

## **An empirical study of the relationship between industry automation and organizational adaptation**

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### **ABSTRACT**

This empirical study compares the social progressiveness of employee policies and benefit programs of large U.S. employers with the degree of automation within their respective primary industries, seeking empirical evidence to support a theory that human capital intensity of industry (Coff, 2002) is associated with faster organizational adaptation to emerging social norms. Based on a sample of 486 Fortune 500 companies, results of hierarchical multiple regressions show statistically significant influences of industry automation, as well as of two control variables as known predictors – organizational size and location effects – on LGBT (lesbian, gay, bisexual, and transgender)-friendly employment policies and benefit programs. In exploring a new, industry-neutral determinant of employer practices, the study makes a potentially significant contribution in understanding the causes of systemic differences in inclusiveness of employee rights and benefits across industries, more specifically, automation-based influences on key decision-makers in defining what is fair, equitable and socially acceptable in today's workplace.

Keywords: Socio-technical theory, institutional theory, open systems theory, organizational practices, human capital intensity of industry

## 1.0 INTRODUCTION

Is there a relationship between industry automation with degree of employer adaptation to changes in social values? Do highly mechanized work environments desensitize senior management teams to changes in social norms and expectations?

This empirical study examines the relationship between social progressiveness of employee policies and benefit programs of large U.S. employers with the degree of automation within their respective primary industry categories, seeking empirical evidence to support a new theory that human capital intensity of industry (Coff, 2002) is associated with higher degrees of organizational adoption to emerging social values for greater tolerance, diversity and inclusiveness.

In the classic literature, social legitimacy (Dowling & Pfeffer, 1975; Selznick, 1949) is seen as a universal need for organizations of all types. According to the theory of organizational legitimacy, "...organizations seek to establish congruence between the social values associated with or implied by their activities and the norms of acceptable behavior in the largest social system of which they are a part," (Dowling & Pfeffer, 1975, p. 122). This study challenges that universal view, proposing that employers' relative reliance on non-human versus human resources as factors of production influences their relative concern about keeping pace with changes in social values. The research theorizes that employers operating in industries that are more automated are associated with lower levels of adaptation to changes in social values and emerging institutional norms for greater tolerance, diversity and inclusiveness.

The research uses the Human Rights Campaign's Corporate Equality Index (CEI), a national benchmark measuring parity of employment rights and employee benefits for lesbian, gay, bisexual and transgender (LGBT) workers at large employers in the U.S. as a proxy variable for organizational adaptation to changing social trends. Two variables are created to measure human capital intensity of industry, based on total labor productivity and per capita cost data from the U.S. Bureau of Labor Statistics for the industry category that best fit the organizations' primary business. Two control variables are introduced – geographic location (whether corporate headquarters is based in a state where same sex marriage is legal or not) and organizational size (Fortune 500 ordinal ranking) to account for known influences on the diffusion of LGBT-friendly corporate practices (Newburry, Gardberg, Hudson & Feffer, 2012).

The conceptual model will propose the effects of widespread automation on senior management teams are influencing the degree by which employers adjust their internal workplace policies to reflect external changes in the broader social value environment. Consistent with the conceptual model, the research seeks empirical evidence of workplace automation as a new form of systemic disparity in organizational adoption of socially-progressive values, in addition to the known regional, ethnic, cultural, demographic, social, communal, religious, economic, political sources of discrimination in the workplace (Priola, Lasio, De Simone & Serri, 2014; Ragins & Cornwell, 2001).

## 2.0 LITERATURE REVIEW

In their classic paper on the causal effects of different types of environments on organizational change, Emery and Trist (1965) drew upon open systems theory to explain organizational change, and how different external scenarios, or “casual textures,” require different types of strategies and structures if organizations are to survive.

The authors began noting that a key problem in understanding organizational changes was that the environments in which organizations operate are themselves changing, and at an increasing fast pace, in part due to advances in technology. The author cited two case studies – one at the organizational level, the other at the broader industry level – to illustrate the “system connectedness” (p. 22) of organizations to their broader socio-economic landscape, or in their words, how organizational environments are “...organized at the social level” (Emery & Trist, 1965, p. 22).

