare the effects on changes in waste during the last period of the study (W3d) of reversing the ordering of trust and respect.

First, the combined effect on waste of changes to trust in the first period (T1d) and changes to respect in the last (R3d) is examined. Second, the combined effect on waste of changes to respect in the first period (R1d) and changes to trust in the last (T3d) is examined. Clearly, the model where trust precedes respect is weaker than where respect precedes trust. It is therefore concluded that the second hypothesis is supported.

⁵ In 6 cases, ending trust is higher than beginning respect, in 5 cases it is lower, and in 6 cases it is roughly the same.

Regression Analysis: W3d versus T1d, R3d

The regression equation is

$$W3d = 0.161 - 1.27 T1d - 1.12 R3d$$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	0.1614	0.1924	0.84	0.421
T1d	-1.2683	0.7381	-1.72	0.116
R3d	-1.1162	0.2934	-3.80	0.003

S = 0.3666 R-Sq = 59.2% R-Sq(adj) = 51.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	1.9531	0.9765	7.27	0.011
Residual Error	10	1.3436	0.1344		
Total	12	3.2967			

Unusual Observations

Obs	T1d	W3d	Fit	SE Fit	Residual	St Resid
1E	0.085	-1.239	-1.329	0.321	0.091	0.51 X

X denotes an observation whose X value gives it large influence.

Regression Analysis: W3d versus R1d, T3d

The regression equation is

$$W3d = 0.204 - 0.983 R1d - 1.10 T3d$$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	0.2042	0.1279	1.60	0.142
R1d	-0.9827	0.3379	-2.91	0.016
T3d	-1.0958	0.2534	-4.32	0.002

S = 0.2705 R-Sq = 77.8% R-Sq(adj) = 73.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	2.5652	1.2826	17.53	0.001
Residual Error	10	0.7315	0.0732		
Total	12	3.2967			

H3: Downward positive trust {TDOWN} and respect {RDOWN} from higher levels of organization should enhance the negative relationship between positive upward attitudes {TUP and RUP} and reported levels of waste {W}.⁶

It can be noticed from the graphs in Appendices D3 and D4 that not only is respect generally higher than trust, but downward levels of trust and respect are generally higher than upward levels of trust and respect. When comparing those divisions that did better overall against those that did worse, the only observation to note is that all lines are closer together in the former group, perhaps suggesting that improvement efforts are less difficult to manage when differences in trust and respect between hierarchical levels are not as far apart.

Of all results in Table 8b, the clearest is that reductions in waste are most highly associated with increases in upward trust (-.82) and upward respect (-.92),⁷ confirming the earlier statement that lower organizational levels are closest to and most able to generate or limit waste. The predominant relationship between upward trust and respect and waste relative to the other two types of trust and respect also appears when comparing beginning and ending levels, as opposed to changes in levels. In Table 8bx on the next page, a subset of the data in Table 8b has been extracted and reorganized to more clearly show how beginning levels of all three types of trust and respect correlate with beginning and ending levels of waste.

⁶ In other words, the relationship between the combined average score for questions 31 and 32 [Upward Trust] or the combined average score for questions 102 and 103 [Upward Respect] and the combined average score for questions 68, 78, 61, and 87 [Waste] is expected to be more strongly negative when the score for question 30 [Downward Trust] and the score for question 101 [Downward Respect] are high in the concurrent or preceding period(s).

⁷ As compared to relationship strengths with reduced waste of -.45 and -.30 for increases in downward trust and respect, and -.29 and -.42 for increases in peer-to-peer trust and respect.

Table 8bx: Beginning & Ending Waste and Types of Trust & Respect

Corr(WASTE,...)	Beginning	Ending
Upward Trust	-.63**	-.81**
Upward Respect	-.50*	-.88**
Downward Trust	-.29	-.35
Downward Respect	-.38	-.32
Peer-to-Peer Trust	-.34	-.09
Peer-to-Peer Respect	-.13	-.40

If it is expected that a certain order – downward trust and respect before upward, or upward trust and respect before downward – should be more strongly related to changes in waste, then it is more likely that the second in the order will be more directly associated with waste. In this case, upward trust and respect is most strongly associated with waste, which therefore makes it more likely that upward levels of trust and respect follow downward levels of trust and respect, rather than the other way around.

In the last test of this hypothesis, several stepwise regressions (beginning on the next page) are performed from which a backward trace of effects on waste is constructed. Upward trust – with a strong negative relationship on change in waste [$t = -5.49$; adj. $R^2 = 64.5$] – is taken as the starting point, and it can be seen that from among the remaining variables upward respect is the most important predictor of upward trust.

Stepwise Regression: TUPd versus TDOWNd, TPEERd, RUPd, RDOWNd, RPEERd

Alpha-to-Enter: 0.15 Alpha-to-Remove: 0.15
Response is TUPd on 5 predictors, with N = 17

Step	1
Constant	0.01116
RUPd	0.91
T-Value	5.83
P-Value	0.000
S	0.209
R-Sq	69.40
R-Sq(adj)	67.36
C-p	1.6

After eliminating upward trust and respect, downward trust is next found to be the most important predictor of upward respect.

Stepwise Regression: RUPd versus TDOWNd, TPEERd, RDOWNd, RPEERd

Alpha-to-Enter: 0.15 Alpha-to-Remove: 0.15
Response is RUPd on 4 predictors, with N = 17

Step	1
Constant	0.3076
TDOWNd	0.17
T-Value	1.57
P-Value	0.137
S	0.321
R-Sq	14.16
R-Sq(adj)	8.44
C-p	-0.1

And finally the data indicate that downward respect is the most important predictor of downward trust.

Stepwise Regression: TDOWNd versus TPEERd, RDOWNd, RPEERd

Alpha-to-Enter: 0.15 Alpha-to-Remove: 0.15
Response is TDOWNd on 3 predictors, with N = 17

Step	1	2
Constant	-0.08661	-0.32496
RDOWNd	0.70	0.52
T-Value	2.69	2.01
P-Value	0.017	0.065
TPEERd		0.99
T-Value		1.81
P-Value		0.091
S	0.622	0.579
R-Sq	32.55	45.37
R-Sq(adj)	28.05	37.56
C-p	3.3	2.2

Support is therefore found in this study for the third hypothesis – that downward trust and respect precede upward trust and respect, which in turn precede reductions in waste.

H4: Levels of peer-to-peer trust {TPEER_n} and respect {RPEER_n} should be positively associated with levels of downward and upward trust {TDOWN_{n-x} and TUP_{n-x}} and respect {RDOWN_{n-x} and RUP_{n-x}} in preceding time periods.⁸

With regard to peer levels of trust and respect, it can be seen in Appendices D3 and D4 that these lines tend to appear somewhere below downward lines and above upward lines. Apart from the imagery of peer attitudes serving as a buffer between

⁸ In other words, there should be a strong positive relationship between the scores for question 29 [Peer Trust] and question 100 [Peer Respect] in one time period and the score for question 30 [Downward Trust], the score for question 101 [Downward Respect], the combined average score for questions 102 and 103 [Upward Respect], and the combined average score for questions 31 and 32 [Upward Trust] in preceding periods.

upward and lower feelings of trust and respect, it is difficult to offer further interpretation from the graphs with any confidence.

For both trust and respect, downward attitudes have a more significant positive relationship with peer-level attitudes [$\text{corr}(\text{TDOWNd}, \text{TPEERd}) = .54$; $\text{corr}(\text{RDOWNd}, \text{RPEERd}) = .48$] than upward attitudes [$\text{corr}(\text{TUPd}, \text{TPEERd}) = .29$; $\text{corr}(\text{RUPd}, \text{RPEERd}) = .31$]. These associations, however, do not clarify whether peer attitudes follow or lead upward and downward attitudes. Although the model in Figure 2 hypothesizes that they should follow, the lack of a clear signal from this study leads to a reconsideration that peer attitudes might instead precede or parallel upward and downward attitudes rather than develop in any particular sequence. In any event, since upward trust and respect are more consistently associated with reductions in waste, it is apparent that this hypothesis cannot be accepted from the data available.

Before drawing this chapter to a close, two deeper analyses of waste are introduced from the data: 1) distinction; and 2) causality. Although beyond the scope of the original study intentions, and therefore not formalized as hypotheses, the following two sections may serve as a contribution from which further research may be conducted.

Distinguishing Between Types of Waste

When Figure 1 was introduced, it was stated that resources are combined with opportunity to begin productive and efficient activity. From this, not only have the effects of trust and respect on waste been investigated, but an attempt has also been made to clarify if a distinction exists between wasted resources and wasted opportunity.

From the summary graphs, it can be immediately noticed that the lines for resource and opportunity waste converge over period 1. But when individual division graphs are examined, there is no such pattern at all, with roughly as many divisions reporting resource waste higher than opportunity waste as the inverse (throughout all periods). It is therefore concluded that this finding is an odd coincidence of netting the effects of all divisions and no meaning is attached to it.

It appears in Table 8c that although there is a significant relationship between both types of waste [$\text{corr}(\text{WRES3d}, \text{WOPP3d}) = .55$], there is also some room for a distinction to be made between them.

Two regressions appear below and on the next page. In the first, changes in resource waste over the last period of the study is the dependent variable, and changes in all types of trust and respect over each period form the set of independent variables from which the most prominent are extracted using the stepwise method. The second equation is the same as the first, except that the dependent variable is changed to opportunity waste.

Stepwise Regression: WRES3d versus TUP3d, TDOWN3d, TPEER3d, RUP3d, RDOWN3d, RPEER3d, TUP2d, TDOWN2d, TPEER2d, RUP2d, RDOWN2d, RPEER2d, TUP1d, TDOWN1d, TPEER1d, RUP1d, RDOWN1d, RPEER1d

Alpha-to-Enter: 0.075 Alpha-to-Remove: 0.075
 Response is WRES3d on 18 predictors, with N = 9
 N(cases with missing observations) = 8 N(all cases) = 17

Step	1
Constant	-0.03366
TUP3d	-1.62
T-Value	-8.27
P-Value	0.000
S	0.219
R-Sq	90.71
R-Sq(adj)	89.38

Stepwise Regression: WOPP3d versus TUP3d, TDOWN3d, TPEER3d, RUP3d, RDOWN3d, RPEER3d, TUP2d, TDOWN2d, TPEER2d, RUP2d, RDOWN2d, RPEER2d, TUP1d, TDOWN1d, TPEER1d, RUP1d, RDOWN1d, RPEER1d

Alpha-to-Enter: 0.075 Alpha-to-Remove: 0.075
 Response is WOPP3d on 18 predictors, with N = 9
 N(cases with missing observations) = 8 N(all cases) = 17

Step	1	2
Constant	-0.1932	-0.1577
TDOWN3d	-0.457	-0.625
T-Value	-4.21	-18.12
P-Value	0.004	0.000
TPEER3d		0.731
T-Value		9.42
P-Value		0.000
S	0.238	0.0647
R-Sq	71.67	98.21
R-Sq(adj)	67.63	97.61

The results are that upward trust best predicts resource waste, and downward trust best predicts opportunity waste. Given the fact that there are clear differences in effects on each type of waste from the same set of independent variables, this inconsistency leads to the conclusion that a distinction between resource and opportunity types of waste does exist.

In addition, a positive association is noticed between peer-to-peer trust and opportunity waste (second equation). This may be explained by referring back to the questions used to construct the opportunity waste variable – “I feel my potential is wasted” and “I think about quitting and looking for another job.” When trust increases across peers, people are more likely to express feelings of dissatisfaction in their work environment. And even though conditions may not have changed (for better or worse), their intentions to leave are amplified through their communications with one another, and their reasons why become more real and subject to action. An alternative

explanation may exist in an unanticipated ongoing dynamic whereby people may have a limited capacity (i.e. time and energy) for managing the trust and respect between themselves and their network of relationships that, when reached, requires a balancing of one type for another, keeping in mind that effort is not only required to achieve but also to sustain desired levels [Burt (1992)].

Due to the limitations of the data and inability to perform an adequate lag analysis, a better understanding of the findings just presented would require further study.

Investigating Causality⁹

Although it has been demonstrated that trust and respect are inversely related to waste, it is quite possible that trust and respect cause changes in waste, or that waste causes changes in trust and respect. The model in this paper neglects the dynamic aspect of the situation and does not use the outcome variable as an input to a recycling of the model. In acknowledgement of this deficiency, waste can be conceptually utilized as an input variable to existing levels of trust and respect, and tests can be performed with the current data to see what effect occurs with the participating organizations over the time span surveyed.

The technique that follows is similar to that used to test the second hypothesis. That is, regression models are constructed on the first and third next pages to show the expected relationship, and then the strength of these models are compared to new regressions on the second and fourth next pages, where the ordering of the variables has been reversed.

⁹ As most of the literature on this subject reveals, causality in human behavior is not as straightforward to prove as in the physical sciences since only an action which has a predictable reaction in exactly the same circumstances can be replicated, and conditions are rarely (if ever) stable and consistent across all organizations.

The first regression shows how changes in trust in each of the three time periods of the study affect changes in waste in the last time period.

Regression Analysis: W3d versus T1d, T2d, T3d

The regression equation is
 $W3d = 0.077 - 0.723 T1d - 0.323 T2d - 1.44 T3d$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	0.0770	0.1935	0.40	0.700
T1d	-0.7231	0.7249	-1.00	0.345
T2d	-0.3227	0.6136	-0.53	0.612
T3d	-1.4377	0.4071	-3.53	0.006

S = 0.3666 R-Sq = 63.3% R-Sq(adj) = 51.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	2.0869	0.6956	5.18	0.024
Residual Error	9	1.2098	0.1344		
Total	12	3.2967			

Source	DF	Seq SS
T1d	1	0.0080
T2d	1	0.4026
T3d	1	1.6762

Unusual Observations

Obs	T1d	W3d	Fit	SE Fit	Residual	St Resid
8	0.327	0.370	-0.293	0.162	0.664	2.02R

R denotes an observation with a large standardized residual

The second regression shows how changes in waste in each of the three time periods of the study affect changes in trust in the last time period.

Regression Analysis: T3d versus W1d, W2d, W3d

The regression equation is

$$T3d = 0.0202 - 0.140 W1d - 0.107 W2d - 0.498 W3d$$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	0.02021	0.08442	0.24	0.816
W1d	-0.1403	0.4046	-0.35	0.737
W2d	-0.1072	0.2657	-0.40	0.696
W3d	-0.4981	0.1513	-3.29	0.009

S = 0.2321 R-Sq = 59.8% R-Sq(adj) = 46.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	0.72138	0.24046	4.46	0.035
Residual Error	9	0.48496	0.05388		
Total	12	1.20635			

Source	DF	Seq SS
W1d	1	0.00805
W2d	1	0.12920
W3d	1	0.58413

Unusual Observations

Obs	W1d	T3d	Fit	SE Fit	Residual	St Resid
6	-0.094	-0.3712	0.0702	0.1090	-0.4414	-2.15R
9	0.026	0.8333	0.5397	0.1875	0.2936	2.14R

R denotes an observation with a large standardized residual

The third regression shows how changes in respect in each of the three time periods of the study affect changes in waste in the last time period.

Regression Analysis: W3d versus R1d, R2d, R3d

The regression equation is

$$W3d = 0.274 - 1.24 R1d + 0.027 R2d - 0.866 R3d$$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	0.2742	0.1392	1.97	0.080
R1d	-1.2431	0.3703	-3.36	0.008
R2d	0.0266	0.4222	0.06	0.951
R3d	-0.8659	0.2883	-3.00	0.015

S = 0.2742 R-Sq = 79.5% R-Sq(adj) = 72.6%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	2.61993	0.87331	11.61	0.002
Residual Error	9	0.67679	0.07520		
Total	12	3.29671			

Source	DF	Seq SS
R1d	1	1.19785
R2d	1	0.74376
R3d	1	0.67831

The fourth and final regression shows how changes in waste in each of the three time periods of the study affect changes in respect in the last time period.

Regression Analysis: R3d versus W1d, W2d, W3d

The regression equation is

$$R3d = - 0.001 + 0.081 W1d + 0.336 W2d - 0.431 W3d$$

13 cases used 4 cases contain missing values

Predictor	Coef	SE Coef	T	P
Constant	-0.0007	0.1107	-0.01	0.995
W1d	0.0807	0.5303	0.15	0.882
W2d	0.3359	0.3483	0.96	0.360
W3d	-0.4308	0.1983	-2.17	0.058

S = 0.3043 R-Sq = 54.9% R-Sq(adj) = 39.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	1.01238	0.33746	3.65	0.057
Residual Error	9	0.83318	0.09258		
Total	12	1.84556			

Source	DF	Seq SS
W1d	1	0.01258
W2d	1	0.56294
W3d	1	0.43686

Unusual Observations

Obs	W1d	R3d	Fit	SE Fit	Residual	St Resid
6	-0.094	-0.4250	0.2414	0.1429	-0.6664	-2.48R
9	0.026	1.2386	0.8289	0.2457	0.4097	2.28R

R denotes an observation with a large standardized residual

The first model is stronger than the second, but not conclusively. However, the third model appears significantly stronger than the fourth. Although directionally consistent with the research model used in this study, these results suggest that further research into the importance of feedback from the dependent variable (waste) on the independents (trust and respect) should be performed.

Summary Review of Findings

The first hypothesis simply tests the primary proposition – that increasing levels of trust and respect are related to performance through lower waste – and the results show the existence of that relationship. The next three hypotheses attempt to assess both sequential (H2) as well as hierarchical (H3 & H4) differential effects of each variable, and it has been found that:

- the giving of respect prior to trust increases the strength of the relationship between trust and waste;
- upward trust and respect are most strongly associated with changes in waste, and downward trust and respect are most strongly associated with changes in upward trust and respect; and
- peer-to-peer trust and respect are not strongly associated with upward or downward levels of trust and respect.

Finally, on an ad hoc basis, it was found that waste can be divided into two types – resource and opportunity – each of which is affected differently by the variables used in this study, and potentially others as well.

8. Discussion

Rationale Review

The findings in this research have been approached with the idea that waste should be viewed as deviations from business objectives, and that by trusting and respecting the pool of human resources over which they have a large degree of influence managers can achieve their objectives more effectively. This is due, in part, to the likelihood that lower levels of organization are closest to waste, and therefore most directly able to change its amount.

When decision-makers listen closely to the voice of their employees, and continuously reinforce their response in a way that is clearly consistent with statements of organizational purpose, they demonstrate signs of downward respect. But while the simple solicitation of input certainly can begin to reduce waste, it typically fails to address anything beyond the type of waste known-as “low-hanging fruit,” that which is easily identifiable and quickly resolved, such as the immediate, or “quick-fix,” treatment of symptoms. At best, highly visible problems are eliminated and forgotten. At worst, resources are diverted towards activities long past their initial relevance has expired and investment has been recovered.

For deeper reductions in waste to occur, leaders must also demonstrate downward trust by delegating some of their responsibilities and affording subordinates the same support they would themselves require. In return, a workforce may be expected not only to be motivated by their esteem for upper echelons (i.e. upward respect), but also to reciprocate with upward trust by exercising judgment, sharing risks, and assuming responsibility for outcomes they are confident will be rewarded and protected (to the extent possible) rather than overlooked or punished.

But can trust and respect be managed in such a way as to improve organizational performance? It is not possible to say with certainty from this study for two reasons: 1) this study did not attempt to intervene directly on these factors; and 2) the entire research model, of which these factors are only a part, was not tested. It is only possible to confirm that trust and respect underlie organizational functioning in a positive way, along with other factors, and that they should therefore be regarded as necessary but possibly insufficient to improve performance. The question of whether trust and respect directly influence, indirectly mediate, or simply signal ultimate organizational performance remains to be determined through further research.

Optimal Targets of Trust and Respect

From what is known, an important issue to consider is defining desired target levels of trust and respect with or towards which to chart a course of change. Optimal levels of each will differ according to the specifics of each organization, and should be established within the context of other variables (e.g. trust according to interdependence, and respect according to diversity). Furthermore, maximizing trust and respect is not the same as minimizing disrespect and distrust. If trust and respect are maximized, it is possible to reach a state of vulnerability where one wouldn't even question the attitudes and actions of another. Conversely, steps taken to eliminate disrespect and distrust altogether could lead to the stifling of creativity and innovation.

Although there is no claim here to have a solution for determining optimal levels of trust or respect, it does seem appropriate to raise this issue for possible inclusion in the agendas of policy thinkers and advisors, educators and researchers, along with executive decision-makers.

More on Waste

There have been debates over whether firms are in fact profit-maximizing. The better question is whether they should be, to which the most reasonable response is: all organizations are and should be *waste-optimizers*. The differences between them lie in what waste they are engaged in processing, or producing, as the case may be.

The most troubling and insidious issue surrounding waste is that its absence is extremely difficult to identify and acknowledge. How, for example, might anyone recognize and potentially reward the prevention of a catastrophe, unless it actually occurs and validates the failed effort that went into keeping it absent? In a highly structured setting, an approach would typically include the following steps: consider all possibilities; assign probabilities to each possibility; quantify and qualify the consequences of each possibility; act accordingly to avoid/deter negative and encourage positive outcomes; and monitor indefinitely, or until risk and uncertainty are no longer moot. But no form of organization can fully disassociate itself from its surroundings, some over which it will have little control. Nor can any organization continuously receive and act upon complete and accurate (i.e. perfect) information about those things over which it does have control. With this dilemma in mind, it is useful to hypothetically consider that resource utilization may at times reflect the need to maintain control as opposed to signifying a rational means for achieving a specific purpose. If this is the case, an over-emphasis on control may inhibit the recognition of a need to adapt, or blind a manager to opportunities for growth that could eventually require others to adapt.

For further insight into the nature of waste, the notion of “slack” is referenced [introduced by March and Simon in their book on *Organizations*, first published in 1958]. Slack, they suggest, creates the capacity to innovate. If resources are fully or over-

employed, interdependency and conflict is likely to be high, thereby reducing flexibility and responsiveness to change (whether externally imposed or internally induced). As a consequence of this view, reducing waste that frees up money, time, and people might be thought of as responsible for increasing slack, and a good thing. If, however, waste is divisible into two categories (as previously suggested), only a reduction in resource waste immediately increases slack. In the short-term, reducing opportunity waste can also reduce slack, as resources are redirected from being under-employed towards previously under-developed opportunities. However, as returns from investments into these opportunities begin to pay off, slack would then be expected to rise again.

When else might slack be warranted and worth paying for? A few possible scenarios are listed: insurance against a shortage in a critical resource, anticipation of an expected increase in activity, recognition of temporarily idle resources during a planned period of organizational transition, or as part of a competitive (i.e. monopolistic) strategy aimed at keeping resources away from others.

9. Possibilities for Future Research

While this report lays some new groundwork for exploring both intra-organizational relations as well as organizational performance, several possibilities for future research have become apparent, of which a few are listed.

First, it should be obvious that a broader set of organizations – notably from the for-profit sector – would enhance the generalizability of the findings presented, and that a longer time series would improve the ability to perform more meaningful lag analyses to test causality. Towards this end, the following recommendation is offered to those who might attempt to replicate this study: a 30-minute survey of less than 50 questions deployed in evenly-spaced intervals (ideally, every six months) over 3 to 5 years across several dozen and all types of organizations. Furthermore, although anonymity is believed to have increased the quality of responses, it has also greatly limited the ability to track changes over time, and it would be preferable that participants blindly trust a researcher's guarantees of confidentiality.

Second, analysis at the individual as well as group levels could lead to greater insights into human motivation and behavior, separate from social influence. It would be helpful to understand, for instance, the psychological relationship that may exist between trust and respect of oneself relative to that of and towards others. And, as raised in several of the articles reviewed [Jehn and Mannix (2001); Conger, Kanungo, and Menon (2000); Porter and Lilly (1996); Hosmer (1995)], the impact on individual motivation of emotive versus cognitive conflict in groups seems worth exploring further. Also, at the end of the survey, some experimental questions were asked around the concept of “flow” [Csikszentmihalyi (1990)]. This was due to the belief that a connection might exist between the state of being characterized as “flow” and the absence of waste. If correct,

reducing waste could lead individuals to achieve a greater proportion of their potential without any increase in motivation.¹

Third, the model suggests that reasonably objective measures for customer satisfaction and waste using the same scale could serve as a surrogate for profit that incorporated both qualitative as well as quantitative indications of organizational performance.² In addition, if TQM influences waste and waste clarifies gradations of success towards the achievements of organizational targets, then a single scale of TQM maturity would permit both rapid diagnostic information and accurate prescriptive recommendations for those seeking to increase their success using TQM principles. A Rasch statistical analysis was performed that rank orders all model variables by hierarchical dependency from the preliminary data to see if it might be possible to identify a uni-dimensional ordering of activities underlying waste, and although this approach was inconclusive, it remains a promising venue to explore.³

Fourth, and finally, a by-product of this research has frequently brought attention to the lack of acceptance of TQM as a serious area of research or study. Throughout the 1990's, calls have been made to advance this topic in management research, education, and practice by academics [Kaplan (1991)] and business leaders [Robinson of AMEX, Akers of IBM, Artzt of P&G, Poling of Ford, Galvin of Motorola, and Allaire of Xerox (1991)] alike, the challenges of doing so discussed [Grant, Shani, and Krishnan (1994)],

¹ More specifically, by taking away demotivating barriers to performance rather than adding any stimulus.

² By adding the scores of both dependents, for example, a measure combining both demand strength and supply control would exist to identify more clearly how TQM interacts with profitability, making it possible to explore the counter-intuitive claim by some that quality lowers cost and increases profit.