### 2.1 Turbulent Fields

In advancing their theory on the relationship between organization forms, strategies, and their environments, the authors describe four types of environmental conditions, or causal textures, and the respective organizational forms that are best suited to survive under such conditions.

The most dynamic, complex and uncertain of these – which Emery and Trist labeled as “turbulent fields” (p. 26) – seems an appropriate term to describe today’s fiercely-competitive and racially-changing global economy. In this type of environment, “...dynamic properties arise not simply from the interaction of the component organizations, but also from the field itself. The ‘ground’ is in motion...” (Emery & Trist, 1965, p.26). Characteristic of the volatile environmental conditions of turbulent fields is the “...deepening interdependence between the economic and the other facets of the society.” (p. 26), particularly social values, defined as “...values that have overriding significance for all members of the field” (p. 28), as organizations strive for institutionalism as a coping mechanism to achieve stability in the face of high rates of uncertainty.

### 2.2 Conceptual Model

This research theorizes that while the pace of social legitimacy-seeking behavior may be increasing for all types of organizations (Metcalf, 2010), the effects of widespread industry automation may be producing a subtle and countervailing trend, representing an undercurrent and possibly new taxonomic dimension to the classic organic versus mechanistic (Burns & Stalker, 1961), capital-intensive versus labor-intensive (Arrow, Chenery, Minhas, & Solow, 1961) industry dichotomies.

As shown in the Conceptual Model as indicated in Figure 1 (Appendix), organizations of all types face the opposing forces of 1) mimetic institutional pressures to conform to prevailing values and standards of conduct (DiMaggio & Powell, 1983), and 2) organizational inertia or resistance to change, given formalized hierarchies, established routines, and fear of uncertainty or risk aversion (Hannan and Freeman, 1984).

The conceptual model proposes that, in highly automated industries, the pervasive use of, and reliance upon, non-human forms of capital by senior management teams within their respective socio-economic spheres creates an undercurrent that lowers their organizational need for social legitimacy and acceptance, slowing their degree of adoption of policies reflecting emerging social values for greater tolerance, diversity and inclusiveness. Furthermore, the conceptual model proposes that in more human capital-intensive industries and economic sectors, where there is a greater reliance upon the social intelligence (Thorndike, 1920) – defined as the ability to engage and interact with others – from a broad section of their employee base (i.e. not just management or senior executives), these enterprises are associated with a greater institutional need to be in sync with emerging public attitudes towards tolerance, diversity and inclusiveness.

In this sense, the concept model theorizes that organizational concern about the personal freedoms, rights, self-expressions of their employees, customers and other key stakeholders operates on a continuous scale: degree of automation influences management's perceived need for internal organizational values to be in sync with emerging public attitudes, social and/or institutional standards of conduct for greater acceptance, tolerance, diversity, and inclusiveness.

### **2.3 Changing Social Attitudes on LGBT Equality**

LGBT workers today continue to face both overt institutional (regional, racial/ethnic, demographic, cultural, political, socio-economic) and more subtle or idiosyncratic (experiential, environmental, ideological) forms of discrimination in the workplace. National public attitudes toward diversity in sexual orientation, however, has shifted dramatically in the post 2010 timeframe, echoing the sea changes in public opinion that presaged the historic expansion of rights and freedoms for women and minorities in the prior turn of the century.

While state employment laws have generally not kept pace with these trends [workers can still be legally denied a job or fired for their sexual orientation in 29 states, and for gender identity in 34 states (11th edition of the Human Rights Campaign Foundation's Corporate Equality Index, 2012)], American companies of all sizes have begun to reflect this shift in social attitudes, with 31 percent of employers offering equal health benefits to employees with a same-sex partner or spouse in 2012 (Kaiser/Health Research & Educational Trust, 2012).

The degree of adoption of equal worker rights and benefits are even higher among large employers in the U.S. In 2012, 60 percent of Fortune 500 companies offered equal partner benefits, compared with 40 percent in 2003 (Kaiser/Health Research & Educational Trust, 2012).

In a study of the institutional and environmental influences on employer adoption of LGBT-friendly policies and practices, Newbury, Gardberg, Hudson & Feffer (2012) found positive correlation between professional services organizations (a highly human capital-intensive industry) and organizational CEI scores. Newbury et. al. (2012) examined the CEI scores of 627 employers from 2002 to 2011, and found industry and political and/or ideological state-based effects on adoption of policies and programs providing parity of benefits for LGBT workers. The study concluded that normative

mimetic pressures, stemming from the educational level and liberal political ideology of the employers' home state, positively influenced CEI scores.

## 2.4 Research Model and Hypotheses

The research model, as indicated in Figure 2 (Appendix) proposes that, while corporate mission statements often proclaim such trite phrases as "people are our most important assets," senior management teams in organizations who operate primarily in less automated and more "people-intensive" industries may face greater institutional pressures to respond to the social concerns of their employees. These organizations are theorized to have a greater need to synchronize their internal corporate practices with environmental changes in social attitudes, values and expectations than do key decision makers at firms operating in more automated types of businesses and economic sectors.

The hypotheses postulate that organizational adaptation to emerging social values operates as a continuous variable, and introduces control variables to better isolate and test for the effect of "people-intensity" of industry (total cost of labor per productive output value and per capita cost of labor), given the other known influences on the diffusion of LGBT-friendly corporate practices (Newbury, Gardberg, Hudson & Feffer, 2012). The first hypothesis explores the relationship between degrees of industry automation with organizational adaptation to changing social values.

H1 posits that lower degrees of automation within an industry, as expressed by higher ratio of total labor compensation cost relative to production value output, is positively related with adaptation to emerging social values for greater personal freedoms and rights by organization. H1 essentially states that the greater an organizations pays for and relies upon the performance of its human capital in its respective industry, the faster the organizational adaptation to changes in social values and public attitudes.

H1: Ratio of human capital cost as a percent of output value by industry is positively associated with organizational adaptation to social environmental change

H2 is based on the intuitive premise that organizations operating in less automated and more people-intensive industries would require relatively more people on payroll than firms operating in more highly automated industries. Hence, these employers would have lower labor cost per employee, given the relatively greater numbers of workers. In other words, H2 states that the less number of people you need (the higher industry payroll per capita ratio), the lower the adoption rate to social environmental changes.

H2: Ratio of payroll per capita ratio by industry is negatively related to organizational adaptation to social environmental change

Given the predicted relationships set forth by H1 and H2, H3 proposes that organizational adaptation to social environmental change (CEI score) is a function of two control variables -- organizational size (Fortune 500 ranking) and location of corporate headquarters (based in a state where same-sex marriage in legal or not) -- as well as "people intensity" of industry (total cost of labor per productive output value and per capita cost of labor).

The first control variable is used to adjust for organizational size effects – the larger and hence the higher public profile of the employer (Metcalf, 2010), the faster its adaptation to emerging trends in social attitudes and values, given institutional pressures to conform to changing social norms; thus the lower the Fortune 500 ordinal ranking (the large revenue base), the higher the CEI score for the organization.

The second control variable is used to adjust for organizational location effects – that CEI score is positively associated with the prevailing political or ideological support for same-sex marriage, as measured by corporate headquarters being located in one of the 17 states and the District of Columbia where same-sex marriage was legal at the time the study was conducted: California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Rhode Island, Vermont, Washington.

H3: Employer adaptation to social environmental change is a function of size of revenue base, location of headquarters and industry automation

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### 3.0 METHODS

In the statistical tests, two proxy variables were created to reflect “people intensity” of industry, as normalized measures that can be applied across all economic sectors, irrespective of other industry factors such as maturity of industry, size and mix of customer base, high-tech or low-tech, B2B or B2C business model, breath of market served (specialized niche player or generalist), degree of government regulation, firm or industry growth and/or profitability.

The two intensity of human capital of industry (Coff, 2001) variables – 1) amount of money spent on labor (relative to machines) to produce value by industry (total labor cost to total production output value, i.e. how much value is produced by human capital), and 2) number of workers needed to produce output by industry (total labor cost per capita, i.e. how many workers per total labor cost) – are used to predict employer parity of employee rights and benefits to lesbian, gay, bisexual and transgender (LGBT) workers, as a proxy indicator of organizational adaptation to emerging social values, given recent changes in public attitudes toward discrimination based on sexual orientation.