³ An initial hurdle to overcome in pursuing this direction would be to establish a reason to believe a natural scale should exist in this context.

means to clarify a research agenda proposed [Dean and Bowen (1994)], definitions advanced [Reeves and Bednar (1994)], and practical issues addressed [Hackman and Wageman (1995)]. More recently, an attempt has been made to distinguish TQM among accepted organization theories [Cole and Scott (2000)]. Yet, this area of thought has nevertheless succumbed to the vagaries of popular culture and “fads.” As this research has established the utility of using waste as measure of organizational performance, pointed to a body of literature that offers insight into how to reduce waste, and partially demonstrated the applicability of this literature to business research and practice, it should serve to advance or rekindle interest in TQM and stimulate further research into this interesting and important area.

10. Conclusion

Prior research has focused primarily on the benefits and returns to society-at-large or individuals of developing human and social capital [Becker (1975); Burt (1992)]. The aim of this research has been to extract from established theories in human and social capital application for the benefit of the organization. A challenge has been to apply rigorous methods towards a better understanding of how intangible forms of capital can be aimed at improving organizational performance through changes to behavioral processes.

By testing the basic proposition – that trust and respect are important because people and their inter-relations are fundamental to organizational success – guidance is offered to managers on how downward, upward, and peer-to-peer trust and respect might be used to advance an organization's interests, and performance improved through lower waste. A practical utility of this research to managers is that it offers support for an alternative to authoritarian bureaucracy, with which they may be more familiar but disenchanted.

This work has not only addressed some deficiencies in the literature itself – by suggesting greater emphasis be placed on respect alongside trust, and empirically supporting the importance of trust and respect on organizational performance – but has also contributed to knowledge by comparing the literature to reality and resolving contradictions and omissions in the process – by introducing waste as a measure of organizational performance, past, current, and future outcomes are simultaneously described in a single indicator, and confusion from not clearly distinguishing between

related but meaningfully different words that are often used interchangeably to justify decisions and behaviors in all organizations is assuaged.¹

¹ **A key underlying assumption is that how performance is measured not only indicates but also influences eventual outcomes of human activity.**

APPENDIX A:

Overview of the 2001 Malcolm Baldrige National Quality Award Criteria for Performance Excellence

Leadership – The Leadership Category examines how your organization’s senior leaders address values, directions, and performance expectations, as well as a focus on customers and other stakeholders, empowerment, innovation, and learning. Also examined is how your organization addresses its responsibilities to the public and supports its key communities.

Strategic Planning – The Strategic Planning Category examines how your organization develops strategic objectives and action plans. Also examined are how your chosen strategic objectives and action plans are deployed and how progress is measured.

Customer and Market Focus – The Customer and Market Focus Category examines how your organization determines requirements, expectations, and preferences of customers and markets. Also examined is how your organization builds relationships with customers and determines the key factors that lead to customer acquisition, satisfaction, and retention and to business expansion.

Information and Analysis – The Information and Analysis Category examines your organization’s information management and performance measurement systems and how your organization analyzes performance data and information.

Human Resource Focus – The Human Resource Focus Category examines how your organization motivates and enables employees to develop and utilize their full potential in alignment with your organization’s overall objectives and action plans. Also examined are your organization’s efforts to build and maintain a work environment and an employee support climate conducive to performance excellence and to personal and organizational growth.

Process Management – The Process Management Category examines the key aspects of your organization’s process management, including customer-focused design, product and service delivery, key business, and support processes. This Category encompasses all key processes and all work units.

Business Results – The Business Results Category examines your organization’s performance and improvement in key business areas: customer satisfaction, product and service performance, financial and marketplace performance, human resource results, and operational performance. Also examined are performance levels relative to those of competitors.

APPENDIX B:

Total Quality Diagnostic Audit [TQDA] Used in Field Study

WORK ENVIRONMENT QUESTIONNAIRE – Short Form

Please Indicate Your Division Name: _____

— —	/ /
----------	----------

1a. All 10 or first 3 digits in your Social Security Number

1b. Your Date of Birth (MM / DD / YY)

1c. Check here if this is the first time you are participating in this study.

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE BEGINNING

INSTRUCTIONS

When answering questions:

- if a question does not apply or appears inappropriate for your setting, circle “n/a”
- if you don’t know the answer to a question, you may leave it blank
(note: reasonable estimates are better than no answer at all)
- base your responses to all other questions on direct knowledge or personal beliefs

Unless stated otherwise:

- please answer all questions with your Division in mind
(note: if you just transferred, you may answer for your past Division as long as you identify yourself above as part of that Division)
- treat “internal” customers/suppliers as anyone who works *within* your Division
- treat “external” customers/suppliers as anyone who works *outside* your Division
- “benchmarking” is defined as the evaluation of practices and/or performance of organizations outside your Division for the purpose of learning and/or setting standards of achievement
- “stakeholders” are the various groups of people who have something to gain, or lose, from the success of your Department; these can include customers, employees, suppliers, owners, etc...

This survey is designed to identify the presence and prevalence of various quality-related characteristics that exist in all organizations. Your company has agreed to participate in this research because it wants to better understand how these characteristics are operating and interacting on a daily basis and how these are influencing long-term results. There are neither right or wrong nor good or bad answers.

Your care and candor in responding to this questionnaire is greatly appreciated!

© 1997 Selwyn Becker, Robert Kenmore, George Bateman, Mel Lerner

Q#	
2	Gender: <input type="checkbox"/> Female <input type="checkbox"/> Male
3	Years of education (circle one): [high school] 9 10 11 12 [college] 13 14 15 16 [graduate school] 17 18 19 20 21+
4a	Please check the one box that best describes your position (job classification) in your Division: <input type="checkbox"/> Administrative & Support Staff <input type="checkbox"/> Skilled Labor <input type="checkbox"/> Professional Staff <input type="checkbox"/> Supervisor <input type="checkbox"/> Manager <input type="checkbox"/> Executive
4b	Please check the one box that best describes your primary area of activity (function) in your Division: <input type="checkbox"/> General management/planning <input type="checkbox"/> Accounting/finance/purchasing <input type="checkbox"/> Line operations/production/logistics <input type="checkbox"/> Sales/marketing <input type="checkbox"/> Human resources <input type="checkbox"/> Research and development <input type="checkbox"/> Information services <input type="checkbox"/> Professional/technical support (internal consultant, legal, inspection, etc.) <input type="checkbox"/> Customer service/support <input type="checkbox"/> Facilities/maintenance/ security <input type="checkbox"/> Office/administrative/clerical <input type="checkbox"/> Other: _____
5	How many years have you worked: [a] in this Division? _____ [b] anywhere? _____
6	Do you: [a] supervise others? Yes <input type="checkbox"/> No <input type="checkbox"/> [b] belong to a union? Yes <input type="checkbox"/> No <input type="checkbox"/>
7	Please indicate your personal base annual gross income from this Division: \$ _____
8	Please rank in order of importance how your performance is evaluated (1=most important 5=least important): [a] Division performance <input type="checkbox"/> [b] your workgroup/team performance <input type="checkbox"/> [c] your individual performance <input type="checkbox"/> [d] training/certification <input type="checkbox"/> [e] politics, arbitrary, and unknown factors _____
9	How many hours of job related training have you received in the past year? _____
10	How many: [a] teams are you currently a member of? (if 0, skip 10b & 10c) _____ [b] of these teams try to identify and solve problems? _____ [c] of these teams include members from outside your own Division? _____
11a1	Who is your most critical supplier (may be internal or external - whose information or material you need most to do your job)? _____
11a2	How satisfied are you with this supplier? <input type="checkbox"/> Not satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Met all expectations <input type="checkbox"/> Delighted
11b1	Who is your most important customer (internal or external - to which you give your highest priority)? _____
11b2	How satisfied do you think they are with you? <input type="checkbox"/> I don't know <input type="checkbox"/> Not satisfied <input type="checkbox"/> Somewhat satisfied <input type="checkbox"/> Met all expectations <input type="checkbox"/> Delighted
12ab	Looking back at the past few months, to which two of the following stakeholders have you given the highest priority? <input type="checkbox"/> shareholders/owners <input type="checkbox"/> internal customers <input type="checkbox"/> external customers <input type="checkbox"/> internal suppliers <input type="checkbox"/> external suppliers <input type="checkbox"/> distributors/agents <input type="checkbox"/> government/regulators <input type="checkbox"/> your self/family <input type="checkbox"/> society/community <input type="checkbox"/> profession
13ab	Based on the actions of those you report to, which two of the following stakeholders appear to be to the most important to the people above you? <input type="checkbox"/> shareholders/owners <input type="checkbox"/> senior/executive management <input type="checkbox"/> external customers <input type="checkbox"/> external suppliers <input type="checkbox"/> internal employees <input type="checkbox"/> distributors/agents <input type="checkbox"/> government/regulators <input type="checkbox"/> their self/family <input type="checkbox"/> society/community <input type="checkbox"/> profession
14	On a scale of 0 to 100, indicate how important quality is when your performance is evaluated (place an "X" anywhere along the line below): not important 0 20 40 60 80 100 very important

Please circle the number that best represents how much you believe each of the following statements is true ...

Not At All True	Somewhat True	More True Than Not	True	Does Not Apply
1	2	3	4	na

Q#	
15	My Division's management ... has expressed that everyone in my Division is responsible for quality
16	has stated in writing why quality is needed
17	is actively involved in continuous improvement
18	communicates progress toward quality goals
19	supplies the time and money needed to support quality improvement efforts
20	has identified who our markets or customers are
21	has expressed that customer satisfaction is the highest priority
22	acts as though customer satisfaction is the highest priority
23	Most everyone at my Division ... takes responsibility for quality
24	believes management's formal plan for implementing quality is a good plan
25	consistently places customer satisfaction above all else
	Before answering the next 7 questions, consider the following definition of <i>trust</i> - "integrity, confidence/reliance/custody placed in a thing or other"
	I <i>trust</i> ...
26	external customers
27	inside suppliers
28	outside suppliers
29	peers & co-workers
30	people at a lower level than me (whether they report to me or not)
31	person(s) to whom I report
32	top management
33	Managerial decisions in my Division ... are consistently related to the goals of my Division
34	take into account the long-term implications of implementing them
35	take into account their impact on everyone affected, inside and outside the Division
36	are arrived at with consideration of relevant input
37	My Division searches for best-in-class practices in other organizations
38	I experience good feelings about the way my work comes out at least once per day
39	People in my Division behave very ethically
40	Hourly employees' ideas are put into use by the Division
41	My productivity has improved as a result of using the training I have received
42	The teams I have worked on have had the right people on them
43	My customers depend on me
44	My Division rewards the use of cross-training
45	My boss encourages me to exchange information with people outside my Division
	My Division charts trends in ...
46	amount of rework (correcting errors)
47	the turnaround (cycle) time of work processes
48	benefits of improving quality
49	cost of poor quality
50	customer complaints
51	(service/product) delivery performance

© 1997 Selwyn Becker, Robert Kenmore, George Bateman, Mel Lerner

52	number of defects
53	productivity
54	I don't always actively try to improve things at my Division {if you answered 1, skip the next 2 questions}
55	I don't always actively try to improve things at my Division because ... I don't think others care or that they will listen
56	I think it could hurt me at work
57	I am motivated to do my job by ... the pay, salary, and benefits I receive
58	the pleasure and fun of performing the process, activity, or task
59	the rewards and recognition I get from others at work
60	the ability to overcome challenges and difficulties in my job
61	I think about quitting and looking for another job
62	Training is a waste of time
63	I feel that I am compensated fairly
64	People in my Division respond positively to new information suggesting that they need to change their implementation plans
65	The teams I have worked on have had no purpose
66	My Division compares its practices with organizations outside its own industry at least once yearly
67	All of my significant contributions are considered when my performance is evaluated
68	My Division wastes resources (money, time, effort)
69	Teams I have worked on are empowered to implement their own recommendations
70	If I have any question about my job or Division, I know how to get an answer
71	There is little value in long-range planning because conditions change too much and too often
72	My Division involves suppliers in problem-solving
73	I get feelings of satisfaction when I think of the work I contribute to my Division
74	My Division encourages me to learn all I can about my job from outside sources (peers, friends, industry conferences, seminars, etc.)
75	My Division punishes the person responsible for a new idea if it fails
76	I have the power to change the way I do my work
77	I have had an opportunity to use the problem-solving training that I have received
78	When trying to cut costs, my Division cuts people rather than wasteful practices Recommendations/solutions provided by teams I have worked on and that were adopted by my Division have had a positive effect (e.g. improved customer/employee satisfaction, reduced waste, etc.) ...
79	when the teams did not include anyone from outside my Division
80	when the teams did include anyone from outside my Division
81	Generally, I am able to receive training when I need it most
82	I am held accountable for work that is not under my control
83	I have the opportunity (formally or informally) to evaluate or provide feedback to those I report to
84	When people ask me what company I work for, I am proud when I answer
85	At my Division, gains from continuous improvement efforts are achieved
86	I am satisfied with the outcomes achieved by the teams I have worked on
87	I feel my potential is wasted
88	I hear about issues facing my Division as soon as they arise
89	My Division compares its practices with organizations inside its own industry at least once yearly

© 1997 Selwyn Becker, Robert Kenmore, George Bateman, Mel Lerner

90	Daily priorities seem to be more important than long-term goals & objectives
91	My Division asks me for my opinion on how to implement its strategic plans
92	Overall, I am frustrated by the incompetence of so many others around me at work
93	Information about the financial or budget performance of my Division (i.e. profit/loss or surplus/deficit) is shared with all employees
94	My Division checks to see if the plans it has developed are effective/working
95	Units and work groups within my Division share information freely with one another
96	I believe in the goals & mission of my Division
	Before answering the next 7 questions, consider the following definition of <i>respect</i> - "esteem, showing consideration, perceived competence"
	I respect ...
97	external customers
98	inside suppliers
99	outside suppliers
100	peers & co-workers
101	people at a lower level than me (whether they report to me or not)
102	person(s) to whom I report
103	top management
104	Improvements and positive progress is monitored by my Division manager
105	In general, peoples' skills match fairly well the needs of our Division
106	External suppliers are audited and approved
107	Value-added (or productivity) per employee has increased in each of the past 3 years
108	Response is immediate to changes in customer needs
109	I volunteer my ideas to those who could do something about them
110	My Division Manager's commitment to quality is very consistent
111	I have some say in the supplier(s) I use
112	Around my workplace, it is more important to satisfy my supervisor(s) than to serve the customer
113	Employees in my Division are encouraged to think of ways to do their work better
114	I believe the needs of internal customers are as important as those of external customers
115	Purchases are inspected for defects upon arrival
116	My Division's customers believe that we do a good job in responding to their problems and complaints
	Quality is the major basis for decision-making by ...
117	top management
118	most everyone in my Division
119	me
120	I usually look forward to going to work Monday mornings
121	The major goal of purchasing is to reduce supplier prices
122	I trust the competence of others I depend on to complete my work
123	People within my Division share new technologies and ideas for solving problems
124	Many of our key purchases are supplied by sole sources
125	My Division solicits my opinion to develop strategic plans
126	Employees at my Division volunteer ideas and suggestions for improvement
127	I understand the requirements of my internal customers
128	I am in control of my performance
129	I believe the concept of customer can and should be applied to those inside my Division whom I serve
130	I actively advance the goals & mission of my Division

© 1997 Selwyn Becker, Robert Kenmore, George Bateman, Mel Lerner

131	If I submit an idea or suggestion to someone who can do something about it, I know it will be treated seriously, considered fairly, and handled appropriately
132	People in my workplace are afraid to question their supervisors' orders
133	In general, management knows what's really going on in my Division
134	Being a member of my Division gives me a sense of personal satisfaction
135	People in my Division resist change
136	I believe that the people I report to have my best interests in mind
137	Salaried employees' ideas are put into use by the Division
138	My Division understands & uses the latest knowledge & technology available today (e.g. email, telecommuting, meeting schedulers, industry-specific techniques, etc.)
139	Basically, the world is a just place
140	By and large, people deserve what they get
141	Getting a good job depends on being in the right place at the right time
142	Things get done properly because of people's abilities, rather than luck
143	Many of the things in people's lives are due to luck
144	Many times I feel that I have little influence over the things that happen to me
145	Others often take credit for the work I perform
146	What happens to me is my own doing
147	I am able to do things as well as most other people
148	I certainly feel useless at times
149	Many people tell me I have much to be proud of
150	Many people tell me I have a number of good qualities
151	I feel that I'm a person of worth
152	I take a positive attitude toward myself
153	I wish I could have more respect for myself
154	On the whole, I am satisfied with myself
155	My Division's Senior staff are working to address issues identified in the last survey

Please circle the number that is closest to the statement that you believe is most true ... (i.e. circle 1, 3, or 5 if you agree with the statement directly above 1, 3, or 5; circle 2 or 4 if your level of agreement is between the two statements on either side of 2 or 4)

	1	2	3	4	5
156	Managerial decisions in my Division are usually fully carried out to completion		Managerial decisions are neither ignored nor fully adopted		Managerial decisions are treated as fads of the month
157	The spirit around here is "one for all and all for one"		Some people look to their own interests first, others do not		The spirit here is everyone looks out for themselves first
158	Division goals and mission are clear to all		Division goals and mission are clear to some, but not to others		Division goals and mission are not at all clear
159	Responsibility and independence exist at all Division levels		Some responsibility and independence exist below Division head levels		Responsibility and independence only exist at Division head levels or higher
160	The flow of my work is constant		The flow of my work is neither regular nor irregular		The flow of my work arrives in peaks and valleys
161	How much does your Division waste its resources (money, time, effort) (place an "X" anywhere along the line below): wastes nothing 0 20 40 60 80 100 wastes everything				
162	What is the single most important thing that would improve your Division? _____				

© 1997 Selwyn Becker, Robert Kenmore, George Bateman, Mel Lerner

163	What is the activity you enjoy doing <i>most</i> at work? _____
164	What percent of your total time at work do you perform the activity described above? _____

Please think of the activity you enjoy doing most. For this activity, please mark one 'X' in the grid that you feel best represents both:

165a	• how well equipped you are to perform the activity (i.e. your current level of skills and training to perform the activity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Difficult
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
165b	• the level of difficulty of the activity (i.e. how challenging it is to you)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Easy
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Lo	Skill	Hi		

166	What is the activity you enjoy doing <i>least</i> at work? _____
167	What percent of your total time at work do you perform the activity described above? _____

Please think of the activity you enjoy doing least. For this activity, please mark one 'X' in the grid that you feel best represents both:

168a	• how well equipped you are to perform the activity (i.e. your current level of skills and training to perform the activity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Difficult
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
168b	• the level of difficulty of the activity (i.e. how challenging it is to you)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Easy
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Lo	Skill	Hi		

APPENDIX C:

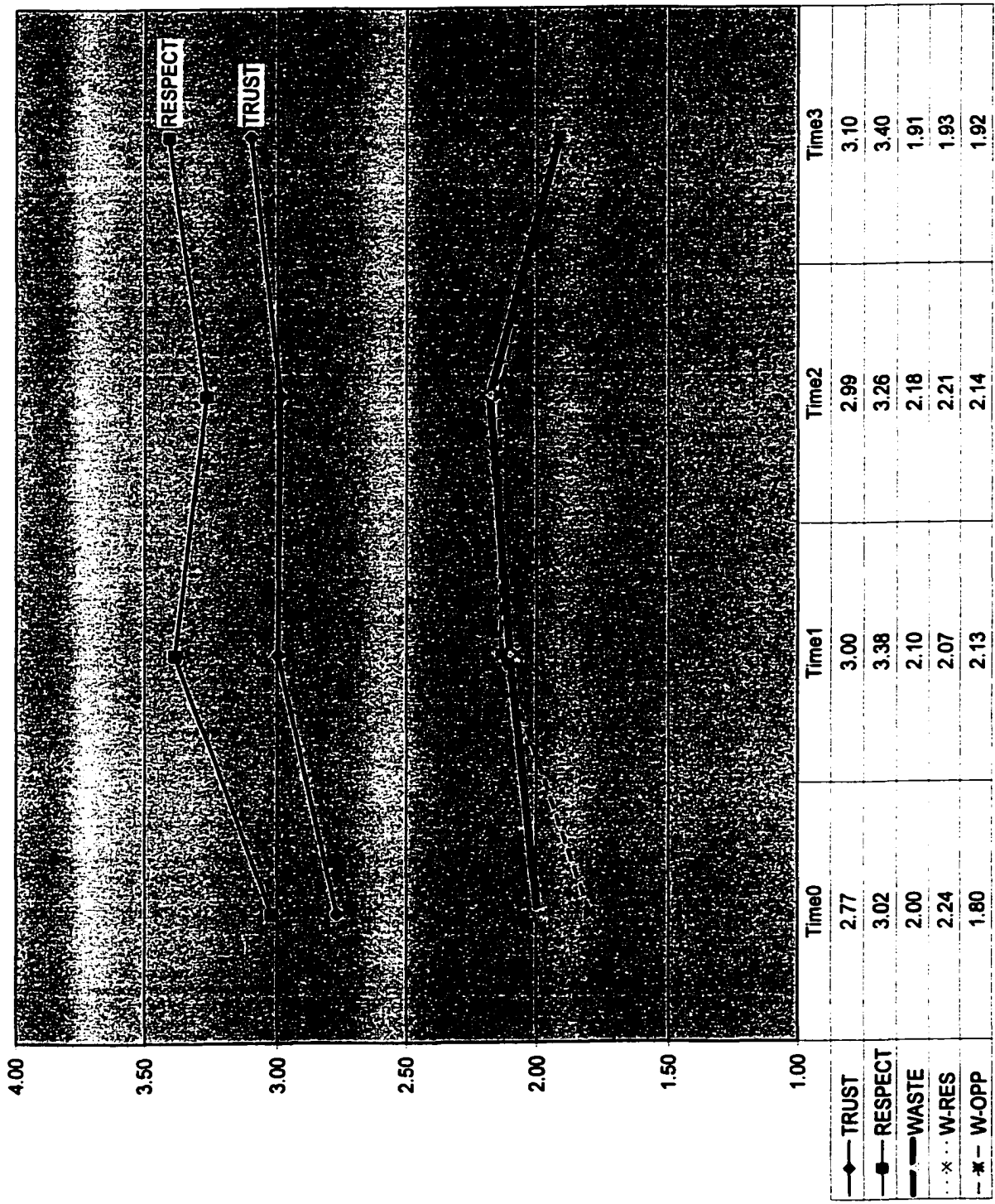
Hierarchical Distribution Of Reponses

UNIT	ROUND	lower < < JOB LEVELS > > higher						(blank)	TOTAL
		1	2	3	4	5	6		
1 - A	1		32	12	14	1		16	75
	2	2	42	11	15	4			74
	3	3	10	4	7	5		1	30
	4	2	40	13	13	4	1	2	75
1 - B	1	5		37	2		1		45
	2	4	6	37	4		2	2	55
	3	5	4	29	3	1	1		43
	4	4	2	34	4	1	1	1	47
1 - C	1	17		15	4			3	39
	2	22	2	9	2	3	1	2	41
	3	14	1	7	1	4		2	29
	4	25	30	34	15	8		1	113
1 - D	1	4		22	1				27
	2	3	5	23	3	3	1		38
	3	2	5	14	5	1		1	28
	4								
1 - E	1	4		7	1	1			13
	2	1	2	3	3	1	1		11
	3			2					2
	4	3	2	4	1			2	12
1 - F	1	5		7	1				13
	2	3		9	1	1	1		15
	3	4		6					10
	4	4		9	1	1	1		16
1 - G	1	2		12	3				17
	2	2		12	2				16
	3	3		12	2	2			19
	4	2		13	2	2			19
1 - H	1	1		6	1		1		9
	2	1		7	1	1			10
	3	2		7	1	1			11
	4	1	3	3	1	1	1	1	11
1 - I	1			6			1		7
	2			7		1			8
	3	2		4	1	1			8
	4	1		3	2	1			7
1 - J	1	1		5			1		7
	2	1		5					6
	3	2		4					6
	4	1		6	1	1			9

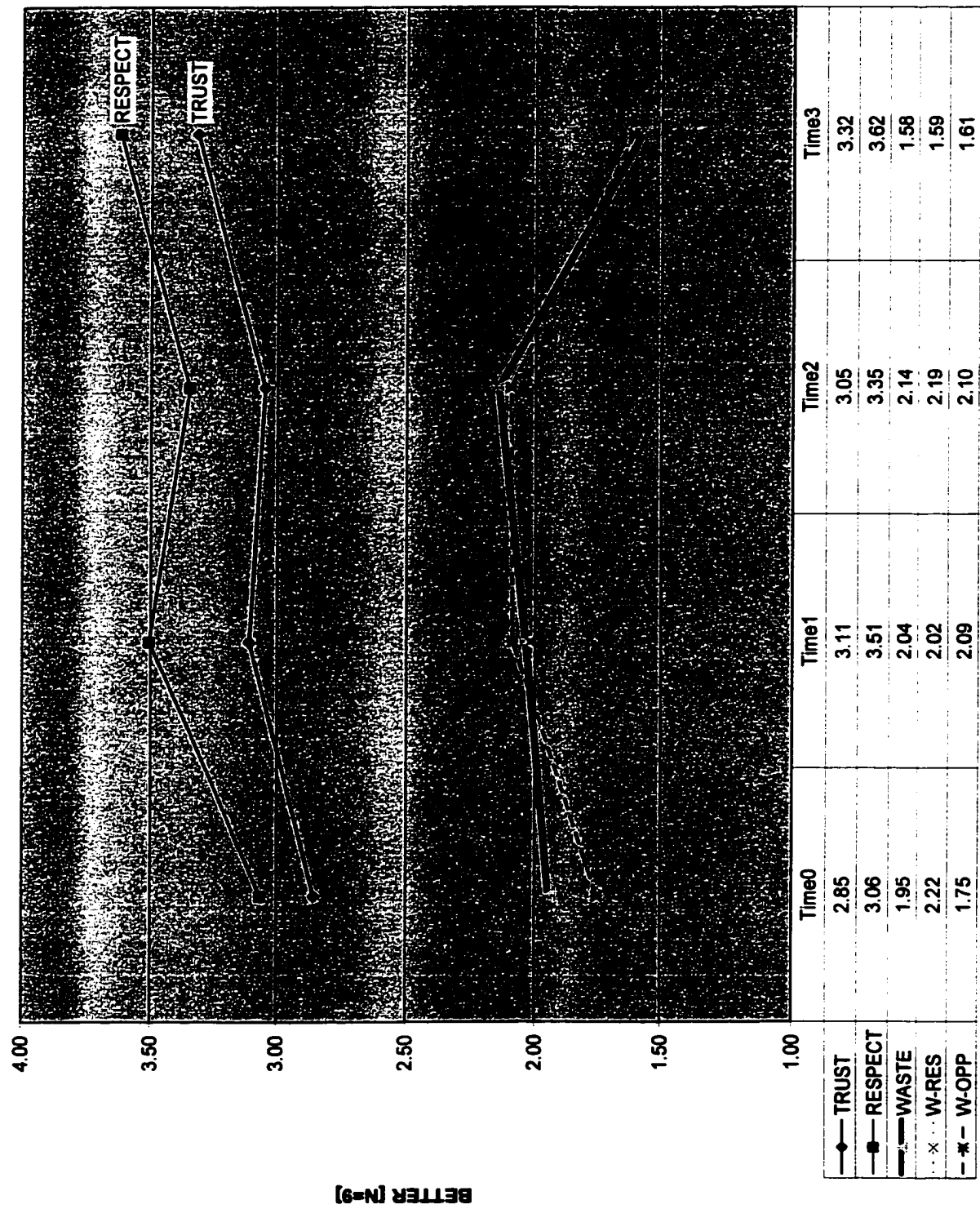
UNIT	ROUND	lower < < JOB LEVELS > > higher						(blank)	TOTAL
		1	2	3	4	5	6		
1 - K	1			2			1		3
	2			2		1			3
	3								
	4	1		1		1			3
1 - ?	1	4		1			1		6
	2	2	2	1		1			6
	3			4					4
	4								
ORG 1 - SUB		165	188	471	118	53	17	34	1046
1 - A	1	16	2	14	13	3	1	2	51
	2	13		9	14	5	1	2	44
	3	13		4	11	4	1		33
	4	24	1	15	29	8	1	3	81
1 - B	1	4	3	17	9	2		5	40
	2	9	1	10	14	3	1		38
	3	10	2	11	12	1		2	38
	4	4		8	5		2		19
1 - C	1	11	3	9	6	1			30
	2	12	9	4	8	3		2	38
	3	11	4	1	5	1		5	27
	4	10	3	12	6	4	1	1	37
1 - D	1	8		3	1	1			13
	2	6		2	1	2	1		12
	3	4		1			2	1	8
	4	3		2		1	1	1	8
1 - E	1	4		3	2		1		10
	2	4		4		3			11
	3	3		3		1	1		8
	4								
1 - F	1	3			2		1		6
	2	3		1		1	2		7
	3	1		1		1	1	1	5
	4	1			2	2	1		6
1 - ?	1	5		3	1			3	12
	2	14	1	4	4			2	25
	3	6	2	4	4	2		2	20
	4	4		2		1			7
ORG 2 - SUB		206	31	147	149	50	19	32	634
TOTAL		371	219	618	267	103	36	66	1680

APPENDIX D1:

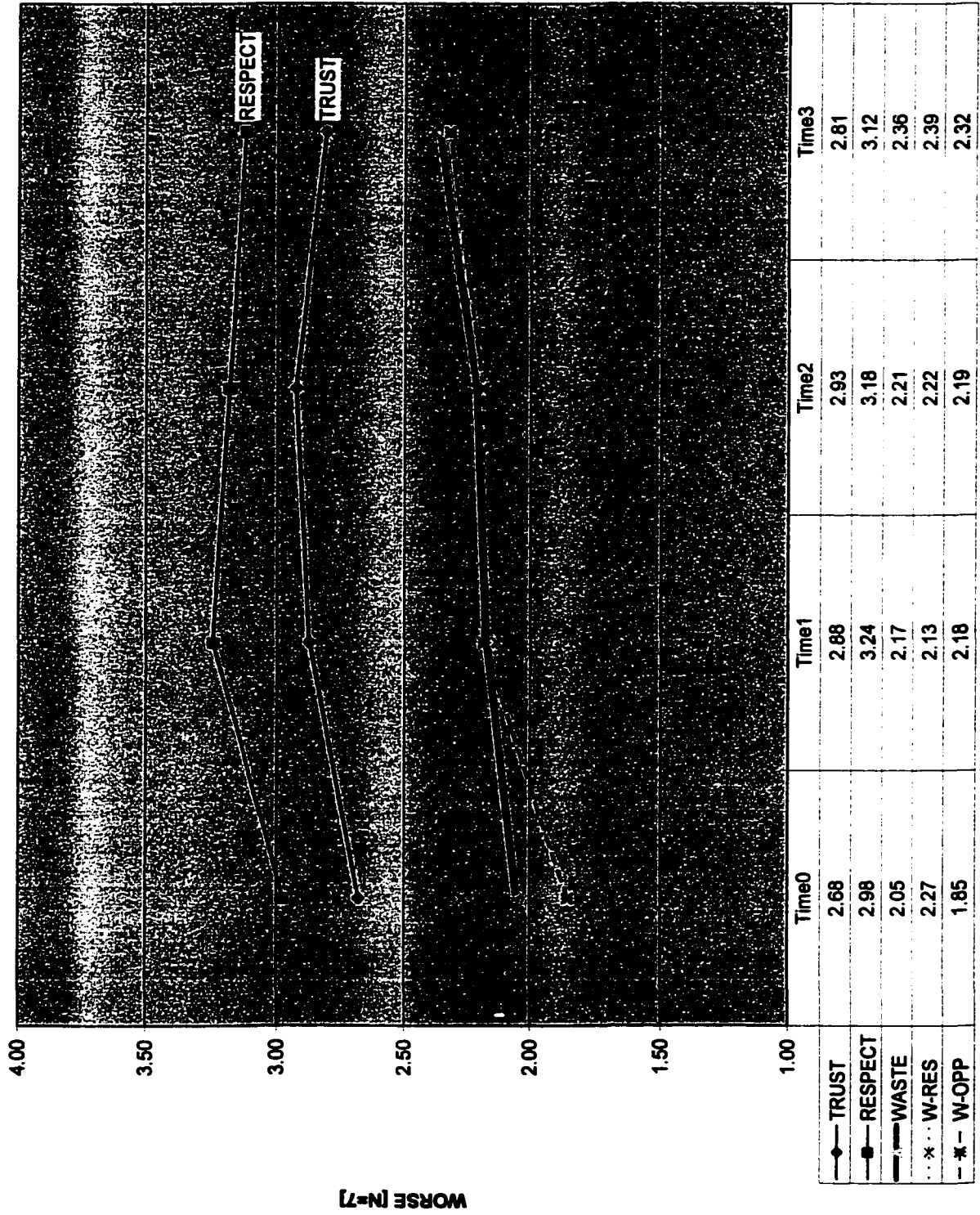
Trust & Respect and Waste – Division Summaries



ALL [N=17]



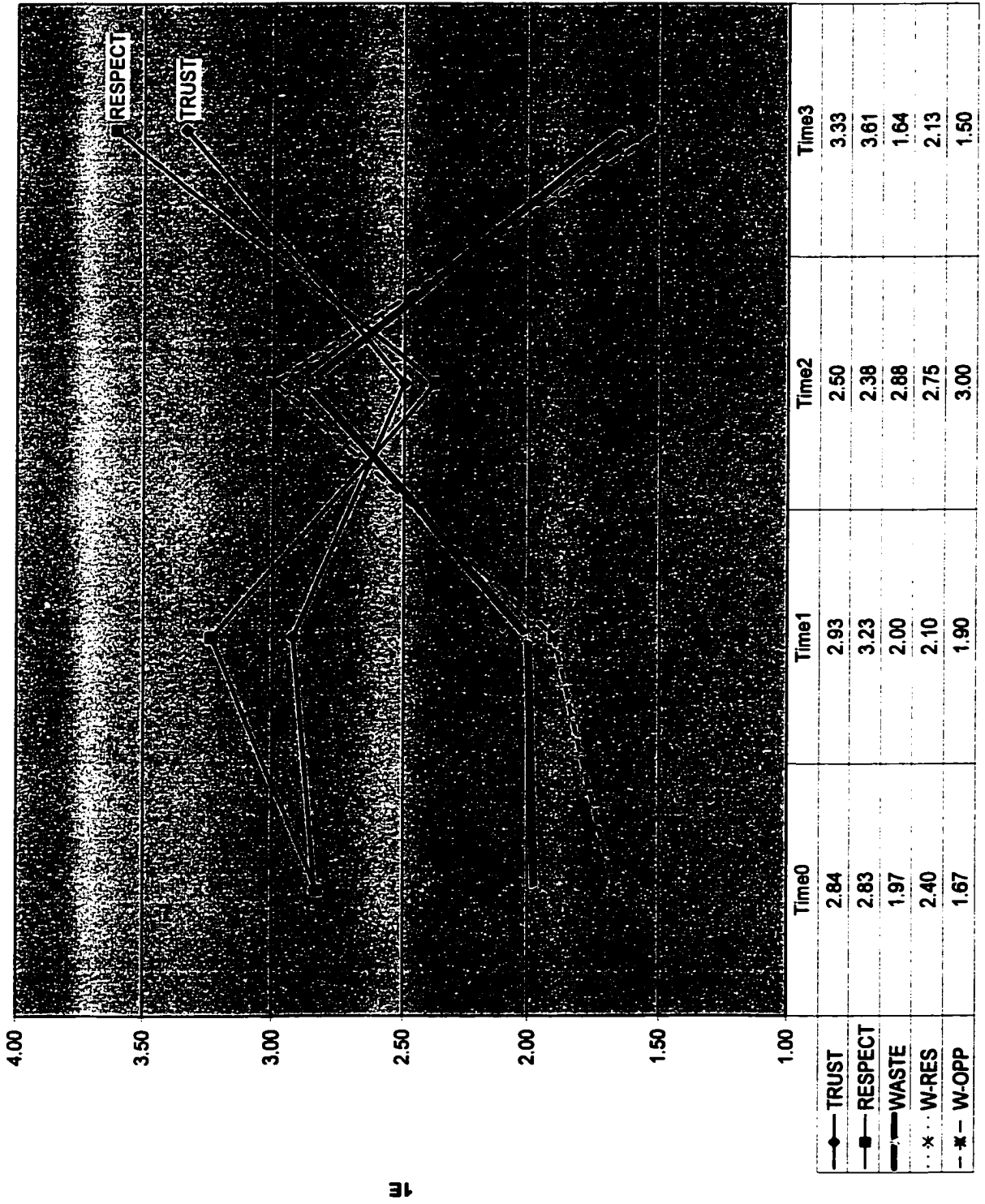
BETTER (N=9)



WORSE [N=7]

APPENDIX D2:

Trust & Respect and Waste – Individual Divisions



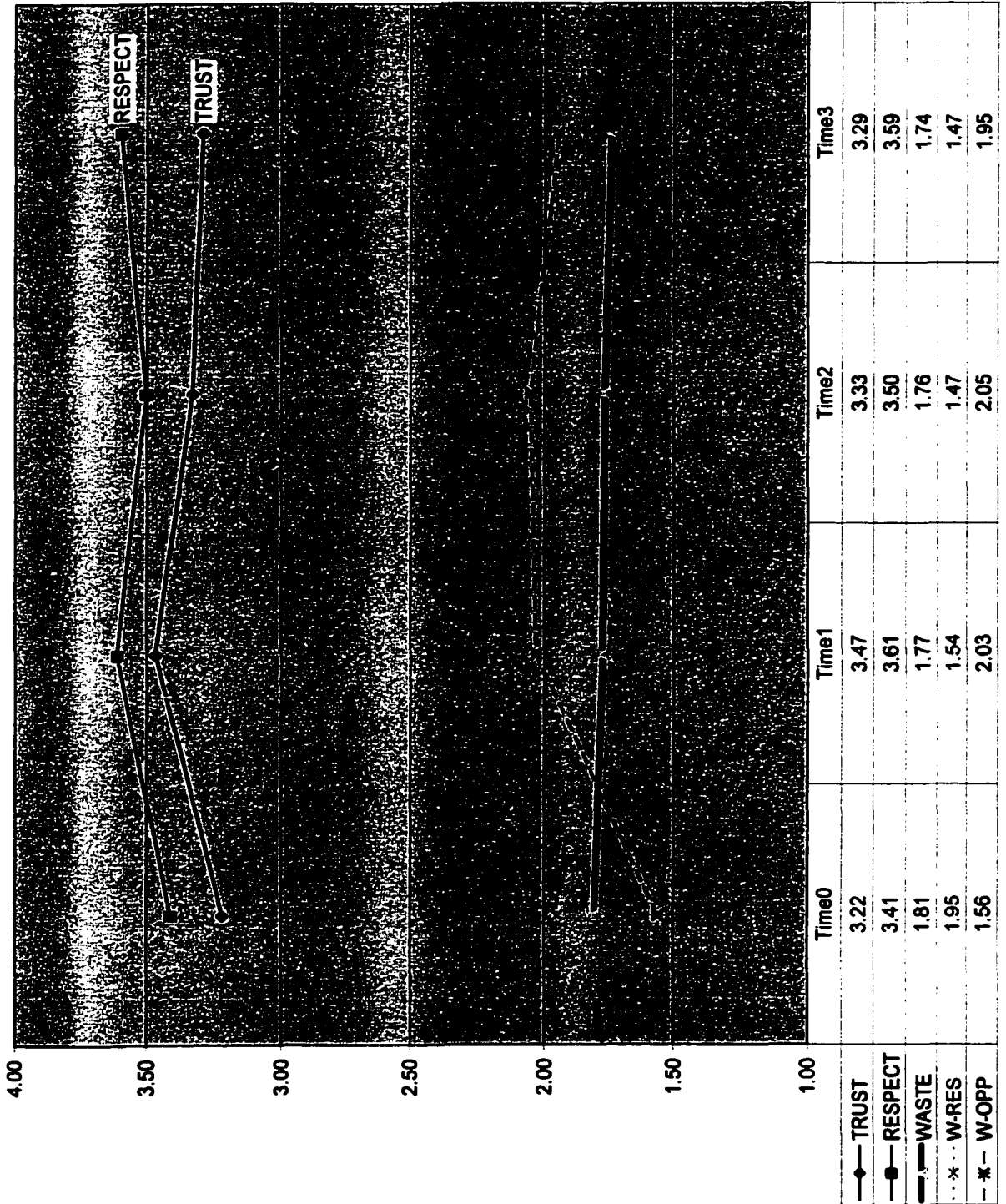
m

4.00
3.50
3.00
2.50
2.00
1.50
1.00

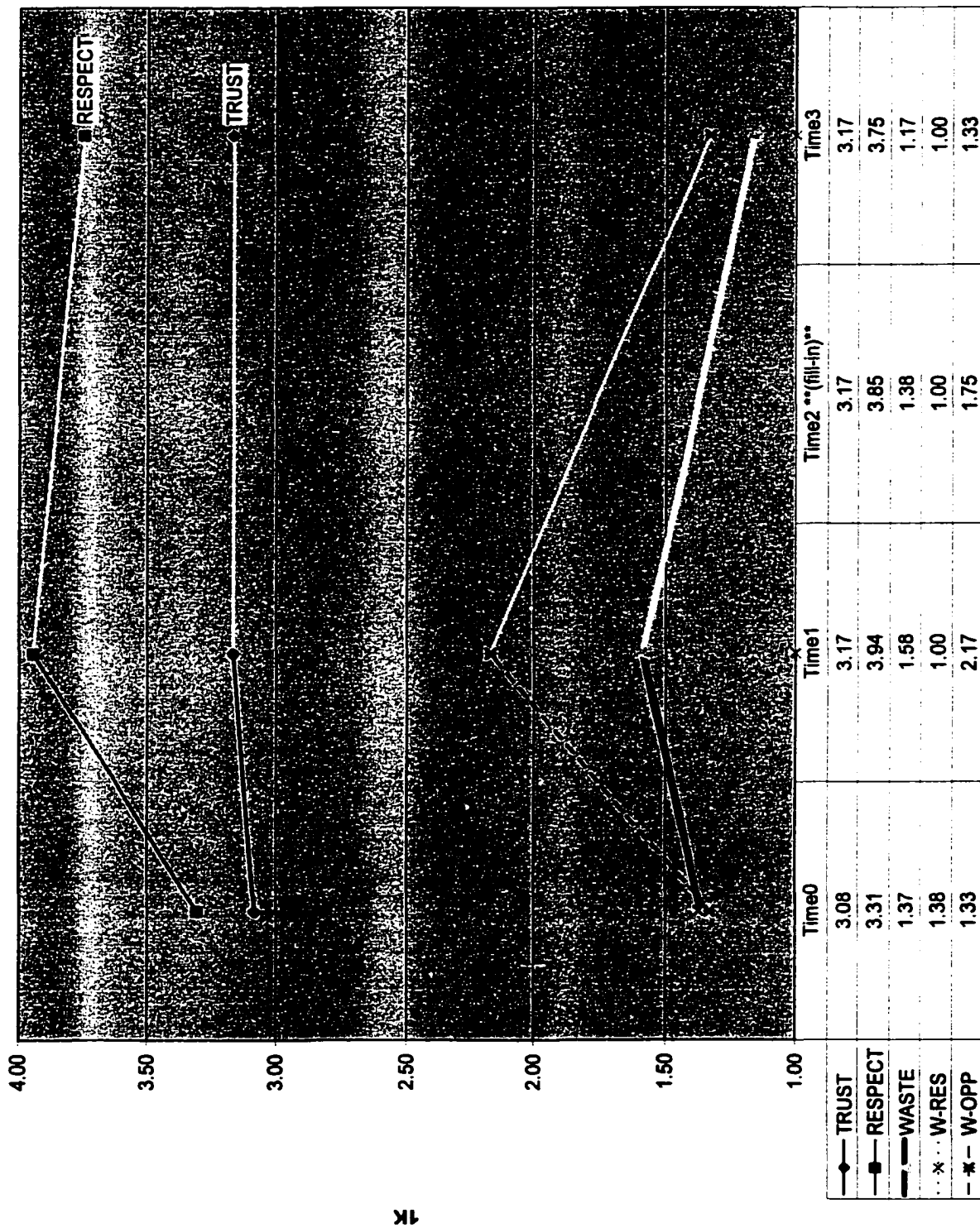
Time0 Time1 Time2 Time3

TRUST
RESPECT
WASTE
W-RES
W-OPP

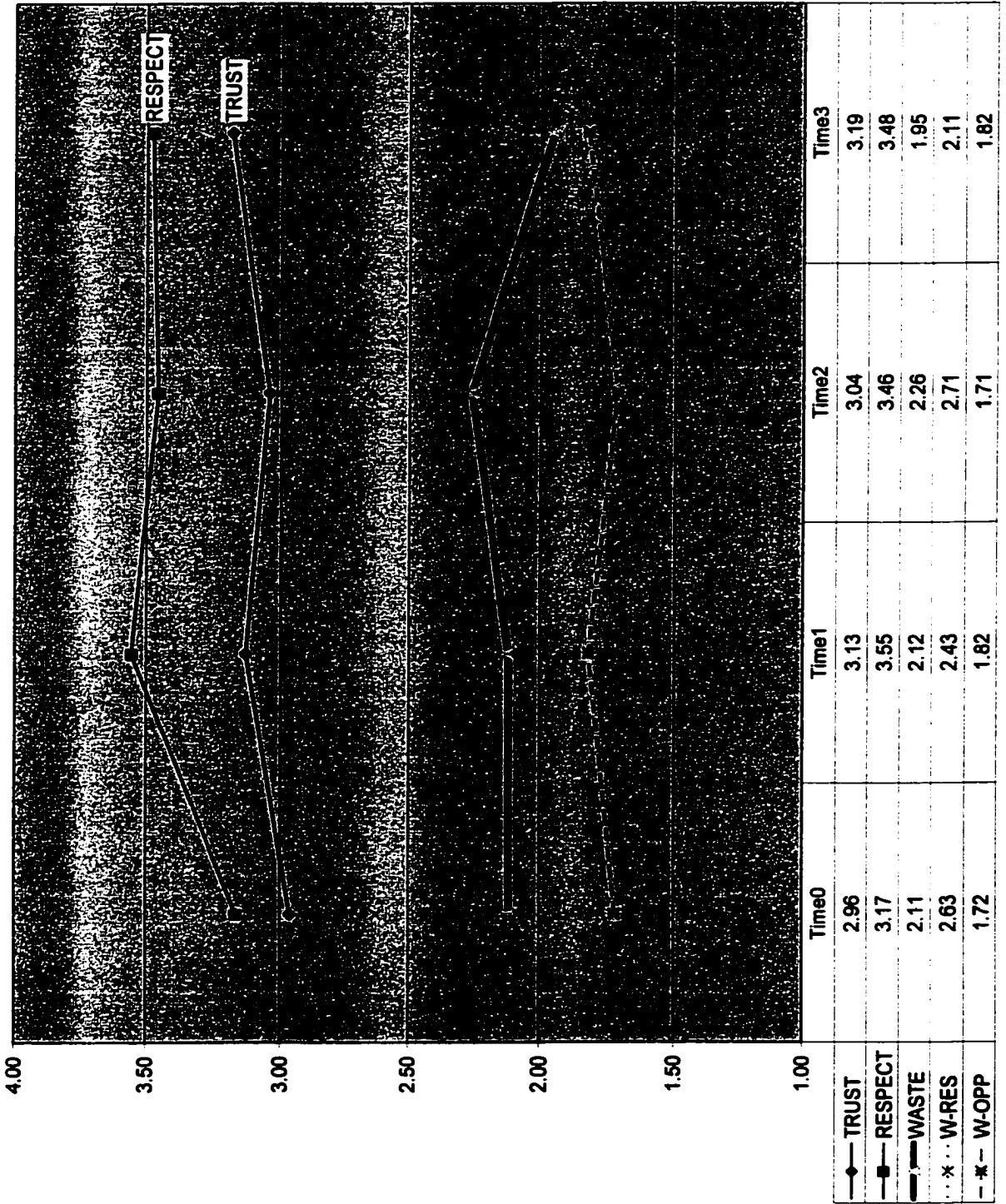
2.84 2.93 2.50 3.33
2.83 3.23 2.38 3.61
1.97 2.00 2.88 1.64
2.40 2.10 2.75 2.13
1.67 1.90 3.00 1.50