These two variables are based on the Bureau of Labor Statistics’ Industry Labor Productivity and Costs data, which track the value of production (million \$), hours (millions), employment (thousands) and labor compensation (million \$) by industry, using the North American Industry Classification System (NAICS) taxonomy.

To reflect the relative contribution of people versus machines, Labor Cost per Production Value variable was created by dividing labor compensation by industry by value of production.

To reflect the number of people required to produce output, Labor Cost per Capita variable was created by dividing labor compensation by number of employed by industry to capture the effect that there are generally more workers per employer in people-intensive industries versus more automated industries. These two variables were used as cross-sectional/industry-neutral measures that can be applied across all economic sectors.

#### 3.1 Measuring Organizational Adaptation to Emerging Social Values

The study uses data from the 2013 Human Rights Campaign Foundation’s Corporate Equality Index reports, ratings of large U.S. employers and their policies and practices pertinent to lesbian, gay, bisexual and transgender (LGBT) employees as a proxy variable for organizational adaptation to emerging social values.

To reflect the level of institutional pressure on employers, based on their public profile, Fortune 500 rankings are used. This variable was used to capture the institutional pressures on large firms to conform to changing social values, as intuitively, the number one employer ranked by gross revenues (Wal-Mart) may experience more media scrutiny or public pressure than the 496<sup>th</sup> ranked firm included in the survey (Levi Strauss).

A second control variable is employed to reflect the location effects of the prevailing political or ideological support for same-sex marriage on key decision-makers in the 486 organization in the study that were ranked within the Fortune 500. As per the Newbury, Gardberg, Hudson, and Feffer study (2012), geographic location is a determinant of LGBT-friendly policies. Thus, a dummy variable was used to reflect



whether the Fortune 500 company's corporate headquarters are based in one of the 17 states and the District of Columbia where same-sex marriage is legal (1) or not (0).

### **3.2 Selection Criteria for Sample of Employers**

Large employers were selected in the study to ensure the validity of the construct of organizational adaptation to emerging social values, as research has shown that larger organizations offer employee benefits to same-sex partners to a much higher degree than do smaller firms. In 2012, Kaiser/Health Research & Educational Trust study surveyed 3,326 randomly-selected public and private firms with three or more employees in the U.S. It found that 31 percent of all employers in the U.S. were found to offer equal health benefits to employees with a same-sex partner or spouse in 2009 (Kaiser/Health Research & Educational Trust, 2012). This compares with the results of a study of large corporations by the Human Rights Campaign, which found 59 percent of Fortune 500, 85 percent of Fortune 100, and 90 percent of Fortune 50 companies offering parity of employment rights and employee benefits for lesbian, gay, bisexual and transgender (LGBT) workers (11th edition of the Human Rights Campaign Foundation's Corporate Equality Index, 2012).

By excluding small employers and focusing only on large employers in the sample, the study sought to reduce the potential bias of company size, as larger firms generally have more resources and thus may have generally broader, more generous and/or liberal employee benefit programs than smaller firms. And, as noted before, large firms are more suited as a sample to test, as they are under greater institutional pressures to conform to their organizational practices to changes in social values.

### **3.3 Sample Size and Timeframe**

To improve the statistical reliability the study's design and the generalizability of its findings, the study included the majority of employers (486) in the Fortune 500 that appeared in the 2013 HRC report.

While the Human Rights Campaign has been publishing Corporate Equality Index report since 2002, the 2012-2013 timeframe for using the CEI as a proxy of adoption of social values was selected as the most recent available data on the organizational adoption of parity of rights and benefits for LBGT workers.

Labor productivity and cost data were selected from the most recent year (2011) available in the most recent report, dated August, 26, 2013.



#### 4.0 DISCUSSION OF RESULTS & CONCLUSION

The statistical test results supported all three hypotheses, providing empirical evidence for the study's theory that industry automation influences management decisions on the adoption of socially-progressive employee policies, and perhaps more broadly, determinations of what is fair, equitable and right in organizational practices, given changing public attitudes and emerging social norms.

In the results of the test of H1 and H2, the individual organizational adoption of socially progressive employee policies and benefits by Fortune 500 employers were found to be strongly correlated with "people-intensity" of industry variables based on labor cost productivity of the industry sector most closely associated with their primary business, as well as control variables based on known determinants from a previous study (Newburry, Gardberg, Hudson & Feffer, 2012), as indicated in Table 1 (Appendix).