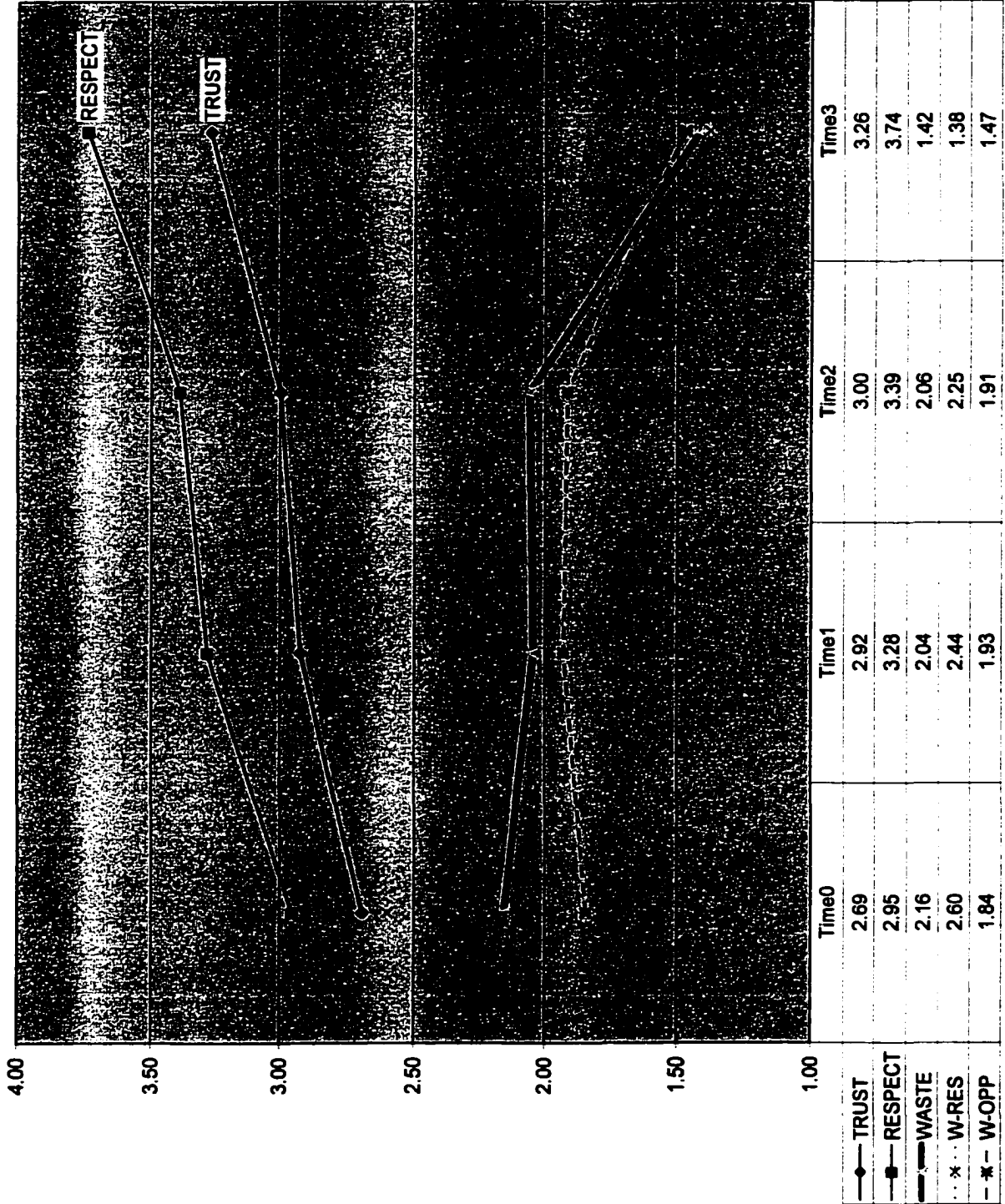
16



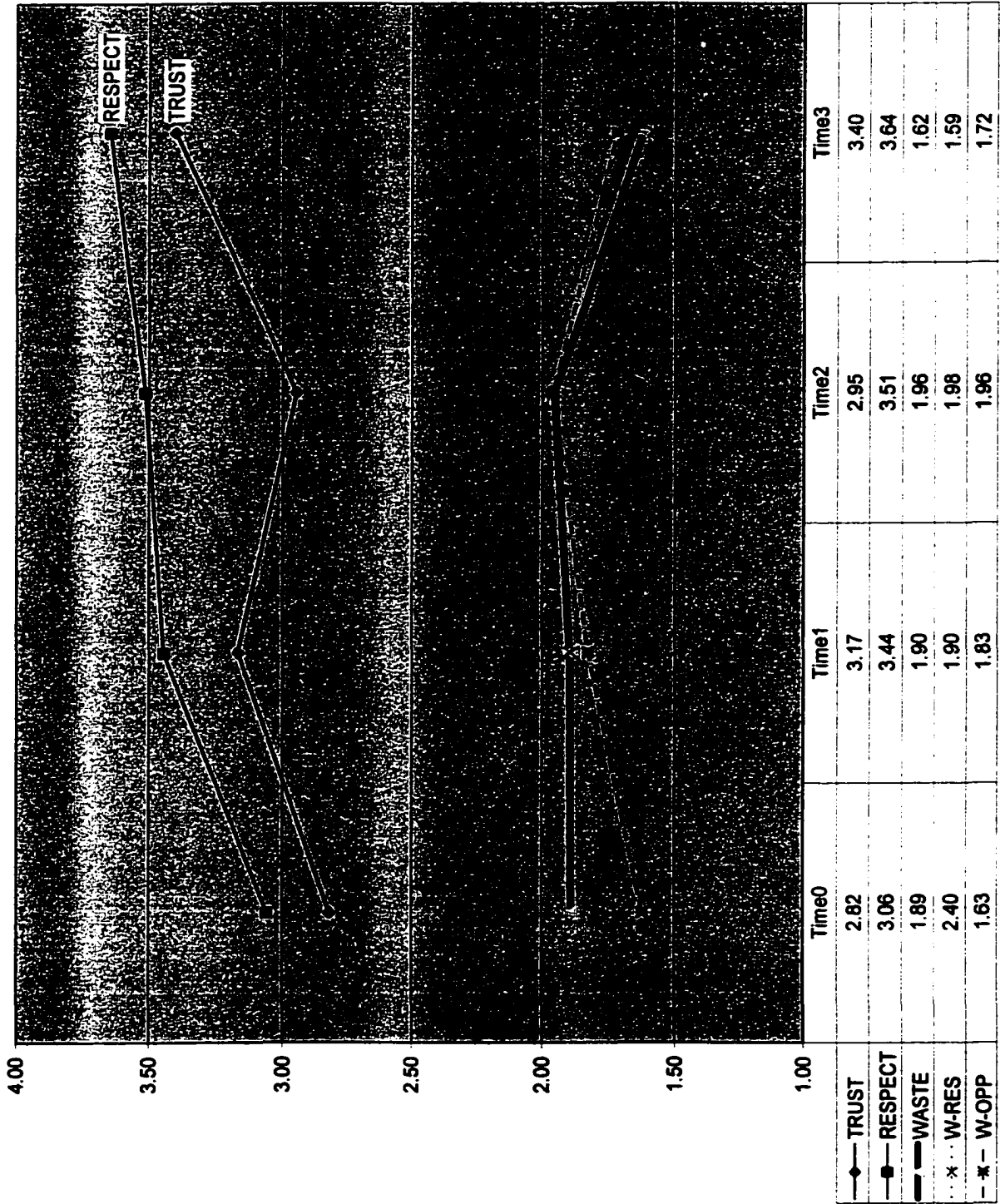
TR



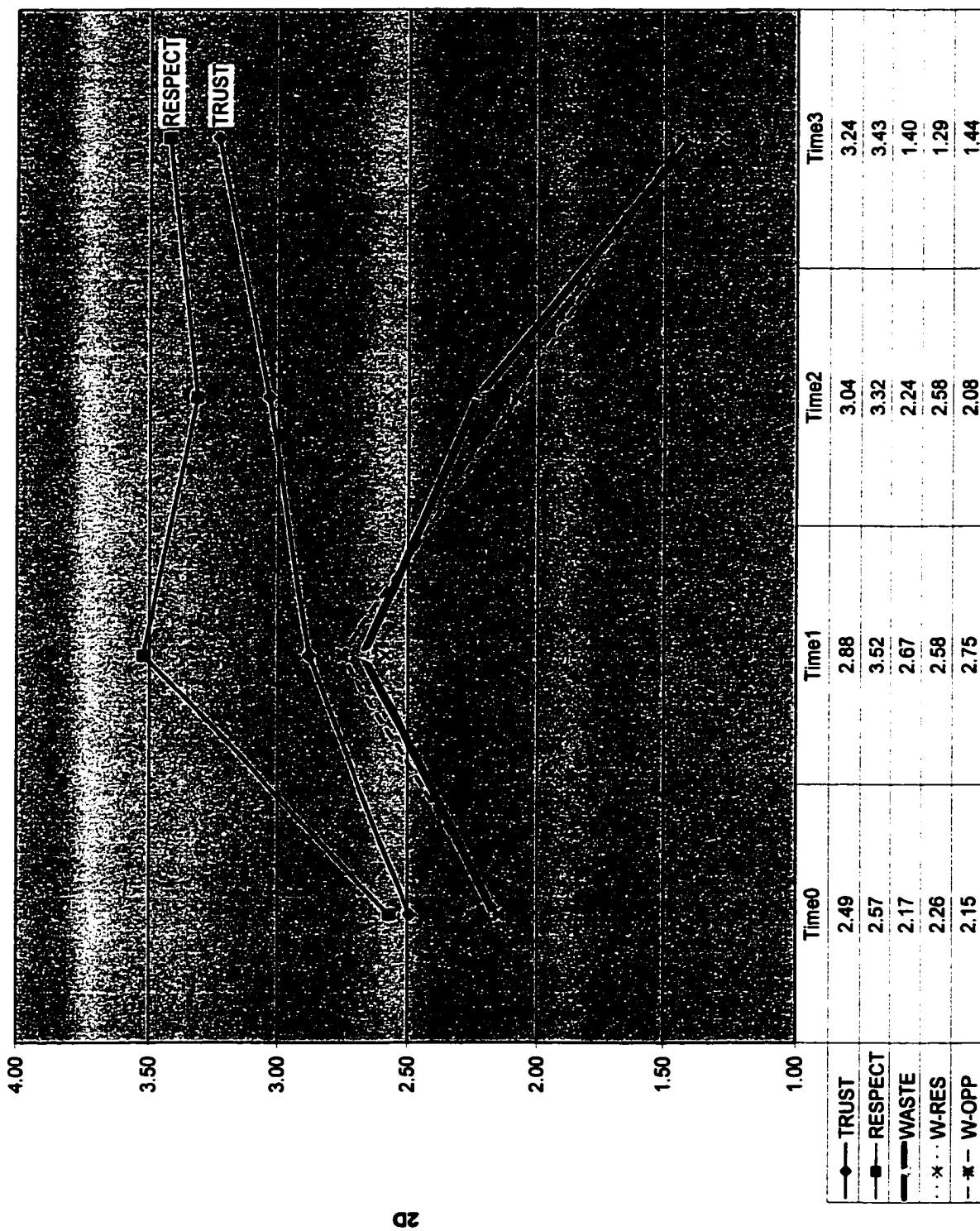
2A



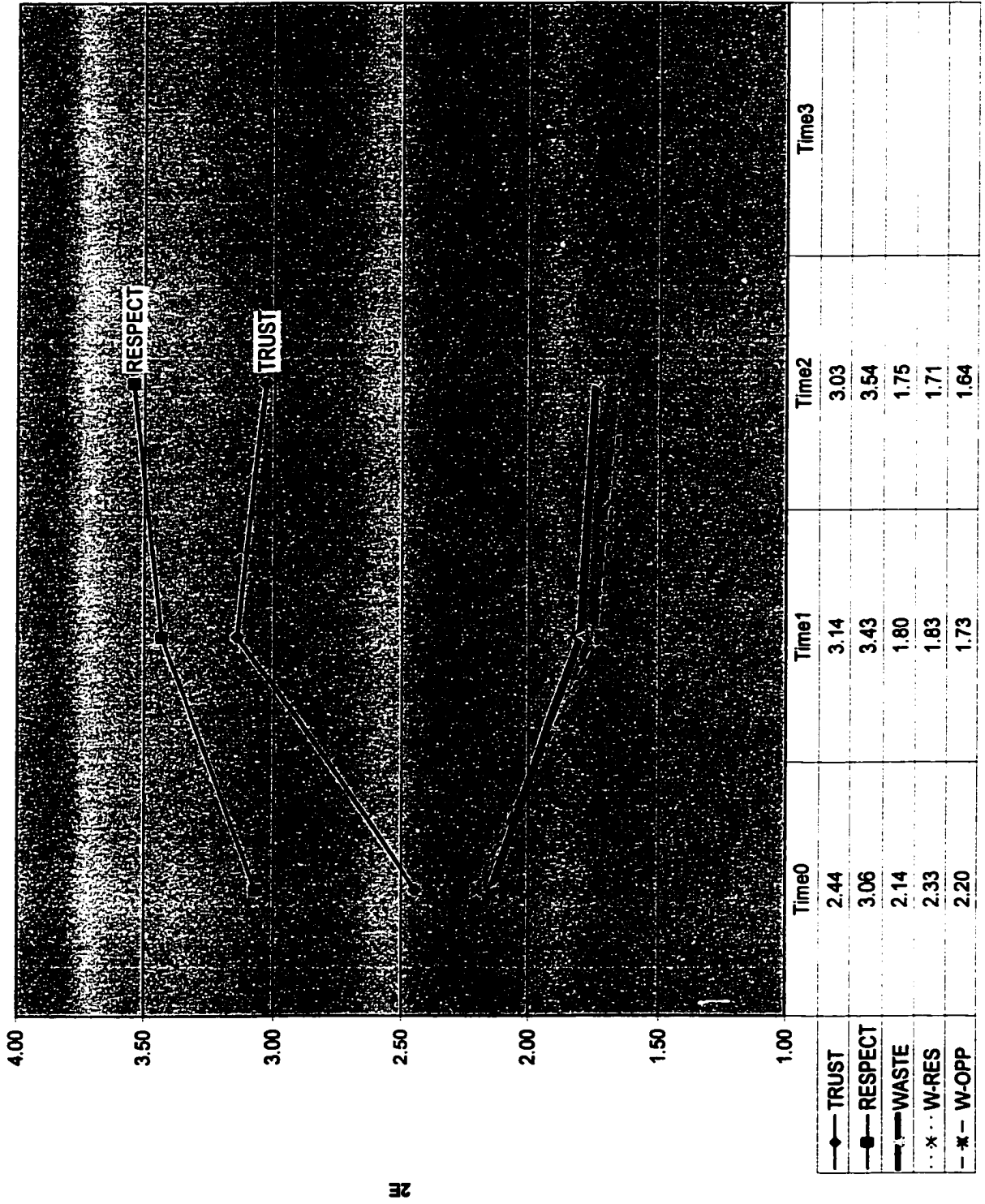
28



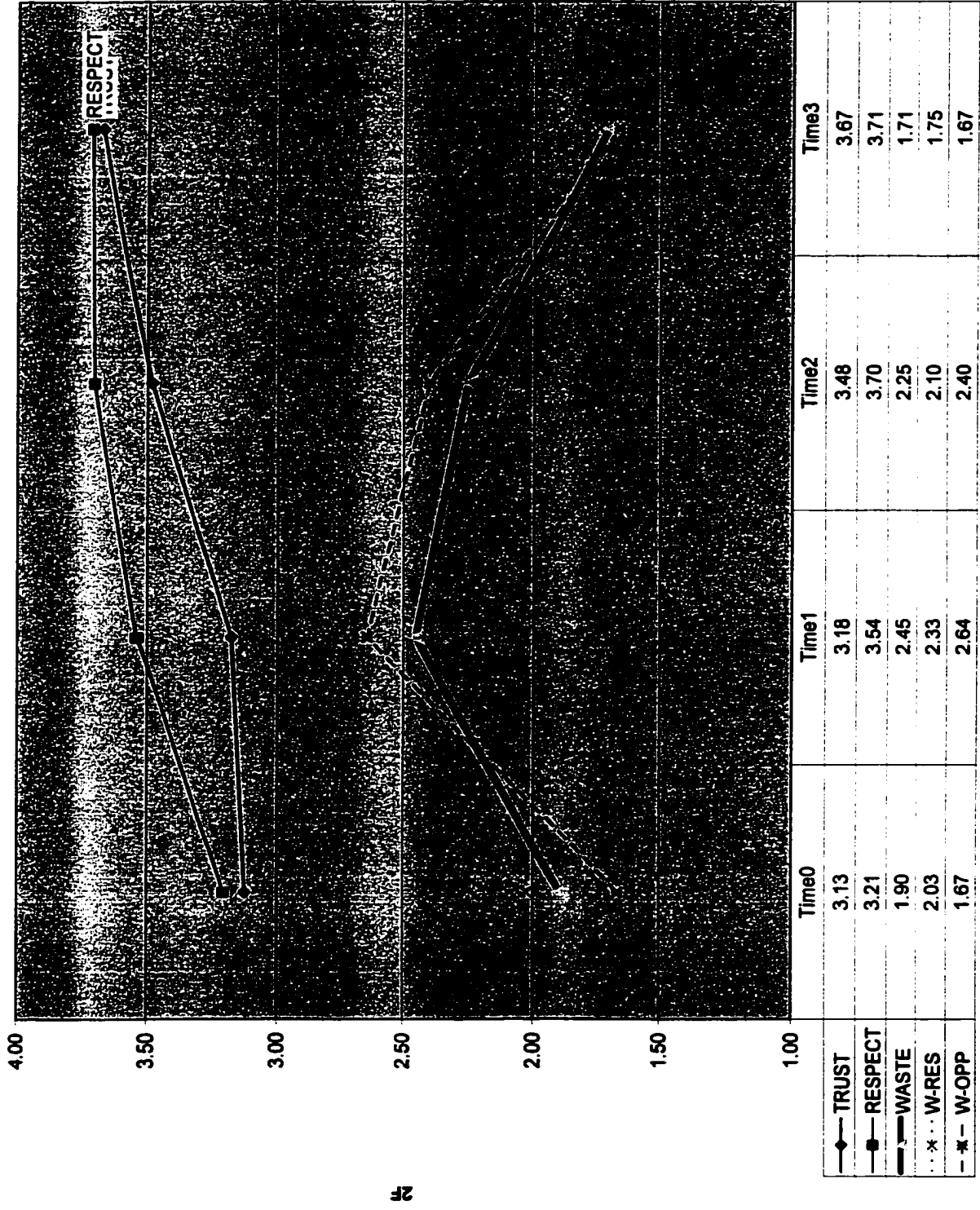
20



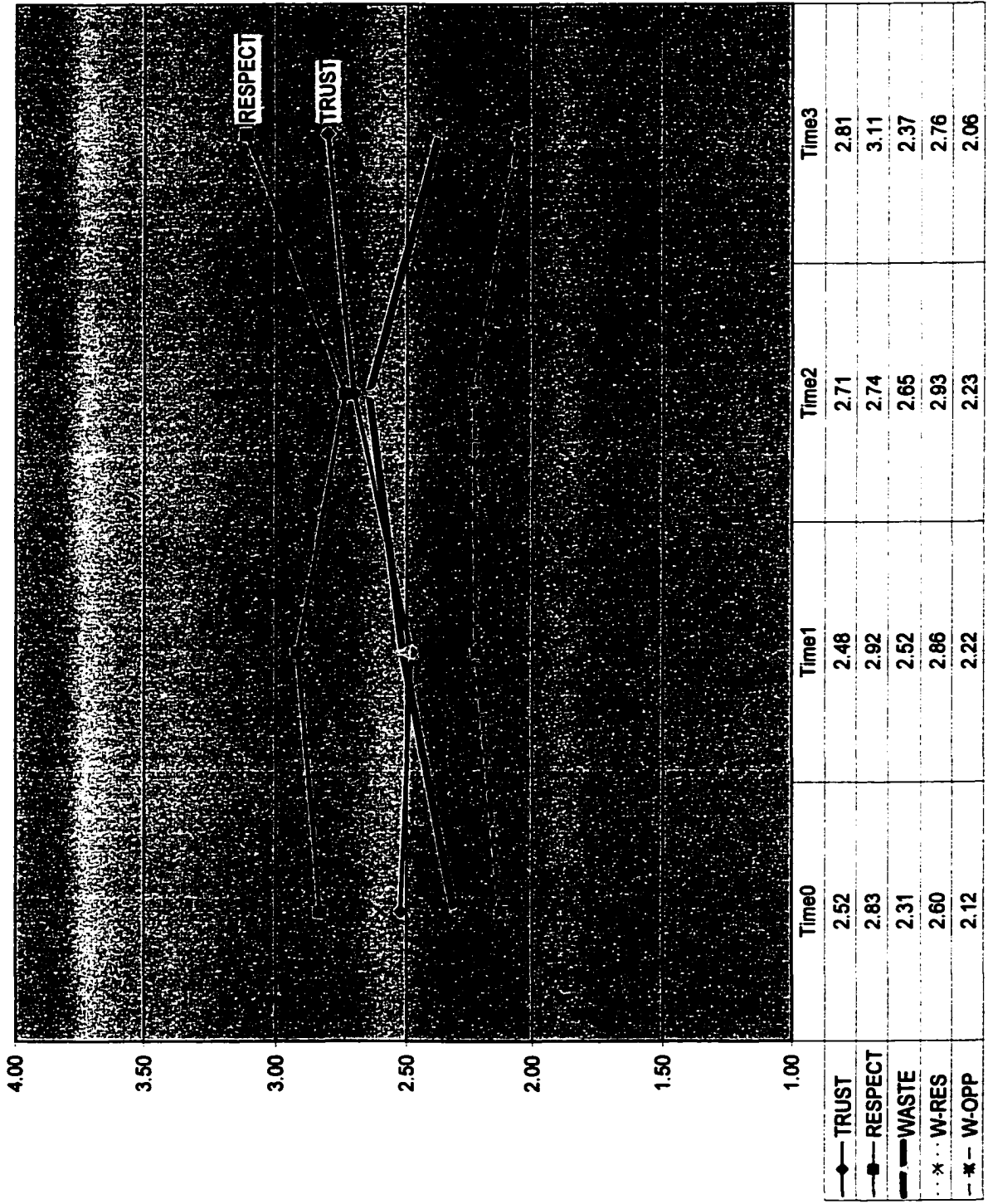
2B



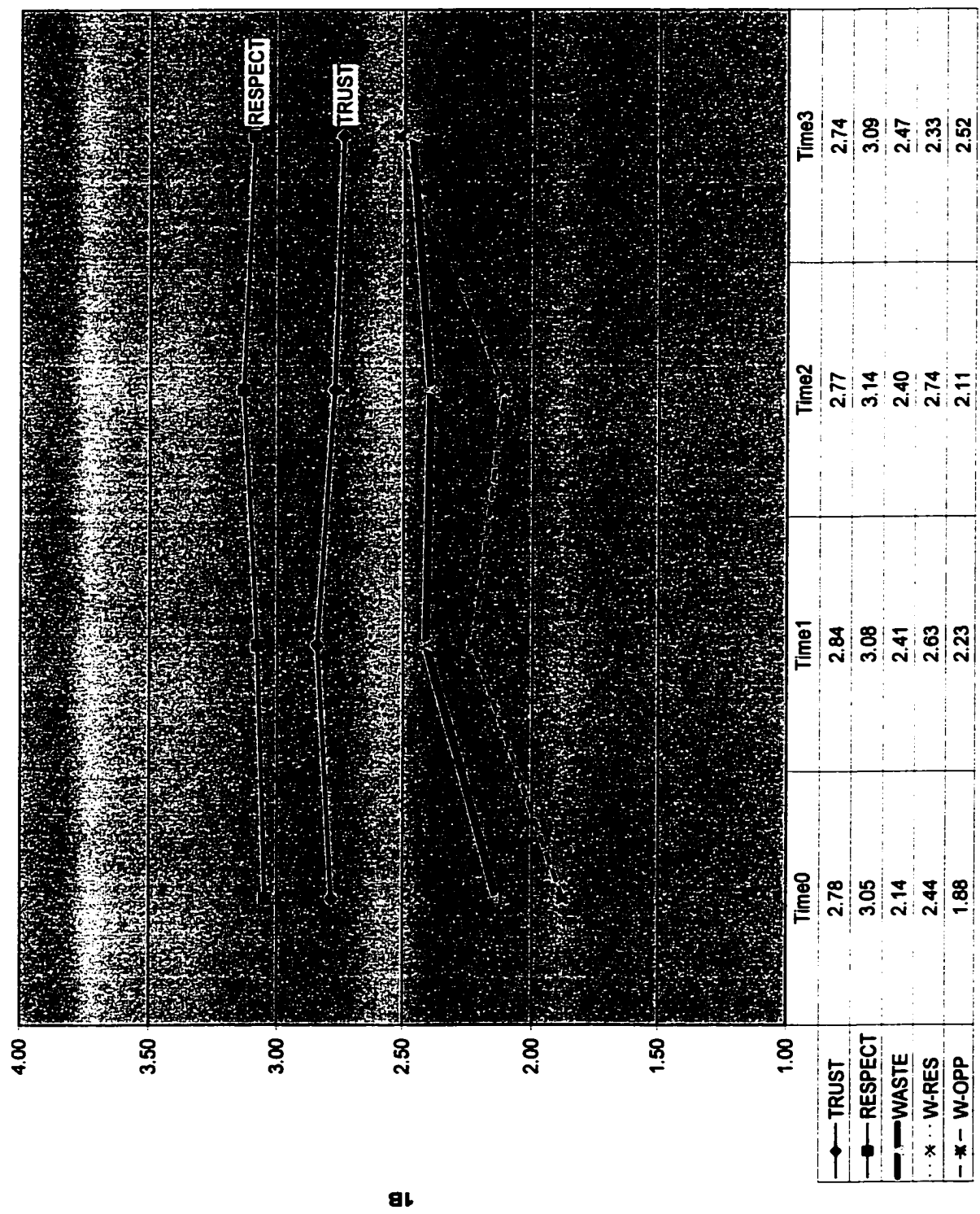
2E



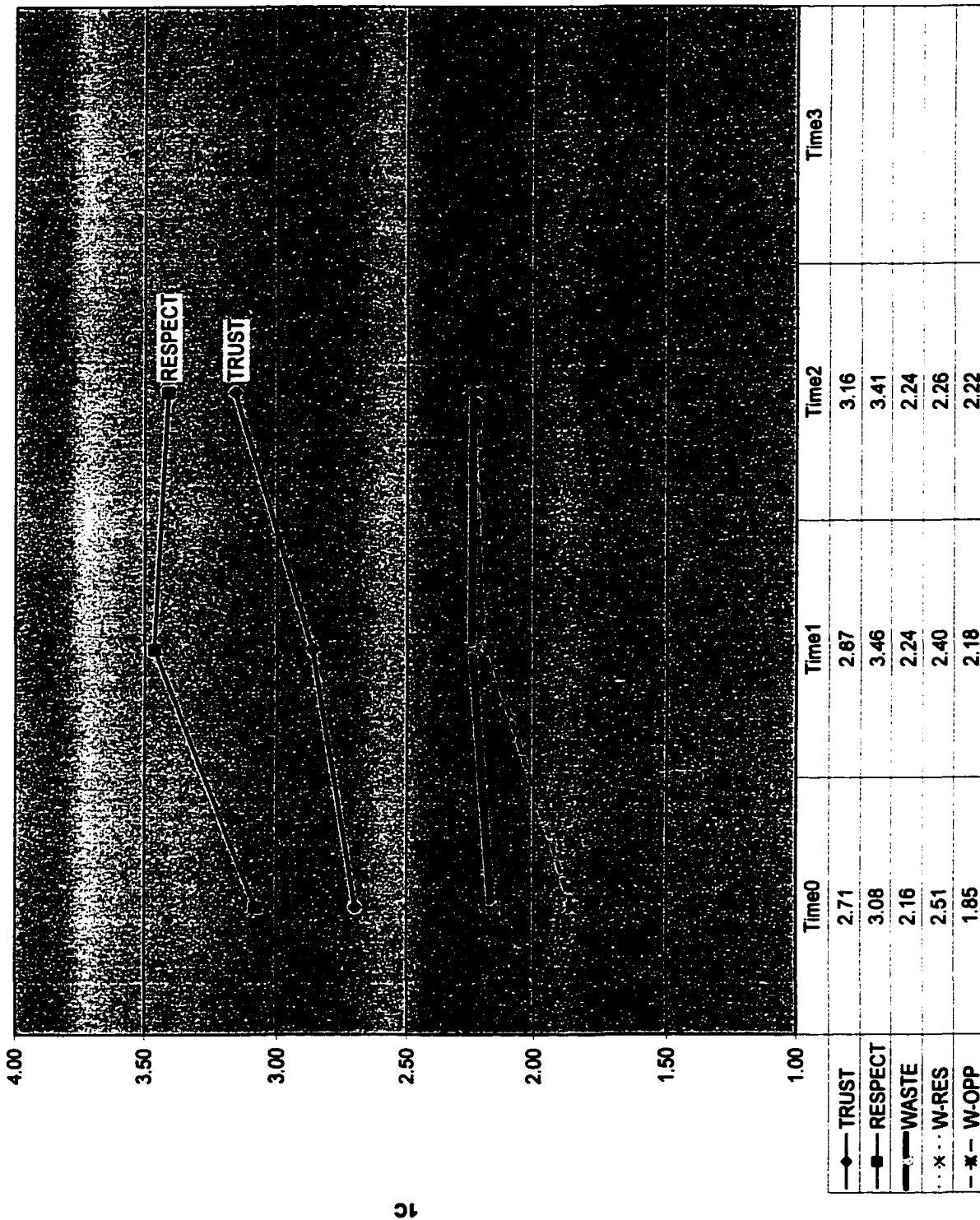
2F



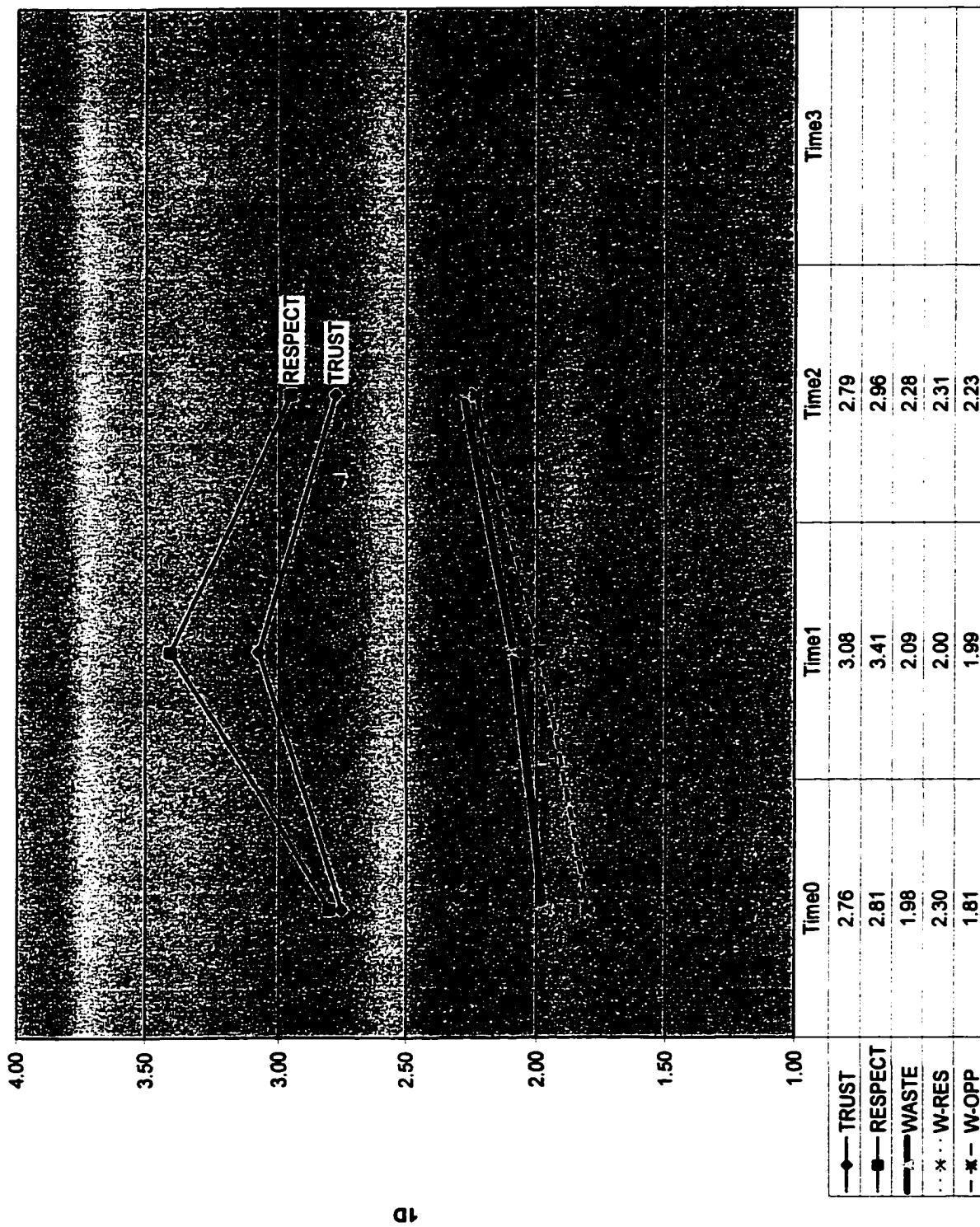
1A



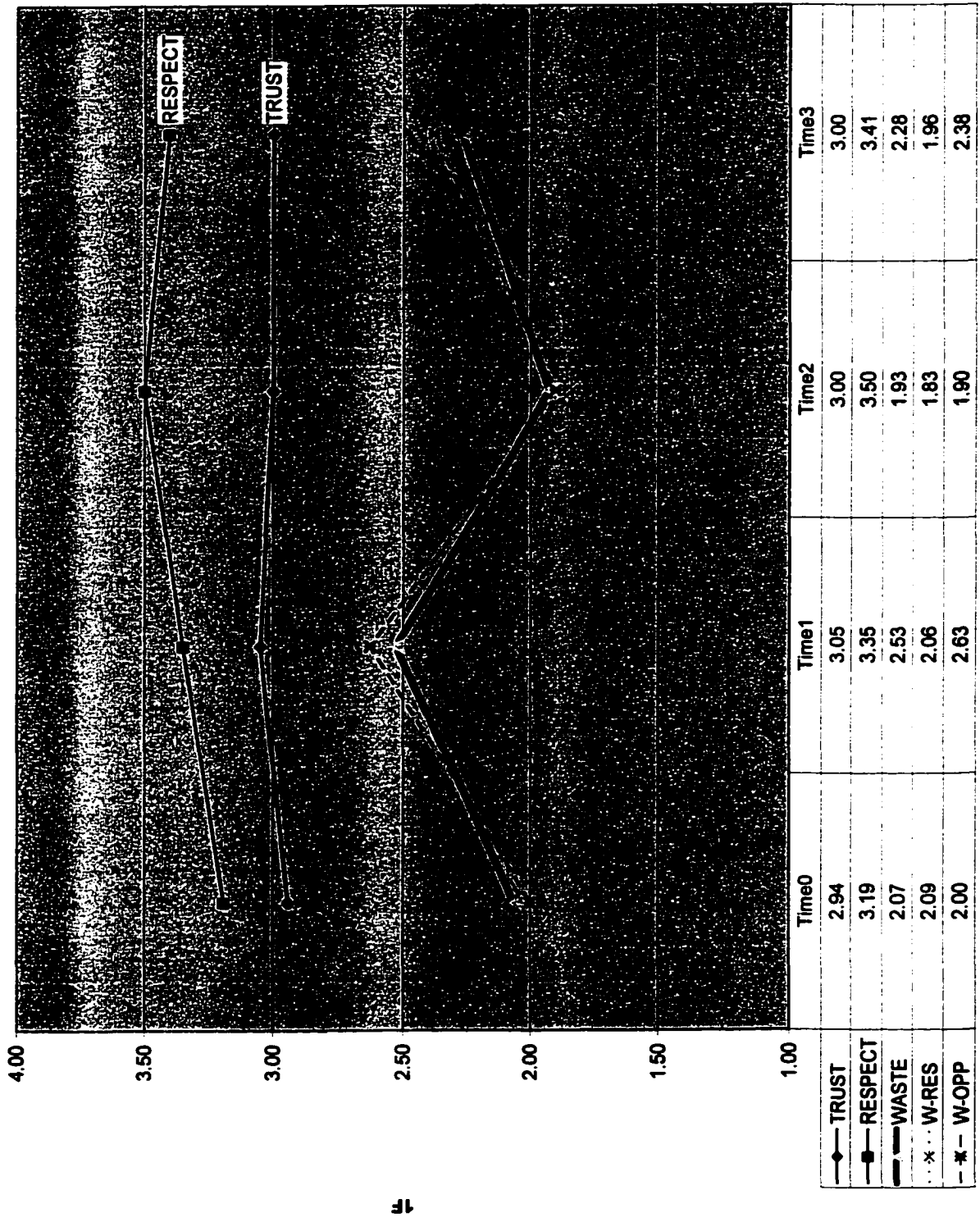
1B

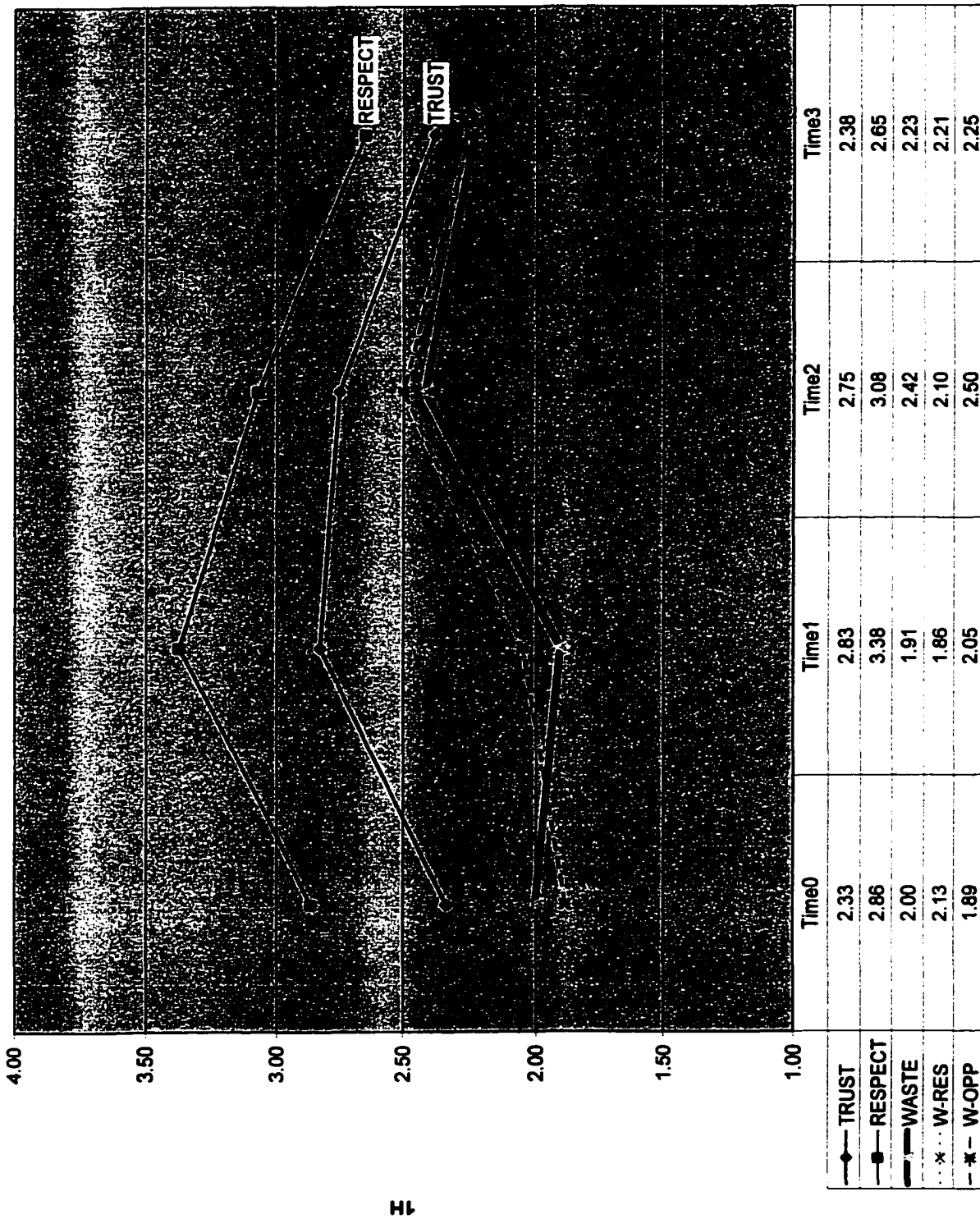


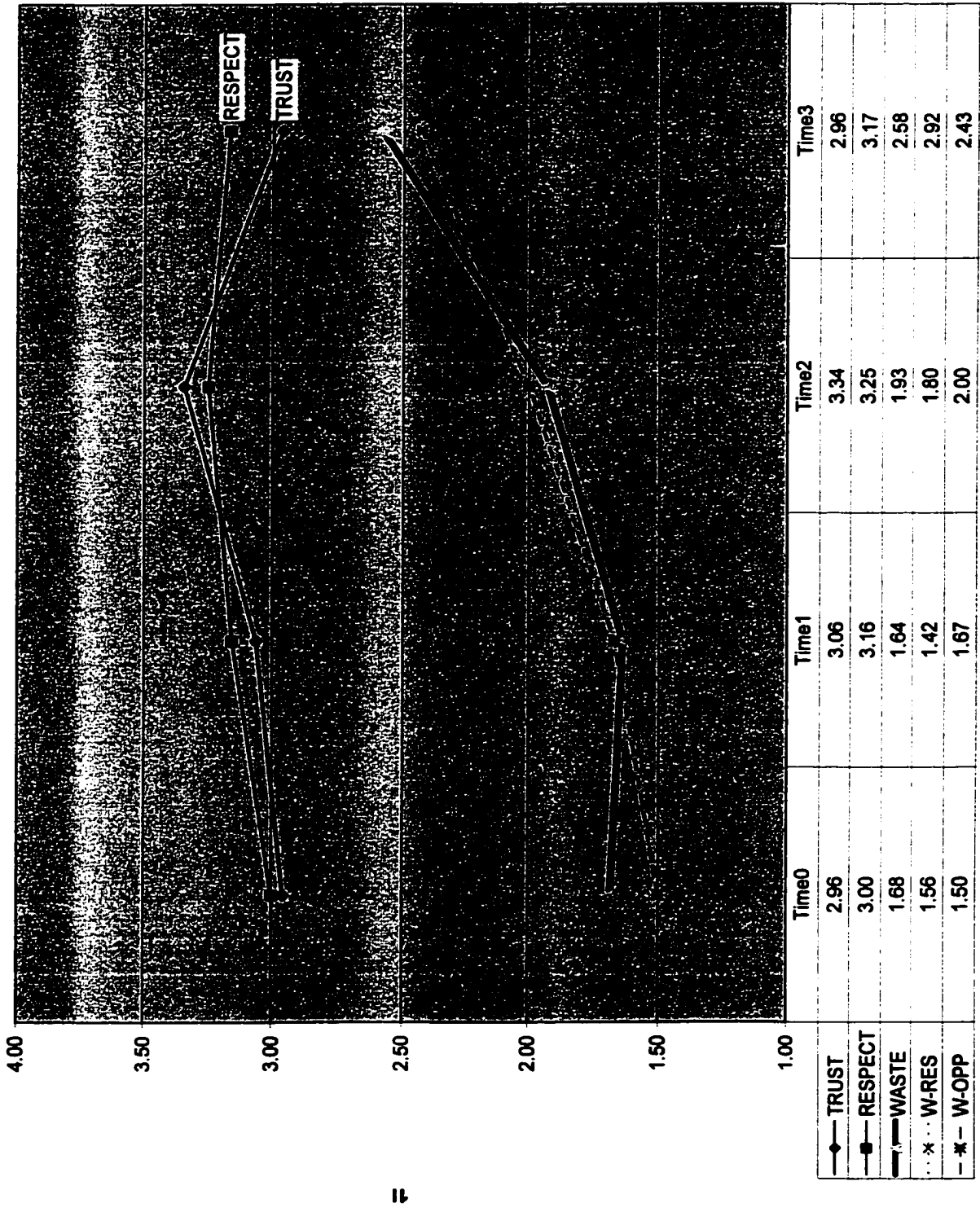
1c



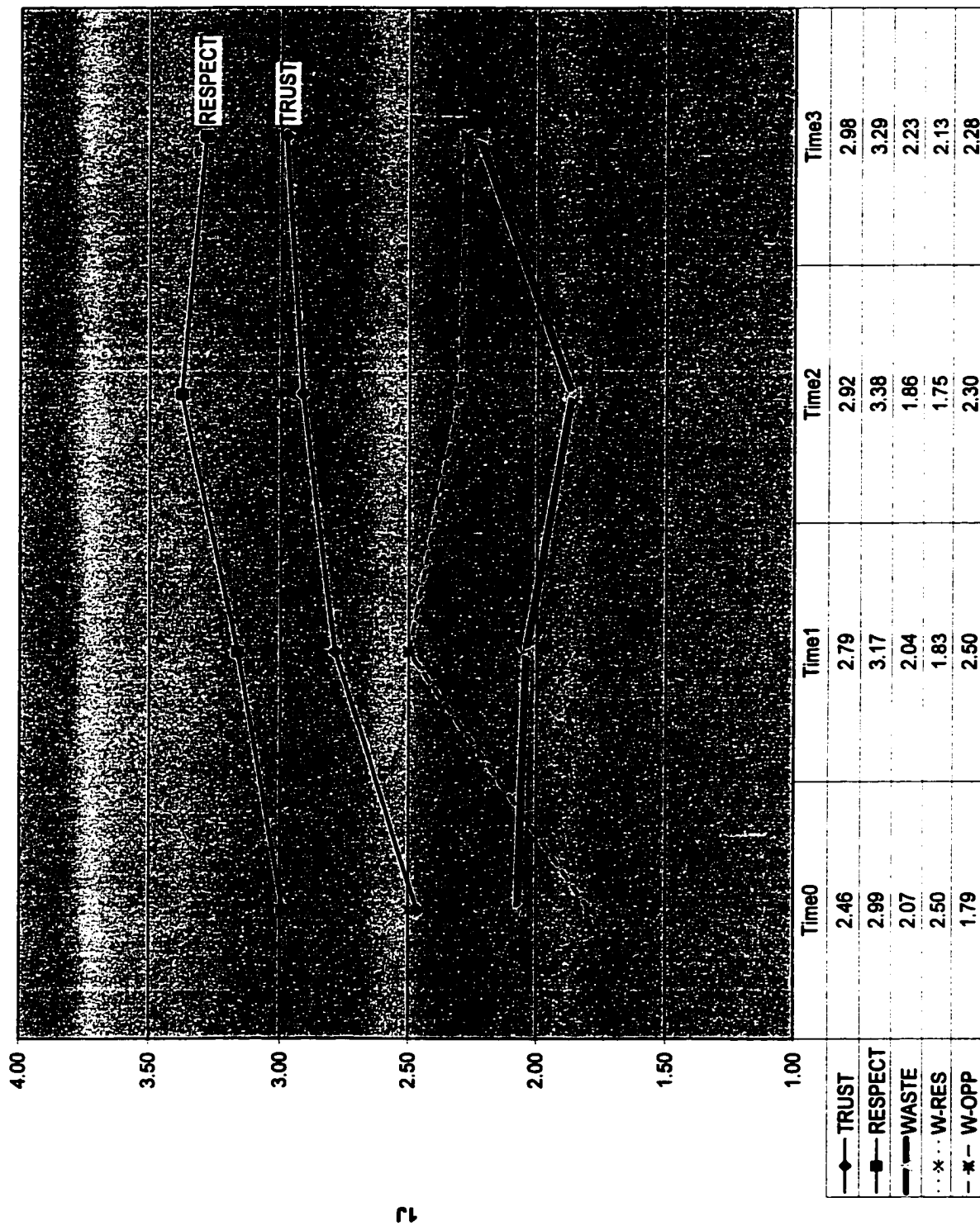
10







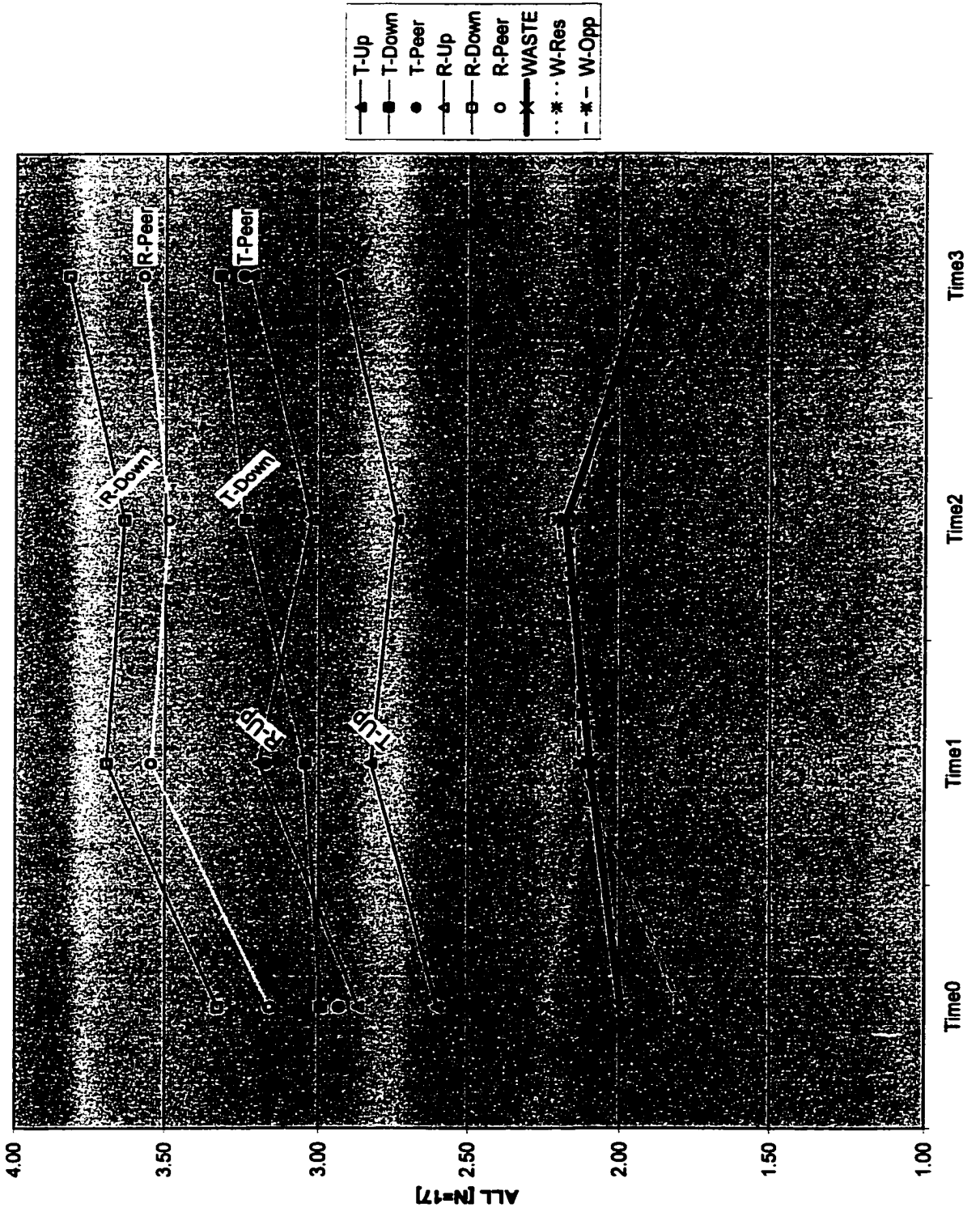
⇓

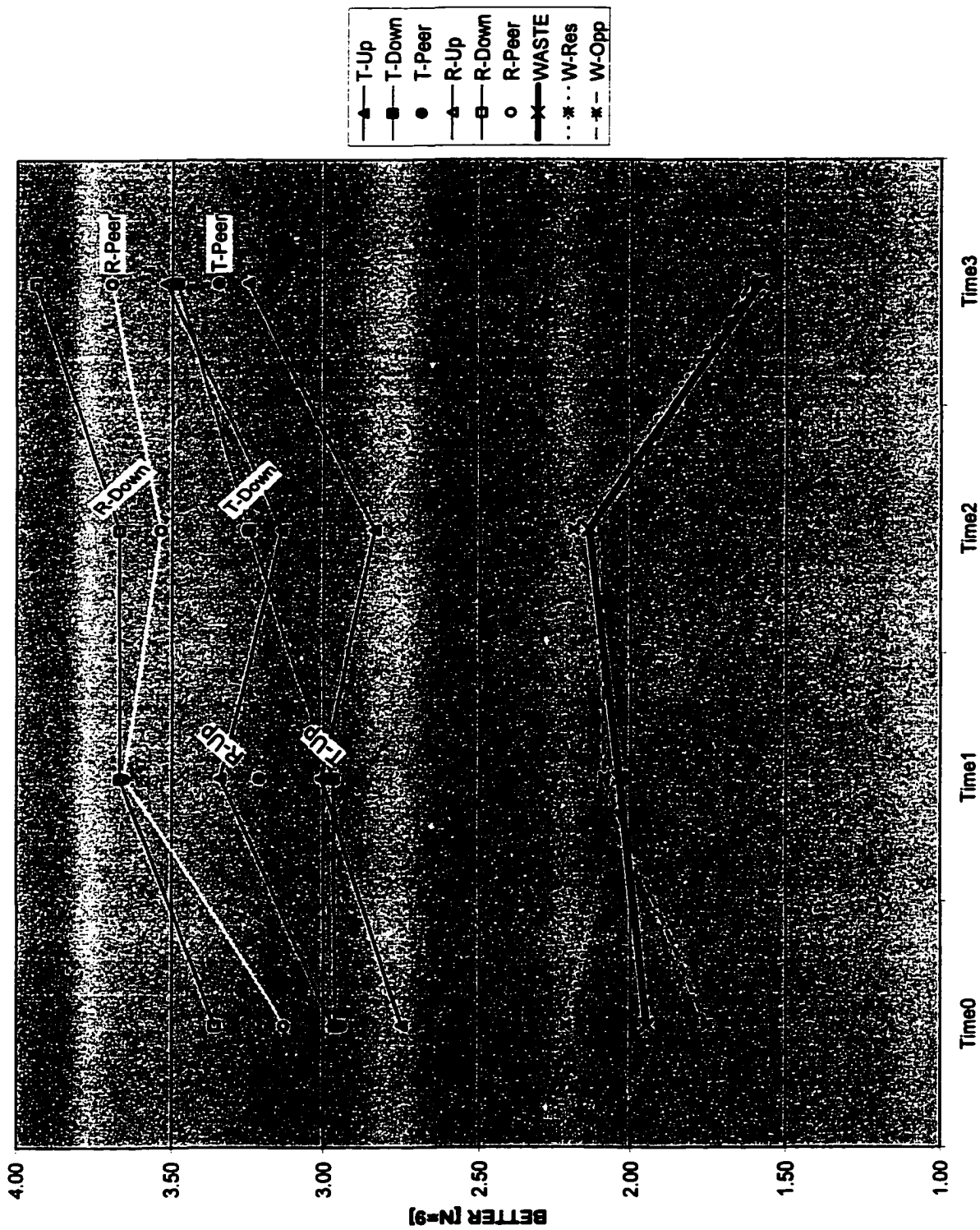


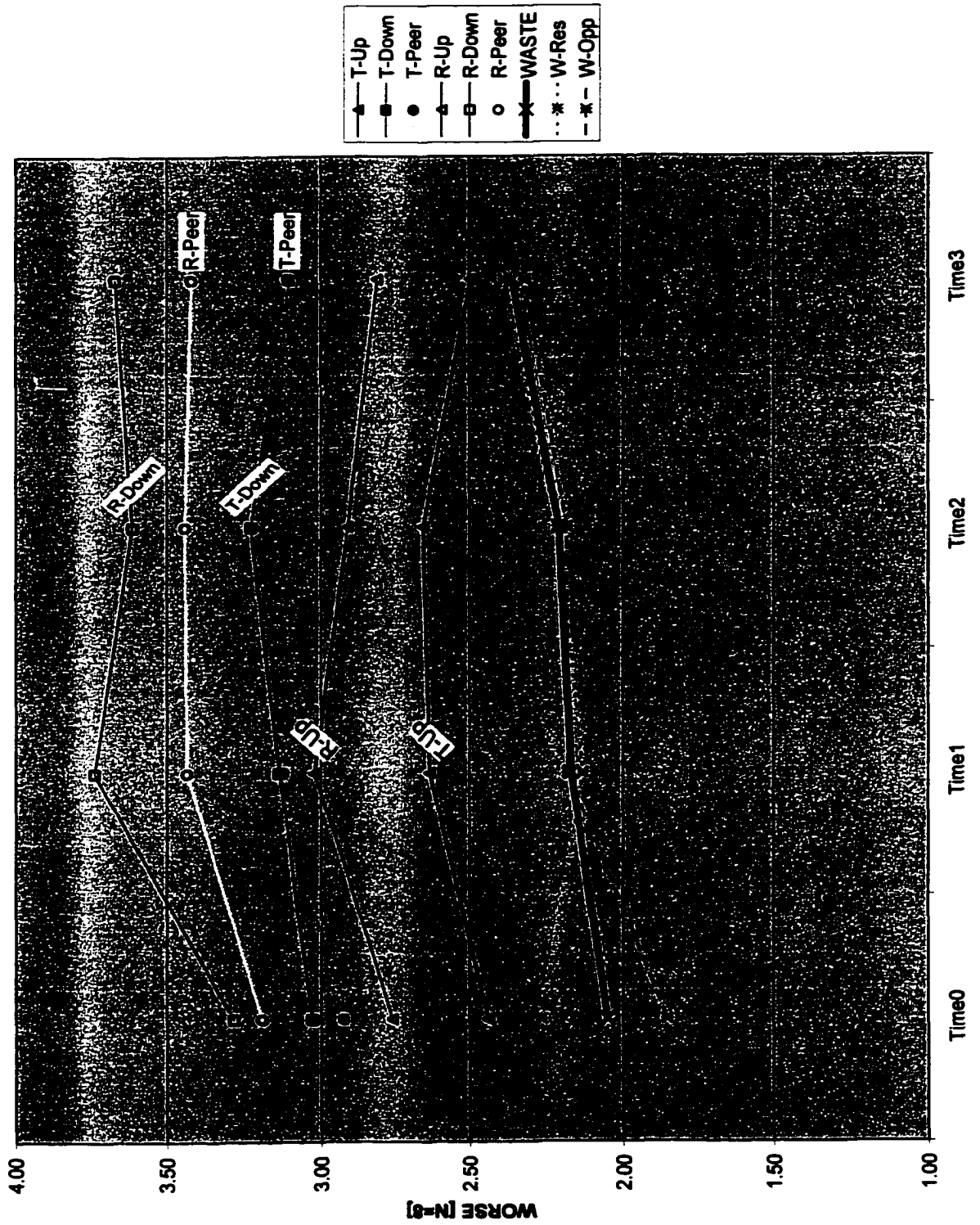