The only two variables correlated with each other were the two variables used to express people-intensity of industry. This is intuitive, as they both measure the same factor, but in two different and important ways: 1) total labor cost as a percent of total industry output value, used as a measure of the reliance upon human capital as a production factor to create value, and 2) total labor costs per capita, used to measure the relative number of people required to operate.

For H3, the results of the hierarchical multiple regression expressing organizational adaptation to social environmental change (CEI score) as a function of Fortune 500 ranking, location of corporate headquarters as well as "people intensity" of industry (total cost of labor per productive output value and per capita cost of labor), as indicated in Tables 2 and 3 (Appendix).

In the column entitled R Square in Table 3: Model Summary of the Hierarchical Multiple Regression, the coefficient of determination of the first control variable, public profile (Fortune 500 ranking) was found to explain 16.8% of the variation in organizational CEI scores. When combined with the second control variable (location of corporate headquarters being in one of the 17 states that have legalized same sex marriage), as shown in the column entitled R Square Change in Table 5, the  $R^2$  value improves by .079 to 24.7%. As the two variables representing industry automation are included in the hierarchical regression, the  $R^2$  value improves by .023 to 26.5%, and then by .012 to 27.6%, as indicated in Table 2 (Appendix).

The table shows that adding the industry labor cost per capita variable improved the coefficient of determination, in which the combined variables exemplify 27% of the variation in organization CEI scores; when combined with the industry labor cost per production value, the  $R^2$  value improves to 28.2%.

In terms of statistical significance, the individual CEI scores of all 486 Fortune 500 employers in the 2013 HRC survey were found to be reliably predicted by the combination of total cost of labor per production output value by industry (as a proxy for relative reliance upon human-powered versus technology-enabled or automated business processes), along with the per capita cost of labor (or the ratio of total labor cost to the number of workers) by industry segment that best matches the primary business of the employer, along the two control variables to factor in employer size (Fortune 500 ranking)

and location effects (corporate headquarters based in a state where same sex marriage is legal or not).

As indicated in Table 3 (Appendix), when all four variables are included in the regression, the coefficient (or parameter estimate) for public profile would suggest that an ordinal increase in an organization's Fortune 500 ranking would be associated with a 0.105 increase in the employer's CEI score, all things being equal. The parameter estimate for the location effects suggest that an employer's having its corporate headquarters in a state where same sex marriage is legal would be associated with an 18.7 increase in the organization's CEI score, all things being equal. The coefficient (or parameter estimate) for the industry automation effects (H1 and H2) suggest that each increase in total labor cost per production value (the more people are used as a factor of production in the industry) would be associated with a 44.7 increase in the organization's CEI score, all things being equal; each decrease in total labor cost per capita (the less number of workers needed) would be associated with an 0.144 increase in the organization's CEI score, all things being equal.

The first three variables in the hierarchical multiple regressions were found to be statistically significant at the .001 level; the fourth variable was found to be statistically significant at the .005 level.

#### 4.1 Explanations of Results

In many ways, these results are surprising, as one would not expect to see a single factor predicting organizational CEI scores across all industry sectors, irrespective of the age or maturity of the industry, size or mix of customer base or breath of market served (specialized niche player or generalist), degree of government regulation, firm or industry growth and/or profitability.

To some, it may be surprising that there were such sizable differences in CEI scores across large employers in the U.S. Given the body of research on the benefits of inclusiveness, and liabilities from discrimination based on sexual orientation, one would expect, at least from an institutional theory perspective, the overall scores for all large employers in the U.S. would not necessarily be perfect, but generally and consistently range on the high side, as, according to institutional theory (DiMaggio & Powell, 1983), these large (many of them publicly-held, high-profile) employers – all facing basically the same degree of scrutiny, expectations and mimetic pressures to maintain legitimacy from Wall Street, the media, governmental and regulatory authorities, and the general public – would be expected to equally keep pace (more or less) with broad-based changes in public attitudes and social norms.