z

APPENDIX D3:

Trust & Respect Type and Waste – Division Summaries

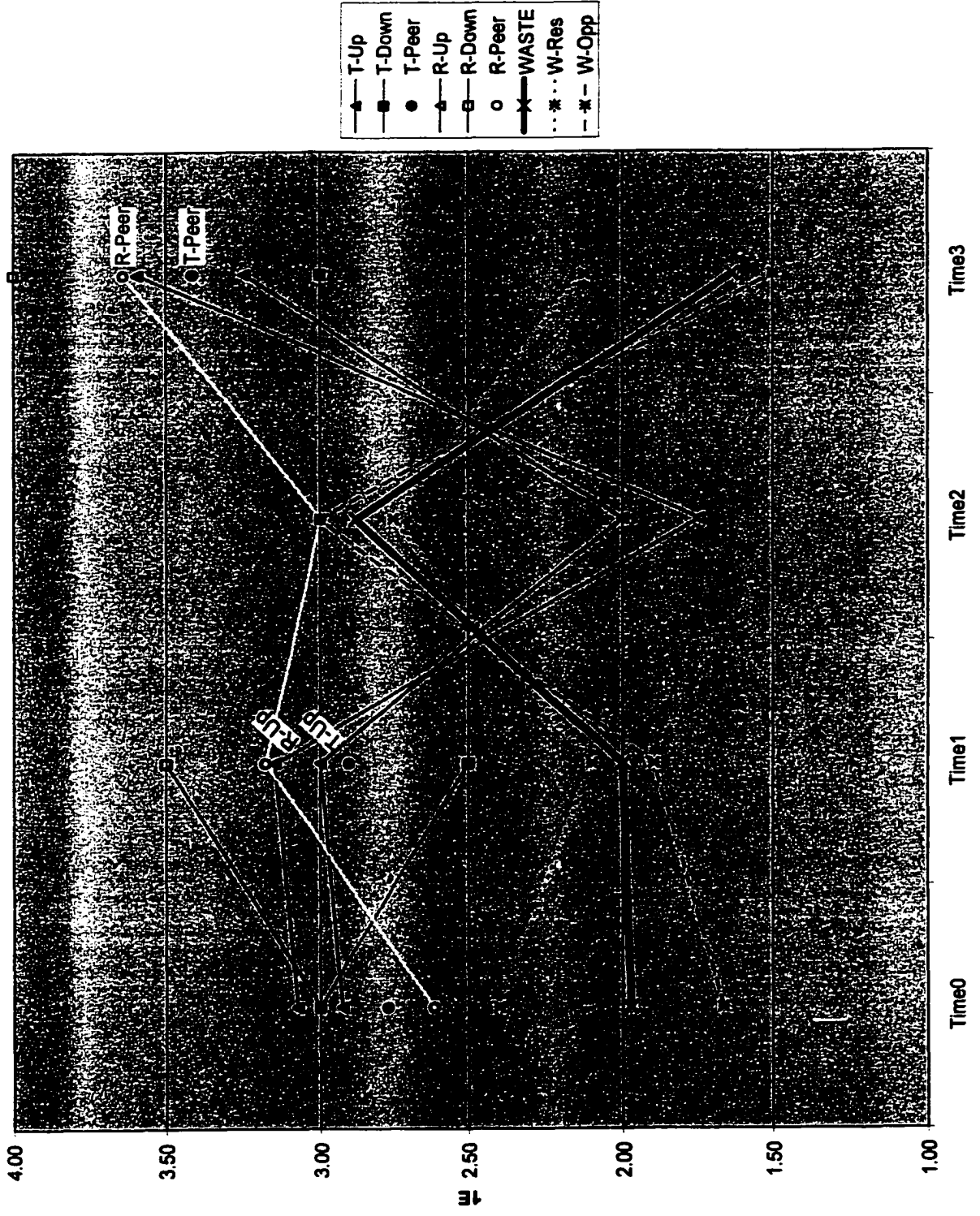


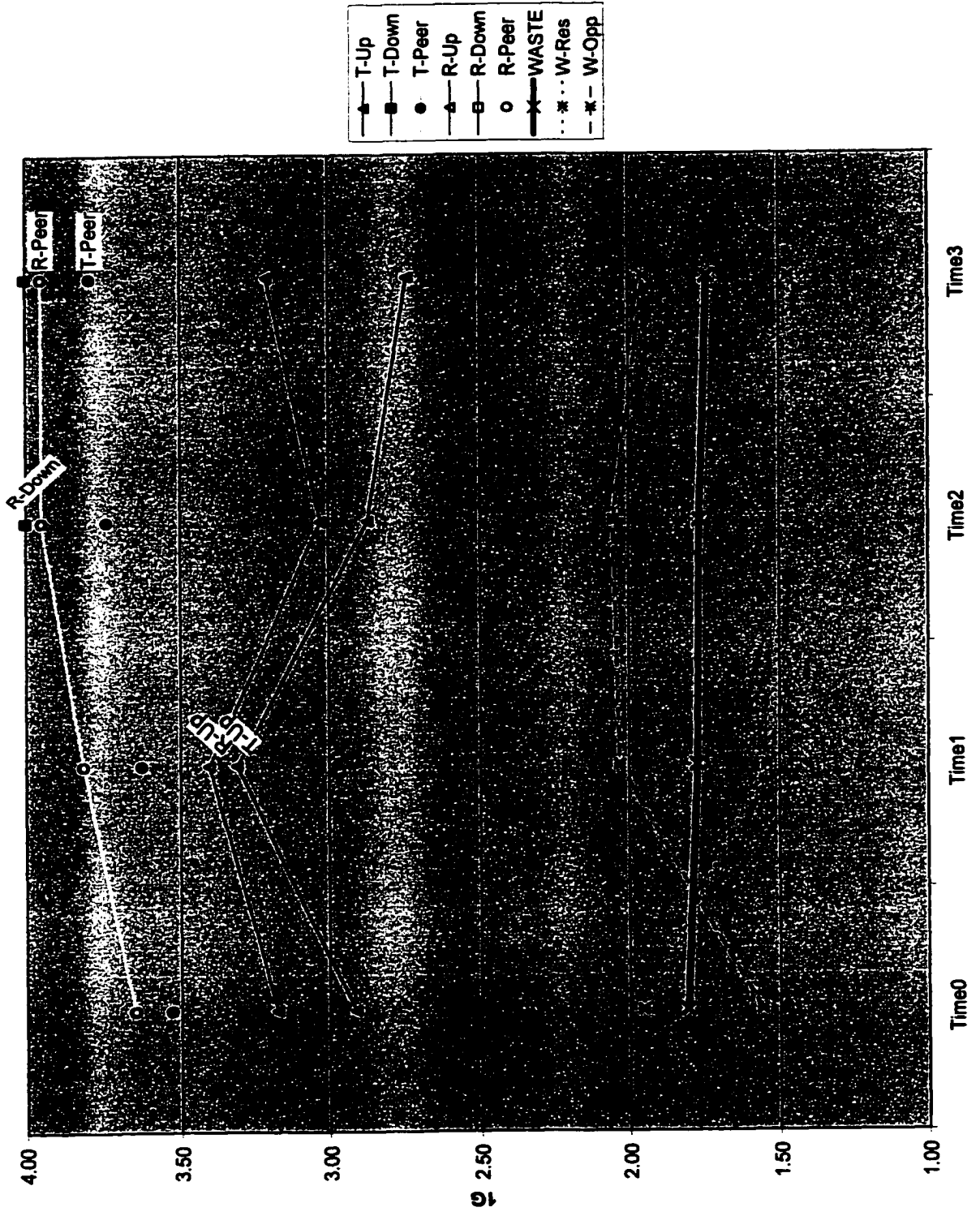


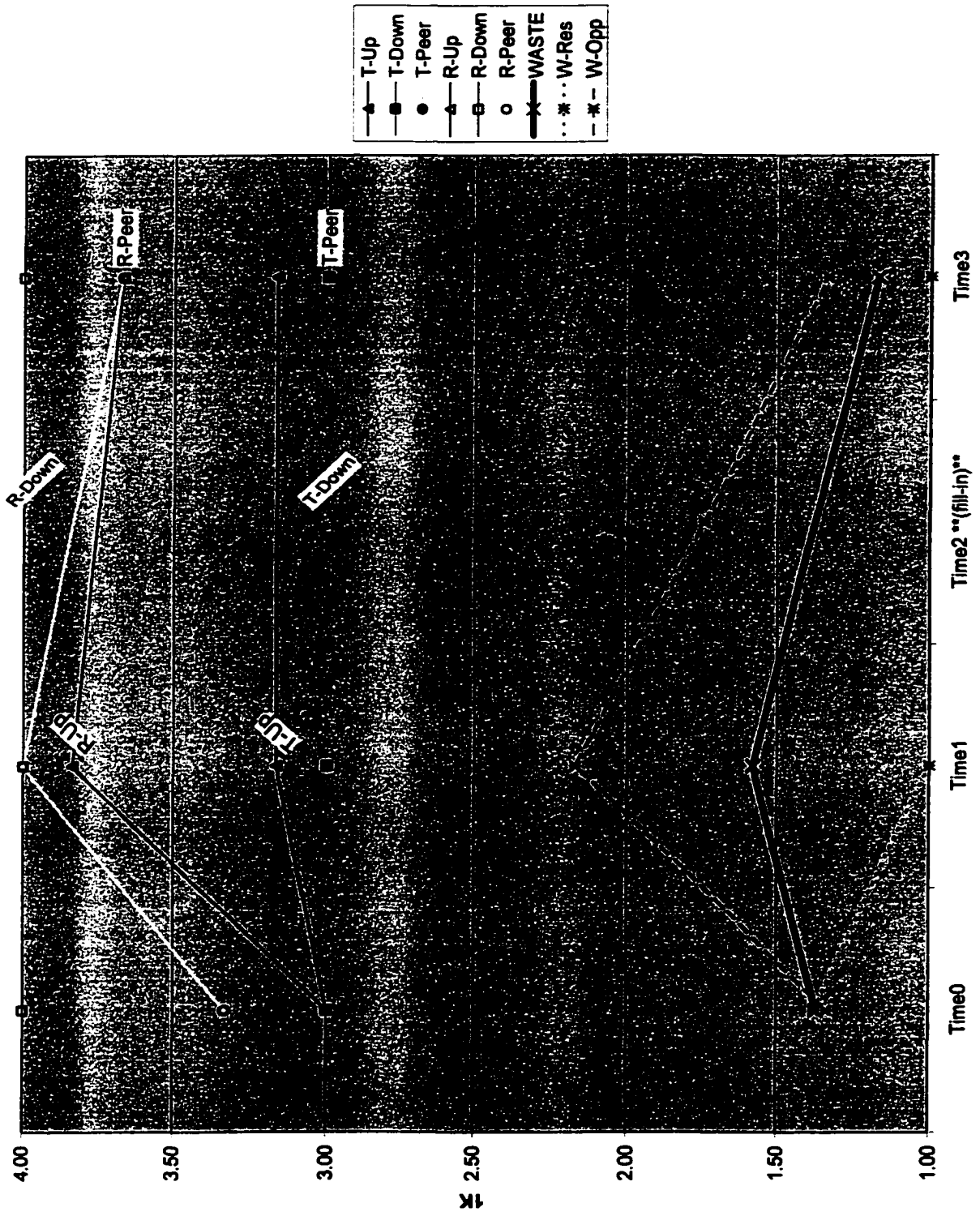


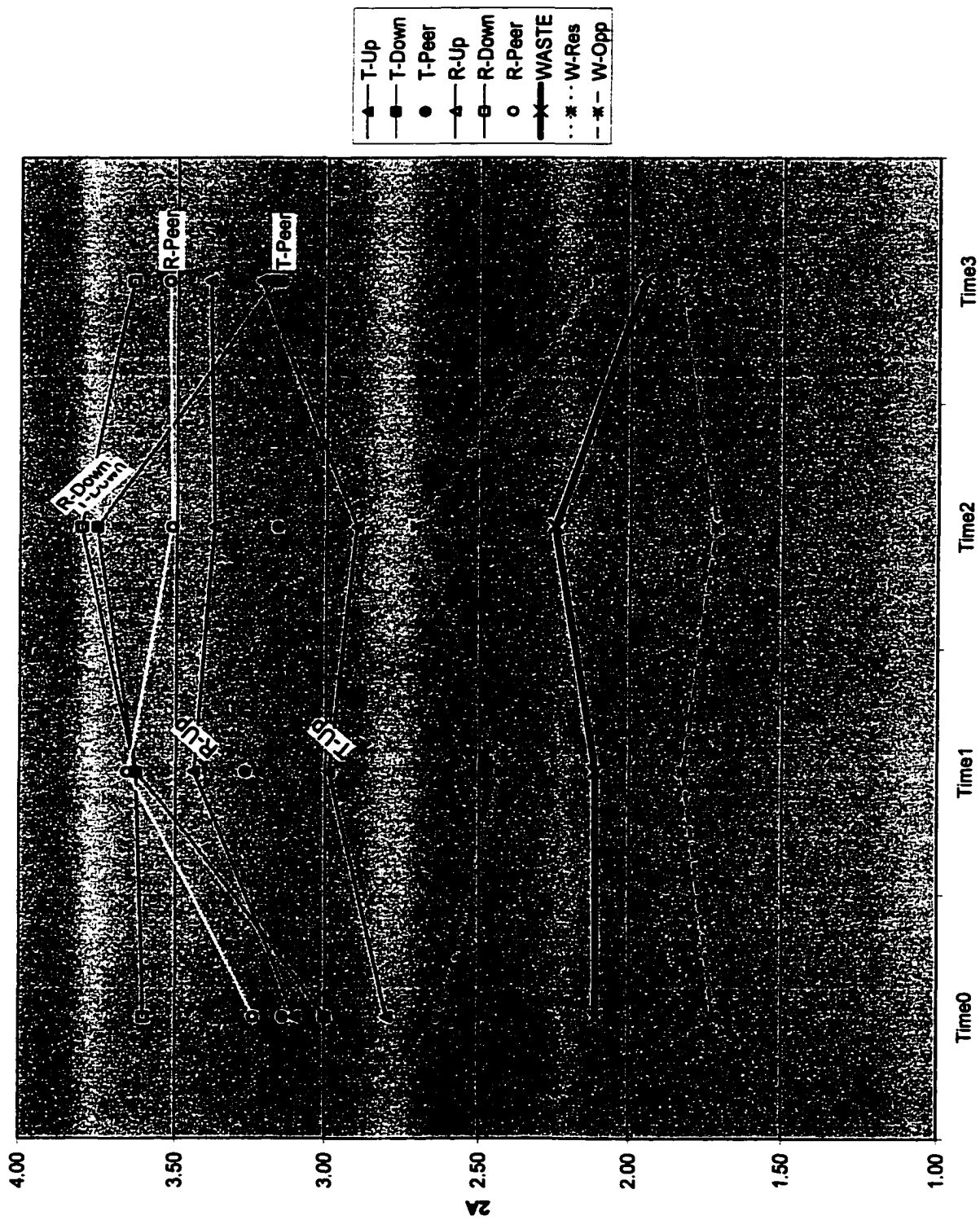
APPENDIX D4:

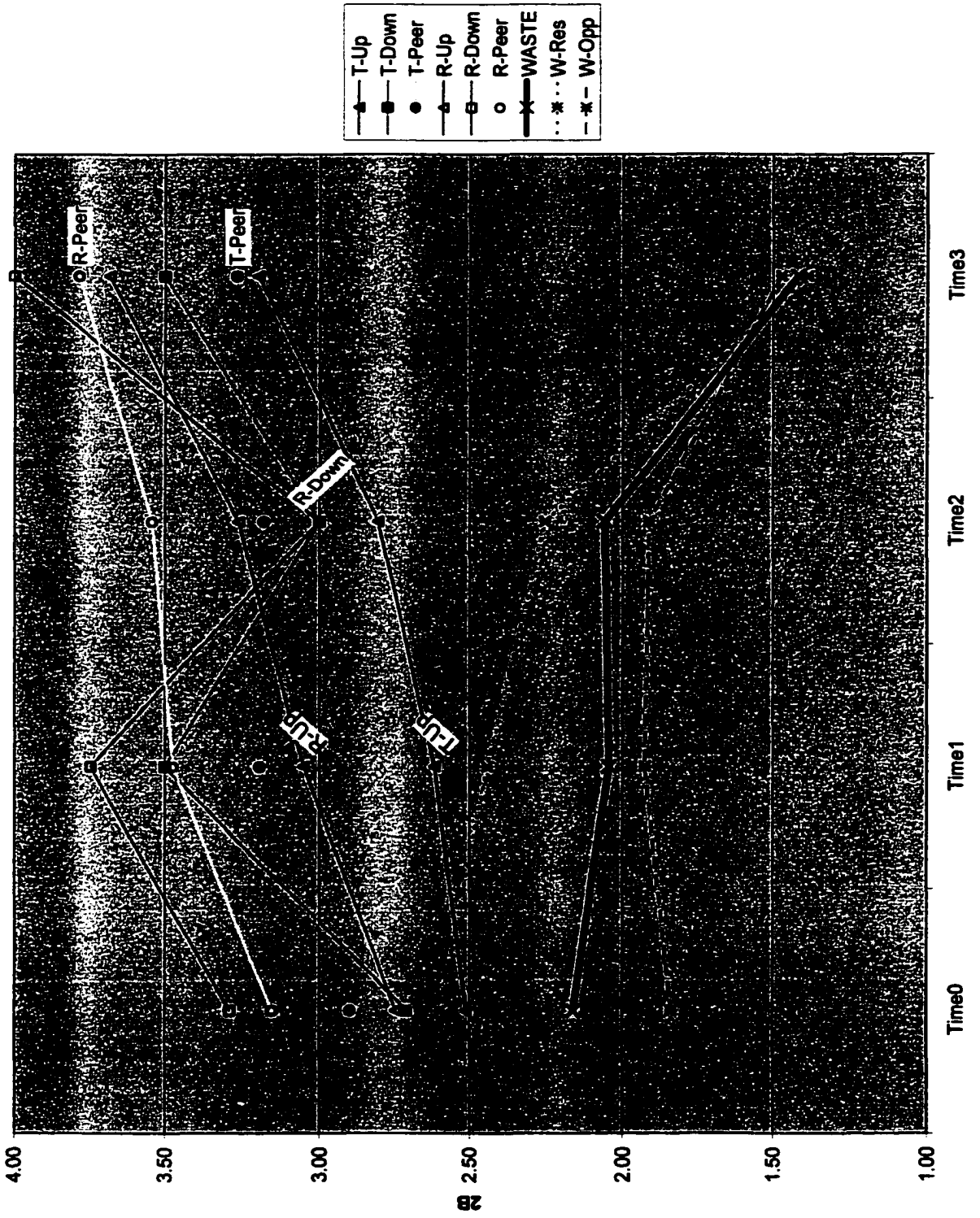
Trust & Respect Type and Waste – Individual Divisions

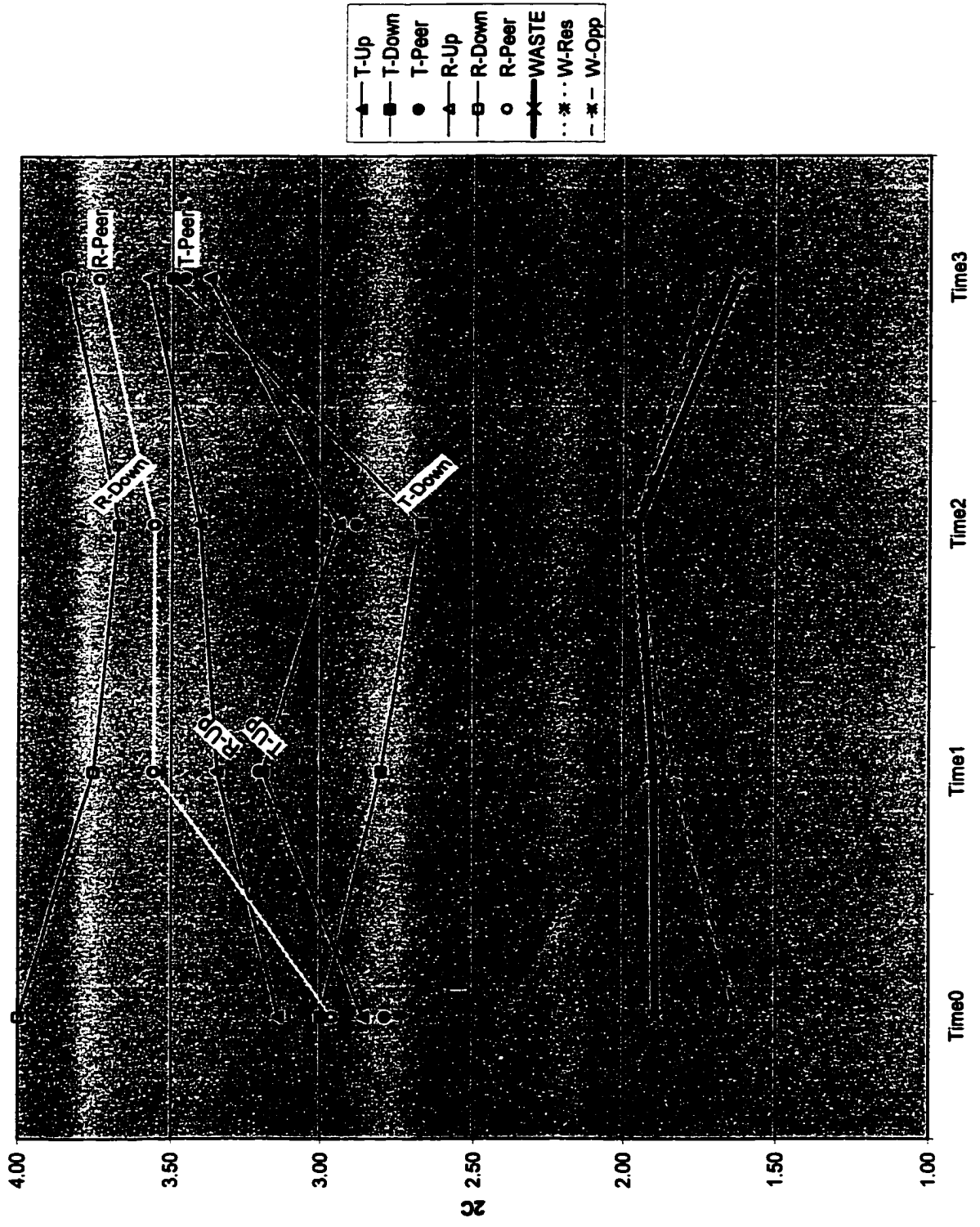


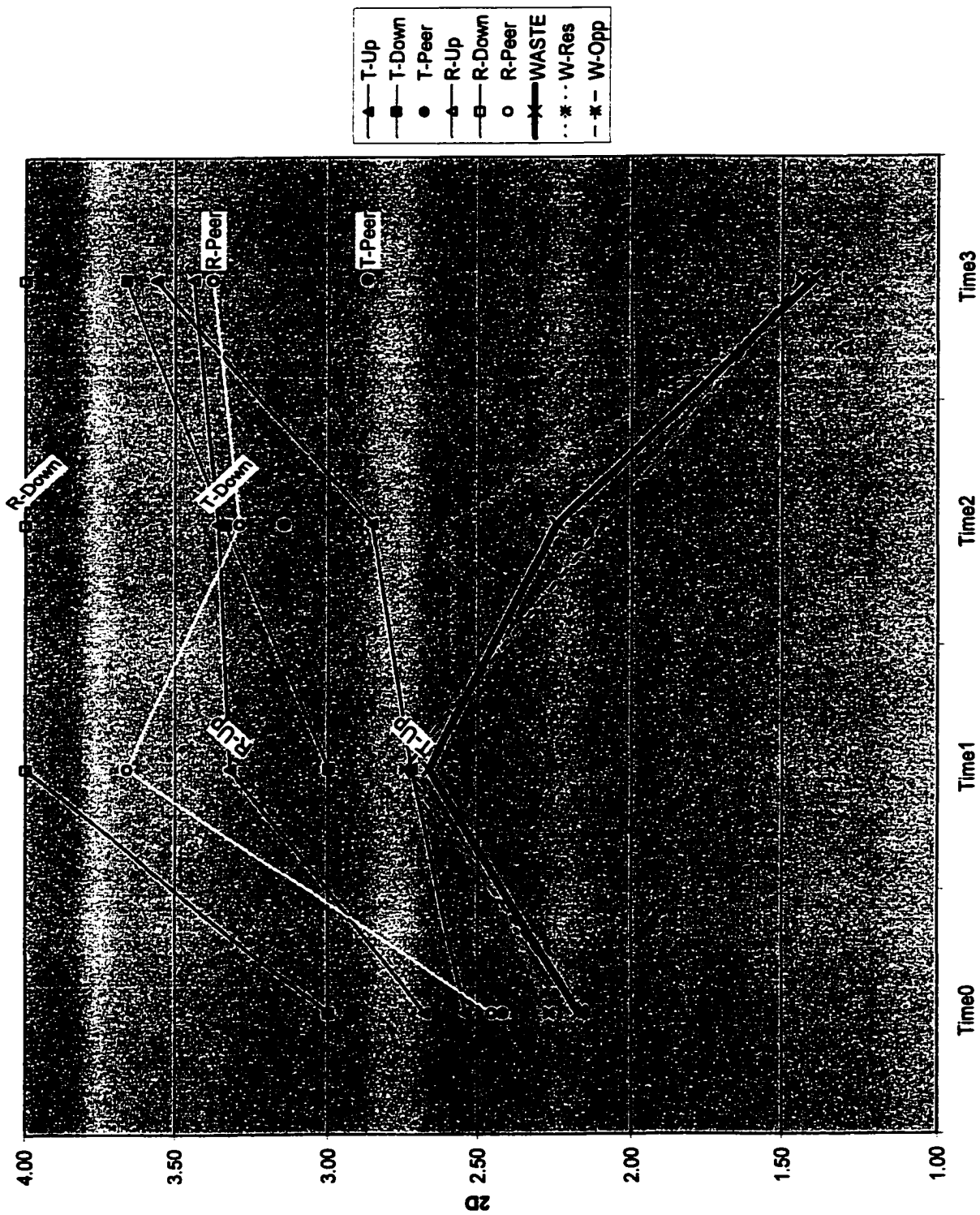


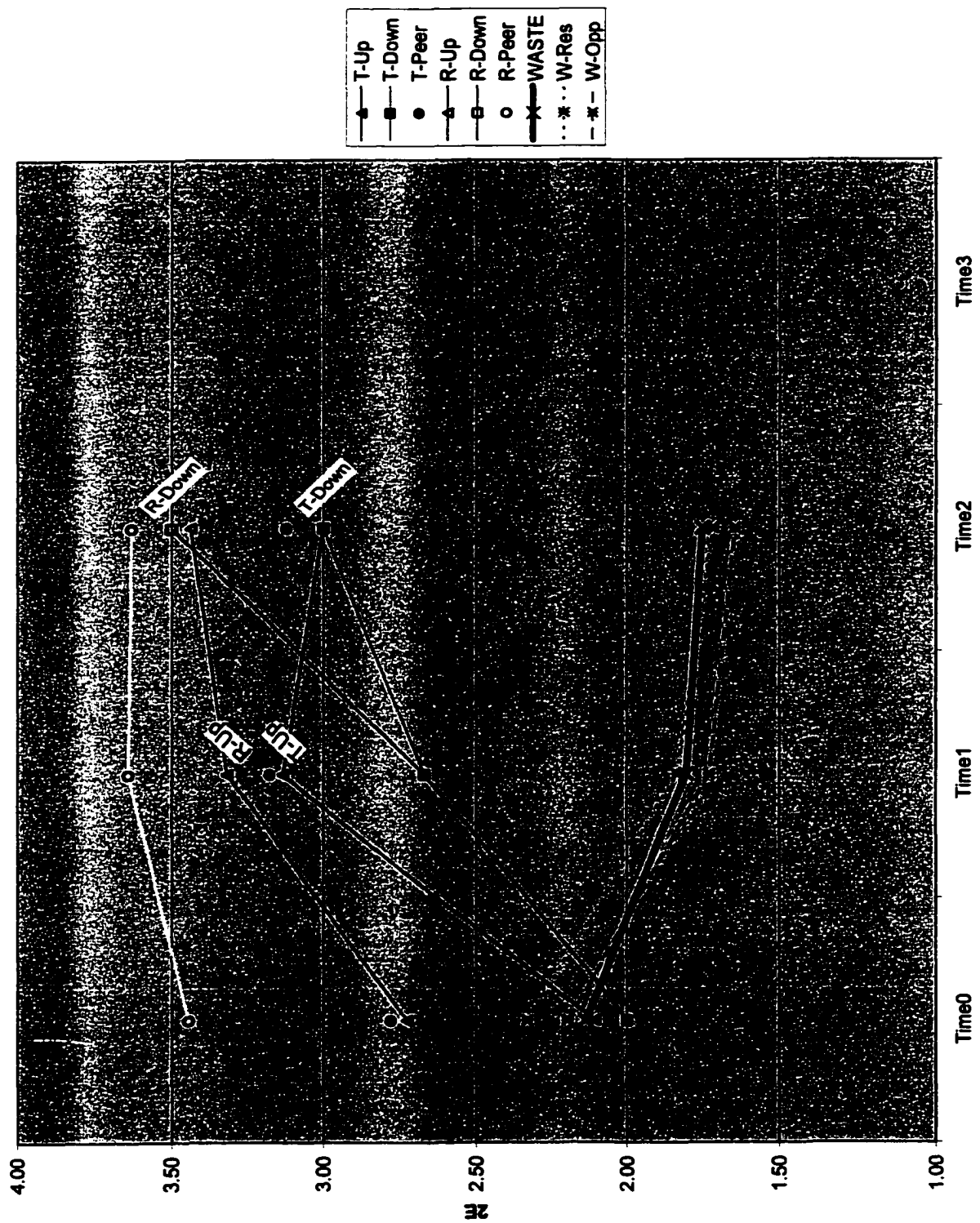


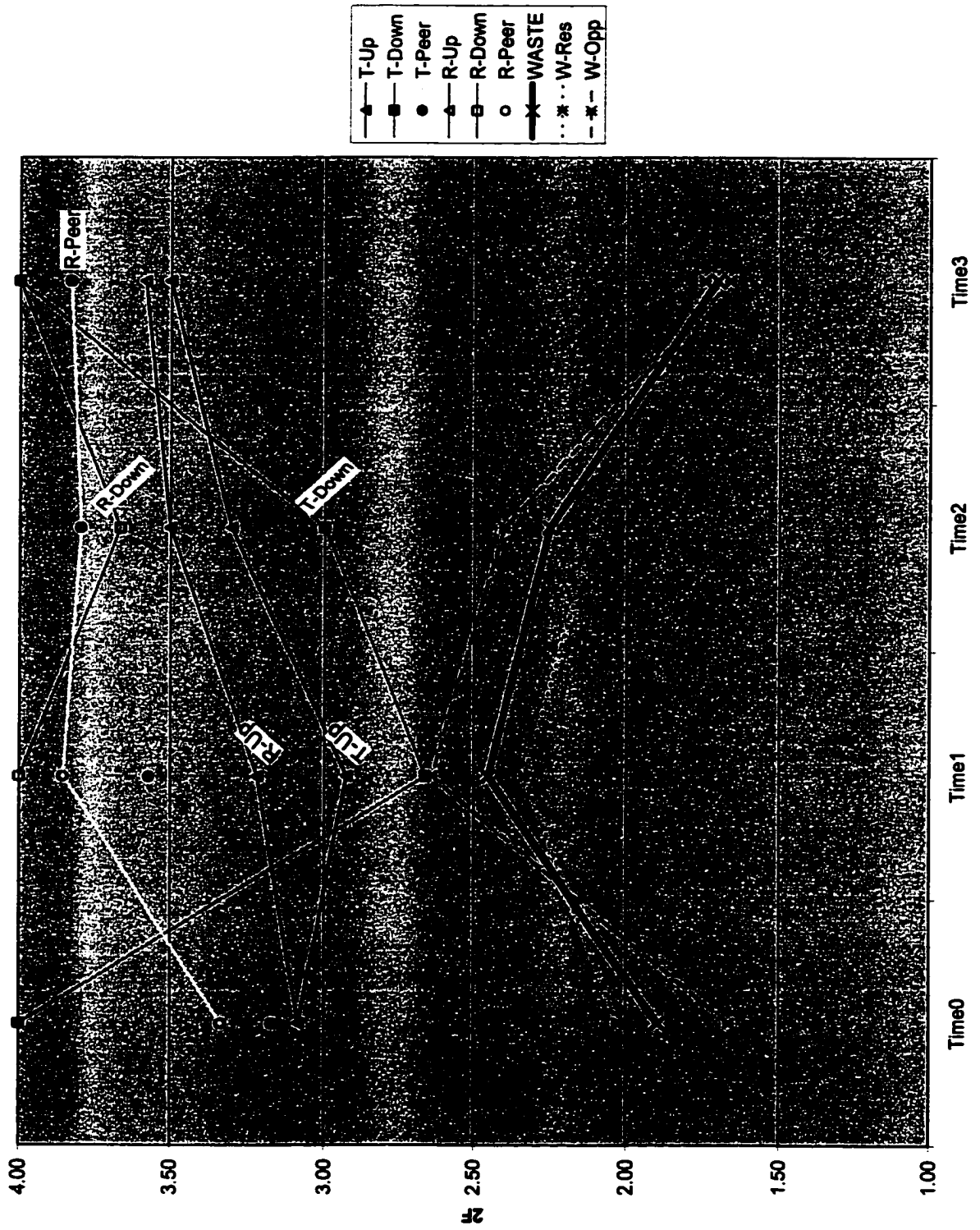


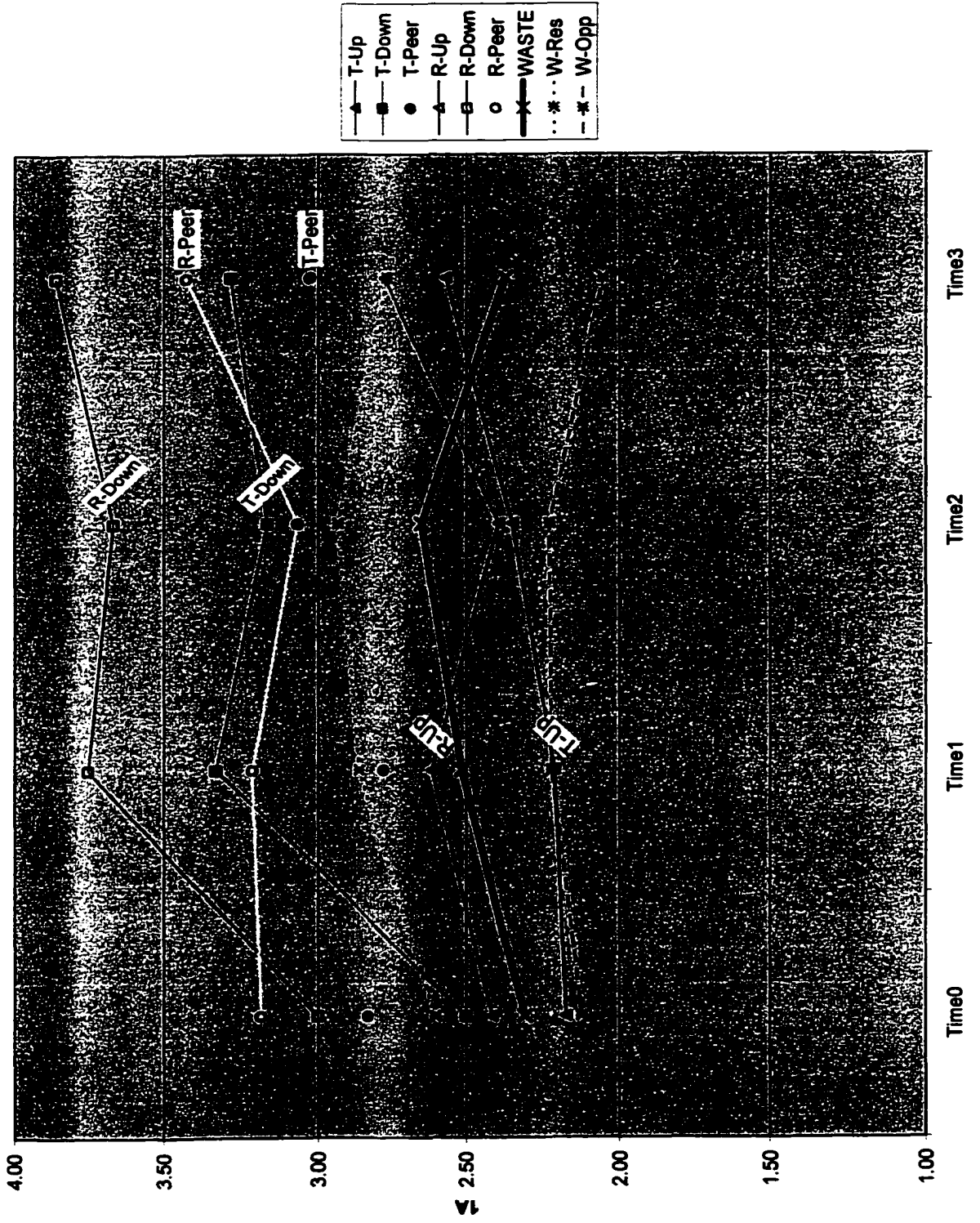


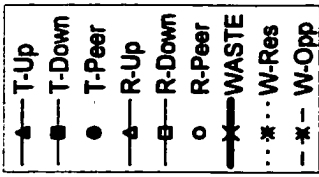
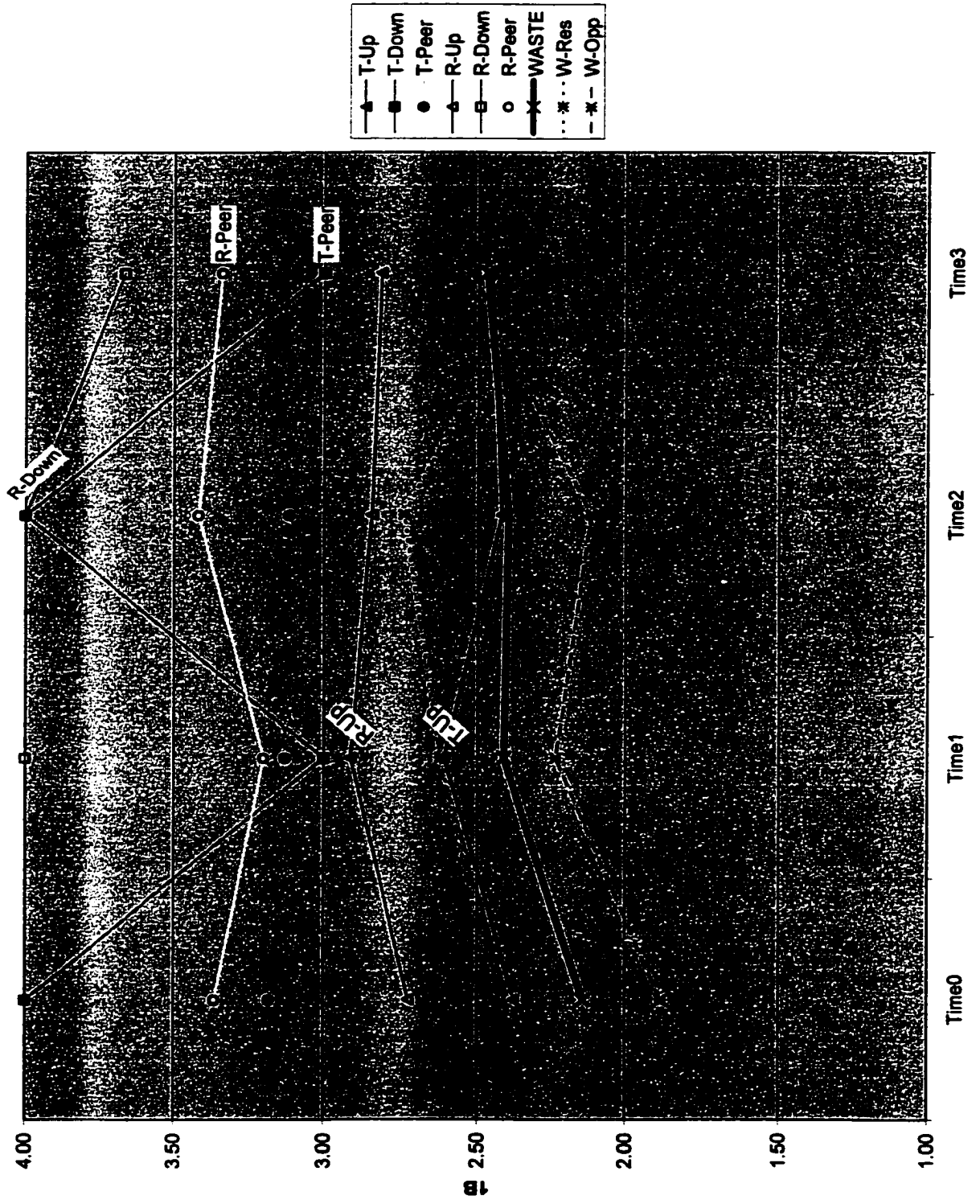