On the other hand, one might expect that systemic and idiosyncratic sources of differences may exist across such a large and diverse sample of large employers. Systemic sources would include industry norms, traditions, socio-economic or demographic mix of the employee population, and nature of the work or physical job requirements. Idiosyncratic sources could be based on lingering regional, racial, ethnic, and religious-based biases against homosexual or transgendered individuals due to overly liberal or extremely conservative corporate cultures, a function of the unique composition, style, or shared social or political viewpoints of the senior management

team, as per upper echelon (Hambrick & Mason, 1984) and/or strategic choice theories (Child, 1972).

As noted previously, institutional theory can explain many forces of systemic variations in the distributions of CEI scores among large employers, as different organizational forms in different industries represent different cultures (Selznick, 1957; Weick, 1967), which influence organizational behaviors, and that organizations adopt industry norms, conventions and standards to achieve legitimacy (Meyer & Rowan, 1977), which can persist.

Aside from institutional pressures, there would appear to be powerful self-interests by large employers to improve organizational cohesiveness and reduce legal exposure to workplace litigation. While the validity and reliability of recent studies that argue that adoption of LGBT-friendly policies and practices alone directly influences their respective stock price and/or financial performance (Blazovich, Cook, Huston & Strawser, 2013; Fu & Shan, 2009; Johnston & Malina, 2008; Wang & Schwarz, 2010) could be challenged – given the many other complex and confounding factors influencing such decisions – the study acknowledges that inclusiveness is mostly likely a positive force that all employers, large and small, and irrespective of business model or industry, would strive to achieve, given the overwhelming majority of studies that find benefits for employers in creating more inclusive and tolerant work environments (Eschleman & Gooden, 2010; Githens & Aragon, 2009; King & Cortina, 2010; Ragins & Cornwell, 2001; Van Hoye & Lievens, 2003; Ward & Winstanley, 2006).

## 4.2 Implications

It is reasonable to assume that given the powerful mimetic, coercive, and normative influences in institutionalization of organizational practices, all large employers are struggling with issues of equity based on sexual orientation. The results, however, suggest that organizations in industries that are nearly exclusively reliant upon human capital as a factor of production are less able to engage in overt, institutional forms of discrimination (i.e. explicit denial of employee benefits to same-sex partners) to the extent than other organizations can, as these latter organizations are less exclusively reliant upon human capital as a factor of production.

The results shed new light into how decisions about employee policies and benefit programs are influenced and shaped by the relative significance of human capital in the organizational fields, defined as "...sets of organizations, that, in the aggregate, constitute an area of institutional life," DiMaggio and Powell, 1983, p. 148, in which they operate and compete. These fields can be viewed as macro cultures (Abrahamson & Fombrun, 1992), which proscribe values and standards for social behavior. Perhaps the most significant implication is that automation can be seen as both a source institutional stability as well as explain institutional change among all types of large employers. That is, reliance upon human capital can be viewed as an accelerator of mimetic, coercive, and normative influences in the synchronization of organizational practices with emerging social values, while reliance upon non-human forms of capital can be seen as an inhibitor to organizational adaption to social environmental change.

The implications of results are that senior management teams operating in industries that are more reliant upon the social intelligence (Thorndike, 1920) – defined

as the ability to engage and interact with others – from a broad section of their employee base (i.e. not just management or senior executives) more quickly adapt to emerging social norms for greater personal freedoms and rights, given the perceived upside of establishing a fair, equitable, unbiased and merit-based culture, as well as increased perceived downside of assuming undue levels of legal, regulatory, financial, reputation, and/or operational risks from maintaining a non-inclusive, and potentially hostile, discriminatory workplaces.

Conversely, the results also suggest that organizations competing in industry categories where a greater percent of value is derived from, or embedded in, non-human forms of capital, such as automated processes, heavy machinery and/or natural resources – where employees are generally perceived as operating within the context or serving as part of automated and/or mechanized processes – believe that they are under less competitive and institutional pressures for achieving social legitimacy, and thus are slower to adopt to changes in emerging social values.

It is important to note that while these latter types of employers are nonetheless critically dependent upon the talents, capabilities and quality of their workforce, the automated nature of their core business processes in the industries they operate – which rely less on the individual performance, initiative or idiosyncratic talents of their employees, and rely more upon automated or mechanized processes (i.e. non-human production factors) – makes them less susceptible to potential discord, legal or operational risks arising from a gap or inconsistency between internal workplace policies and practices with prevailing social attitudes or values in the broader society.