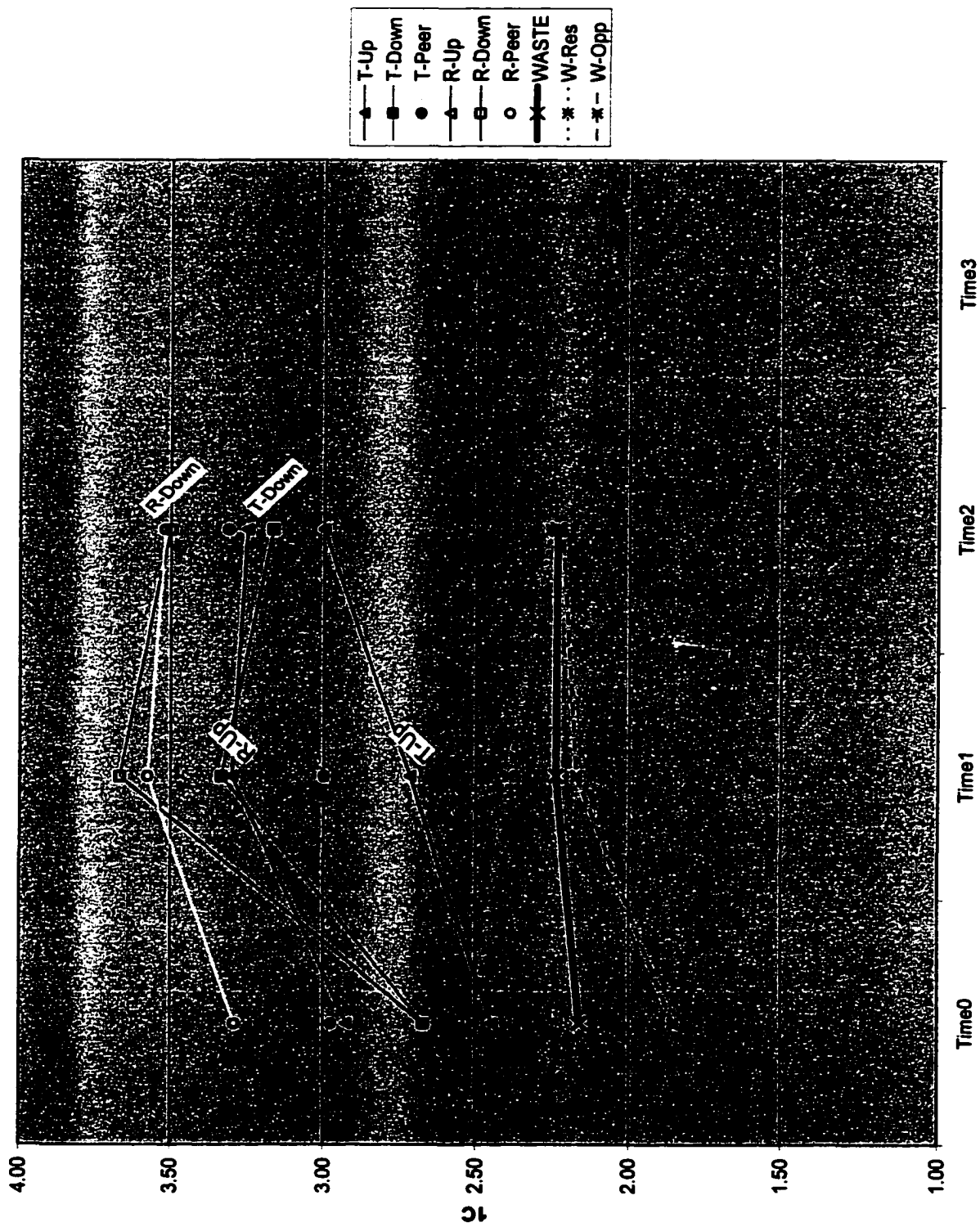


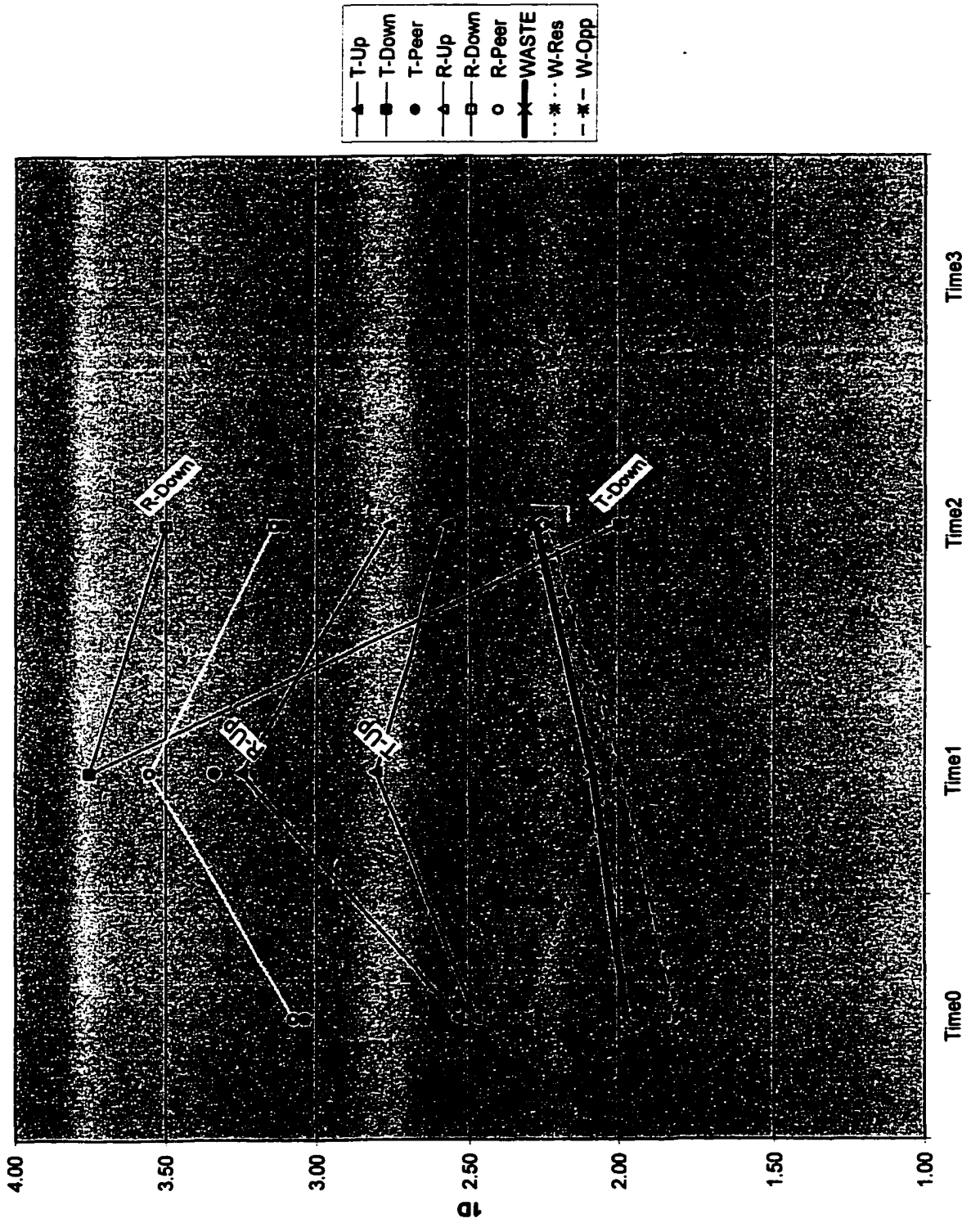


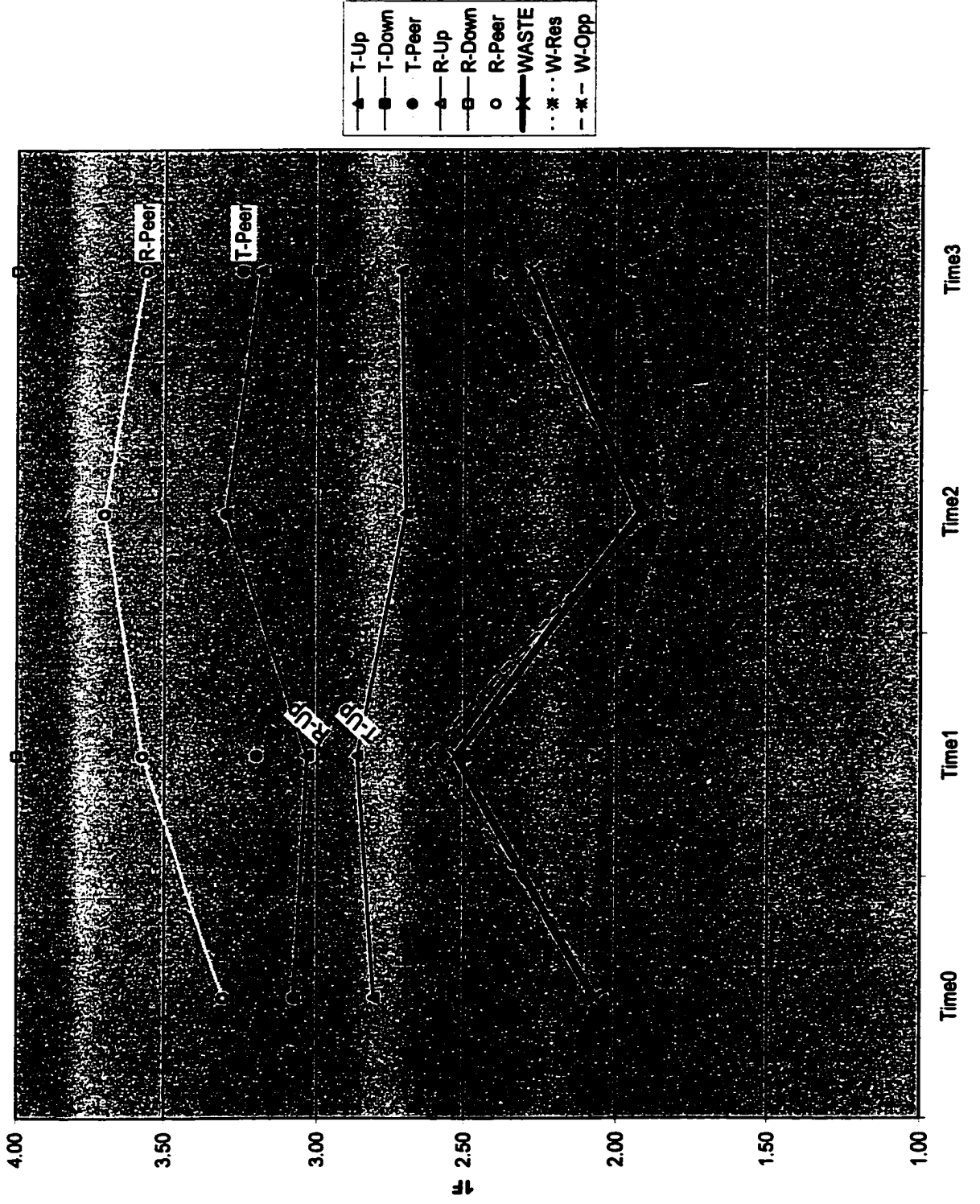


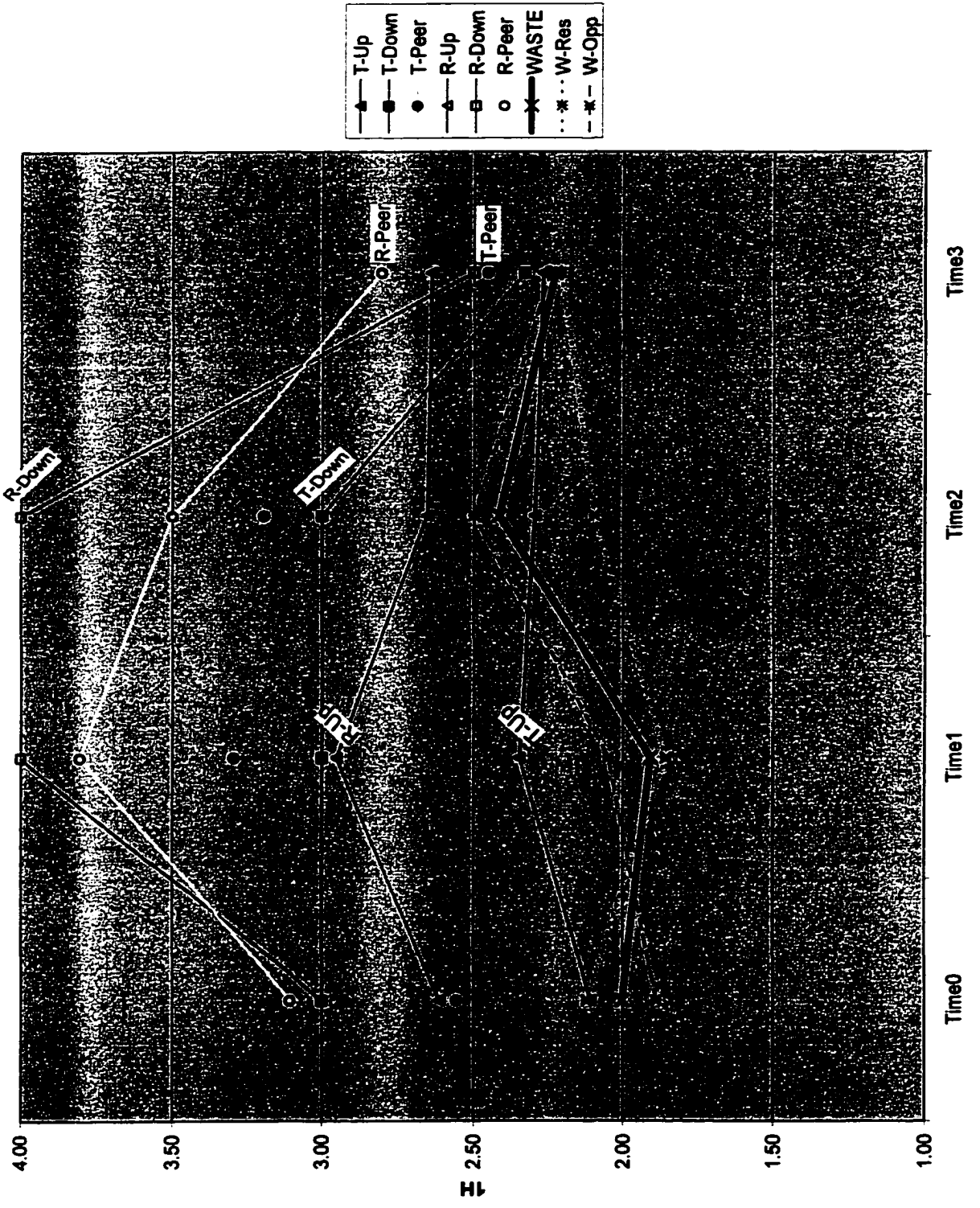


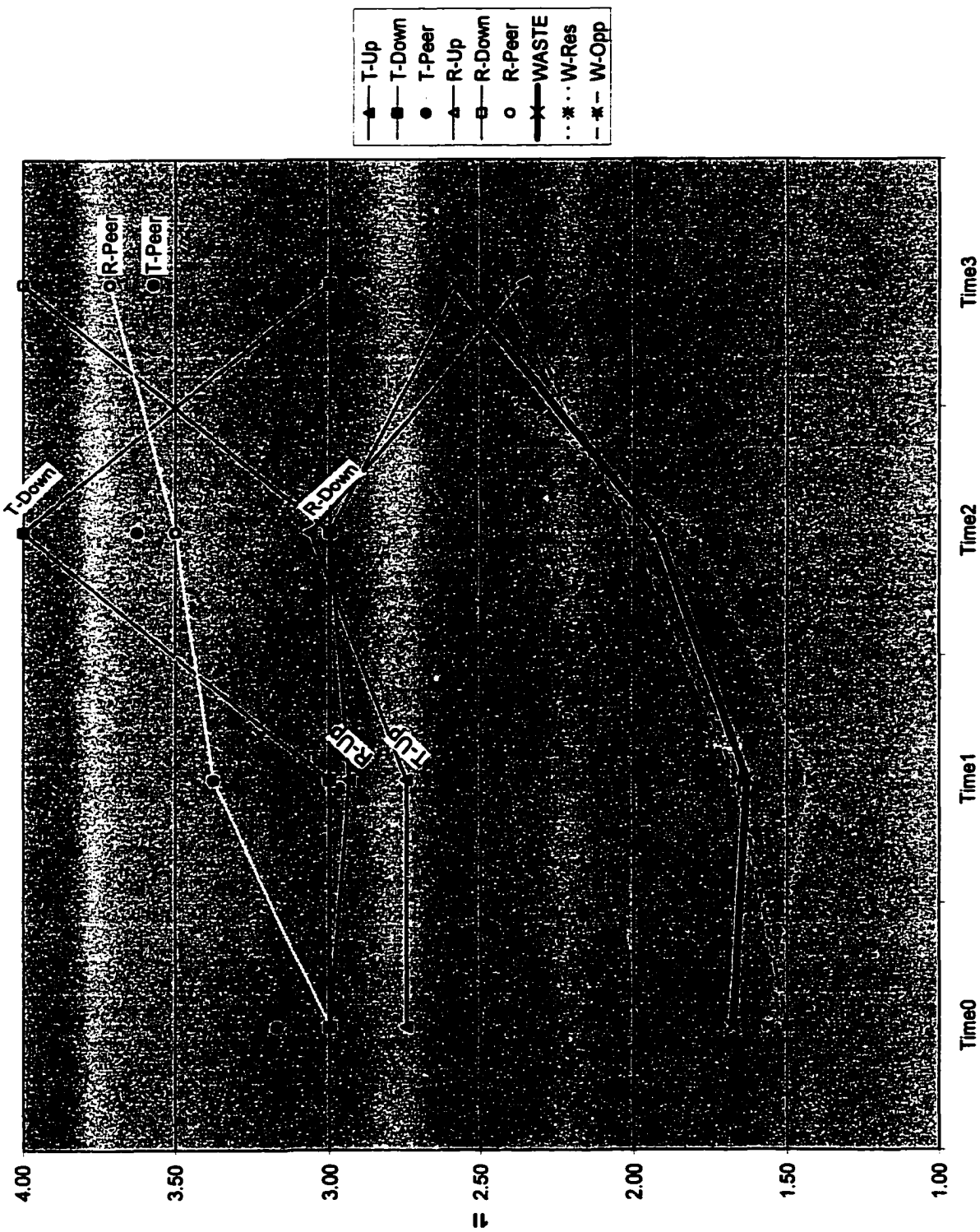


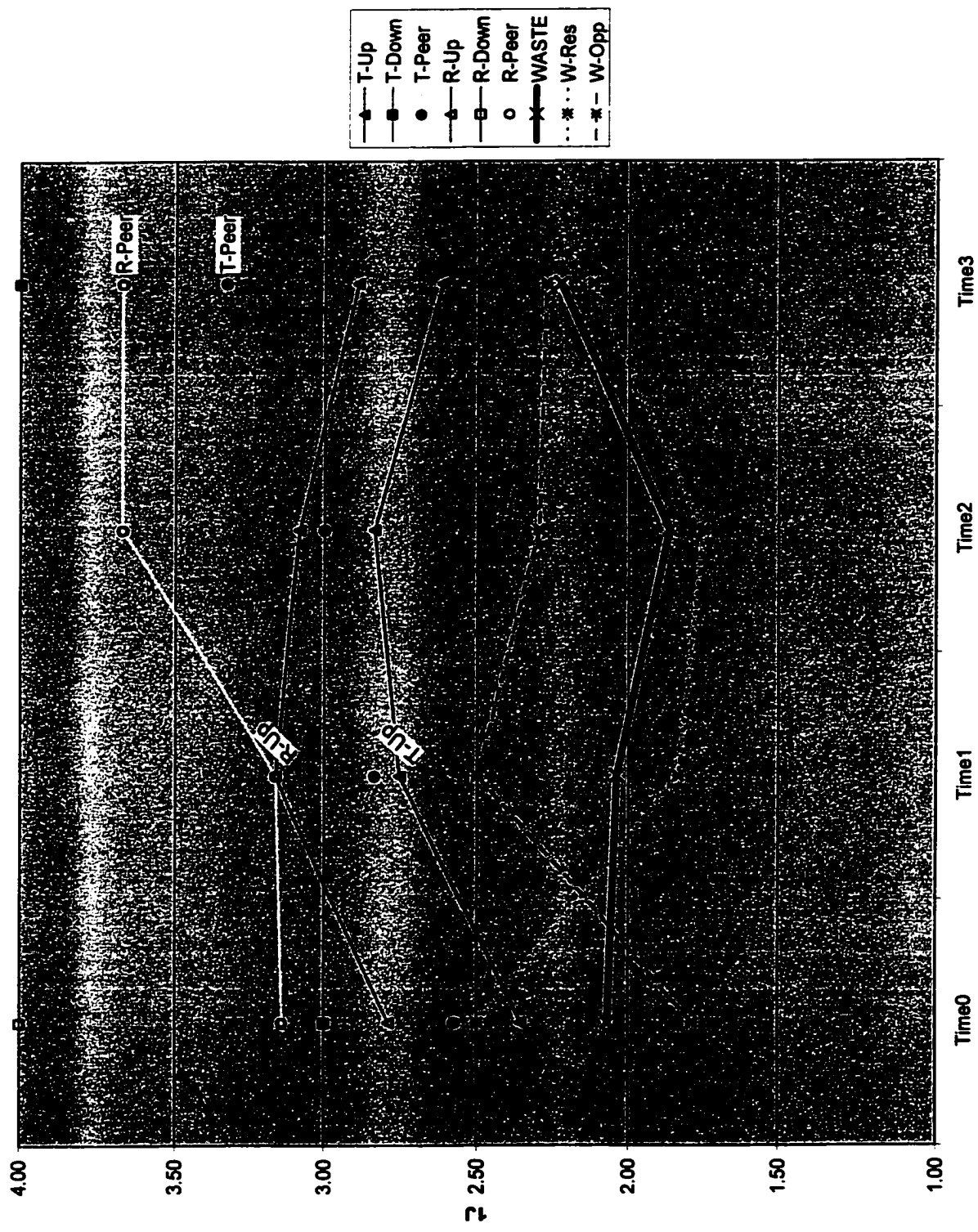












REFERENCES¹

- Becker, Gary S. (1975). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago, IL: University of Chicago Press.
- Berndt, Ernst R. (1991). "The Measurement of Quality Change: Constructing an Hedonic Price Index for Computers Using Multiple Regression Methods." Chapter 4 in *The Practice of Econometrics*, Reading, MA: Addison-Wesley.
- Burt, Ronald S. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Cole, Robert E. and W. Richard Scott (eds.) (2000). *The Quality Movement & Organizational Theory*. Thousand Oaks, CA: Sage Publications.
- {4} Conger, Jay A., Rabindra N. Kanungo, and Sanjay T. Menon (2000). "Charismatic Leadership and Follower Effects." *Journal of Organizational Behavior*. Vol. 21, No. 7, pp. 747-767.
- Csikszentmihalyi, Mihaly (1990). *Flow – The Psychology of Optimal Experience: Steps Towards Enhancing the Quality of Life*. New York, NY: Harper & Row.
- {6} De Vries, Manfred F R Kets (1999). "High-Performance Teams: Lessons From the Pygmies." *Organizational Dynamics*. Vol. 27, No. 3, pp. 66-77.
- Dean, James W. Jr. and David E. Bowen (1994). "Management Theory and Total Quality: Improving Research and Practice Through Theory Development." *Academy of Management Review*. Vol. 19, No. 3, pp. 392-418.
- Deming, W. Edwards (1982). *Out of the Crisis*. Cambridge, MA: MIT.
- Dirks, Kurt T. (1997). "The Effects of Interpersonal Trust on Interpersonal Behavior and Work Group Performance." Doctoral dissertation, The Graduate School. Minneapolis, MN: University of Minnesota.
- {7} Dirks, Kurt T. (1999). "The Effects of Interpersonal Trust on Work Group Performance." *Journal of Applied Psychology*. Vol. 84, No. 3, pp. 445-455.
- {3} Dirks, Kurt T. (2000). "Trust In Leadership And Team Performance: Evidence from NCAA Basketball." *Journal of Applied Psychology*. Vol. 85, No. 6, pp. 1004-1012.
- Grant, Robert M., Rami Shani, and R. Krishnan (1994). "TQM's Challenge to Management Theory and Practice." *Sloan Management Review*. Vol. 35, No. 2, pp. 25-35.

¹ Since they are repeatedly employed, the thirteen reference numbers in {brackets} are all substituted in Chapter 3 to ease the readability of the development of the research hypotheses.

- Hackman, J. Richard and Ruth Wageman (1995). "Total Quality Management: Empirical, Conceptual, and Practical Issues." *Administrative Science Quarterly*. Vol. 40, No. 2, pp. 309-342.
- {10} Hodgetts, Richard M. (1996). "A Conversation with Warren Bennis on Leadership in the Midst of Downsizing." *Organizational Dynamics*. Vol. 25, No. 1, pp. 72-78.
- {11} Hosmer, Larue Tone (1995). "Trust: The Connecting Link Between Organizational Theory and Philosophical Ethics." *Academy of Management Review*. Vol. 20, No. 2, pp. 379-403.
- Imai, Masaaki (1986). *Kaizen: The Key to Japan's Competitive Success*. New York, NY: McGraw-Hill.
- {1} Jehn, Karen A. and Elizabeth Mannix (2001). "The Dynamic Nature of Conflict: A Longitudinal Study of Intragroup Conflict and Group Performance." *Academy of Management Journal*. Vol. 44, No. 2, pp. 238-251.
- {12} Jin, Putai (1993). "Work Motivation and Productivity in Voluntarily Formed Work Teams: A Field Study in China." *Organizational Behavior & Human Decision Processes*. Vol. 54, No. 1, pp. 133-155.
- Juran, Joseph M. (1988). *Juran's Quality Control Handbook [Fourth Edition]*. New York, NY: McGraw-Hill.
- Kaplan, Robert S. (1991). "The Topic of Quality in Business School Education and Research." *Selections*. Autumn 1991, pp. 13-21.
- {2} Kirkman, Bradley L. and Benson Rosen (2000). "Powering up Teams." *Organizational Dynamics*. Vol. 28, No. 3, pp. 48-66.
- Kramer, Roderick M. (1999). "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions." *Annual Review of Psychology*. Vol. 50, pp. 569-598.
- Lazear, Edward P. (1995). *Personnel Economics*. Cambridge, MA: MIT Press.
- Lillrank, Paul and Noriaki Kano (1989). *Continuous Improvement: Quality Control circles in Japanese Industry*. Ann Arbor, MI: Center for Japanese Studies, The University of Michigan.
- March, James G. and Herbert A. Simon (1993). *Organizations [Second Edition]*. Cambridge, MA: Blackwell Business.
- {13} Marks, Mitchell Lee and Philip H. Mirvis (1992). "Rebuilding After the Merger: Dealing with Survivor Sickness." *Organizational Dynamics*. Vol. 21, No. 2, pp. 18-32.
- {5} Newell, Sue and Jacky Swan (2000). "Trust and Inter-Organizational Networking." *Human Relations*. Vol. 53, No. 10, pp. 1287-1328.

- {8} Nishiguchi, Toshihiro and Alexandre Beaudet (1998). "The Toyota Group and the Aisin Fire." *Sloan Management Review*. Vol. 40, No. 1, pp. 49-59.
- Parasuraman, A., Valarie A. Zeithaml, and Leonard L. Berry (1988). "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality." *Journal of Retailing*. Vol. 64, No. 1, pp. 12-40.
- {9} Porter, Thomas W. and Bryan S. Lilly (1996). "The Effects of Conflict, Trust, and Task Commitment on Project Team Performance." *The International Journal of Conflict Management*. Vol. 7, No. 4, pp. 361-376.
- Reeves, Carol A. and David A. Bednar (1994). "Defining Quality: Alternatives and Implications." *Academy of Management Review*. Vol. 19, No. 3, pp. 419-445.
- Roberts, Harry V. and Willard I. Zangwill (1993). "Quality Improvement through Waste Reduction." Unpublished working paper, University of Chicago Graduate School of Business.
- Robinson, James D., John F. Akers, Edwin L. Artzt, Harold A. Poling, Robert W. Galvin, and Paul A. Allaire (1991). "An Open Letter: TQM on the Campus." *Harvard Business Review*. November-December 1991, pp. 94-95.
- Rockefeller, David (1940). "Unused Capital Resources and Waste." Doctoral dissertation, Department of Economics. Chicago, IL: University of Chicago.
- Schonberger, Richard J. (1990). "Attack on Nonobvious Wastes." Chapter 7 in *Building a Chain of Customers: Linking Business Functions to Create a World Class Company*. New York, NY: Free Press.
- The Procter & Gamble Company (1992). *A Report of The Total Quality Leadership Steering Committee and Working Councils*. Cincinnati, OH: The John K. Howe Company.
- United States Department of Commerce (2001). *Baldrige National Quality Program: Criteria for Performance Excellence*. Washington, DC: National Institute of Standards and Technology.
- Wicks, Andrew C., Shawn L. Berman, and Thomas M. Jones (1999). "The Structure of Optimal Trust: Moral and Strategic Implications." *Academy of Management Review*. Vol. 24, No. 1, pp. 99-116.
- Zangwill, Willard I. and Paul B. Kantor (1998). "Toward a Theory of Continuous Improvement and the Learning Curve." *Management Science*. Vol. 44, No. 7, pp. 910-920.