As such, these social value alignment-related benefits and risks are not perceived as that critical or pertinent to their operating performance, organizational culture or social legitimacy.

Thus, the results suggest that degree of industry automation might potentially serve as a reliable predictor for the degree of organizational adaptation to social environment changes and adoption of more equitable, inclusive and socially progressive corporate cultures and working environments (as per this research study, the establishment of full parity in rights and benefits for LGBT employees).

### **4.3 Conclusion**

If the main contribution of the humanistic school was in establishing that workers are fundamentally different from their non-human production line machines, with emotional and psychological needs that influence their attitudes and thus productivity, socio-technical theory solidified the concept that workplaces represent open systems of interacting human and non-human technical sub-systems, which are influenced by external environmental forces. In order to achieve legitimacy and organizational stability in rapidly-changing environments, Emery and Trist (1965) propounded that organizations adhere to prevailing social values and norms.

The study's results suggest that managing the reciprocal interrelationships between humans and machines in the context of the broader social environment become less important to achieving gains in efficiency and productivity for more automated businesses and organizations.

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6.0 APPENDIX

Figure 1: Conceptual Model

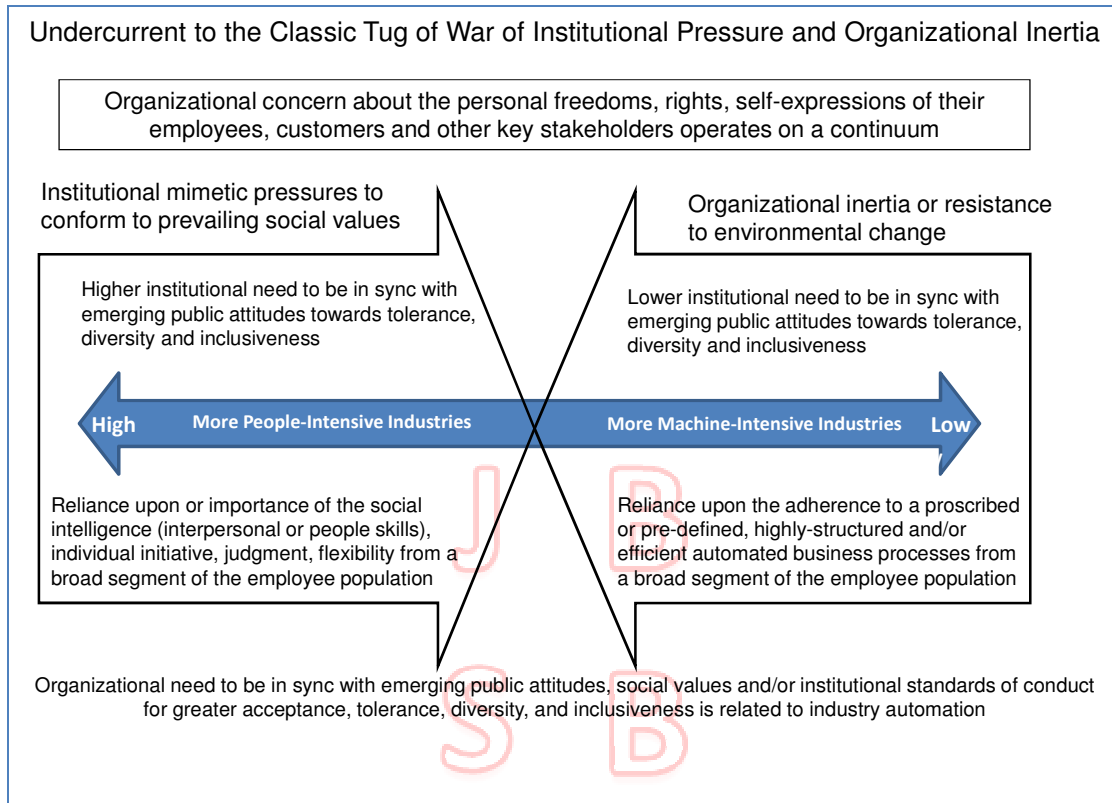


Figure 2: Research Model

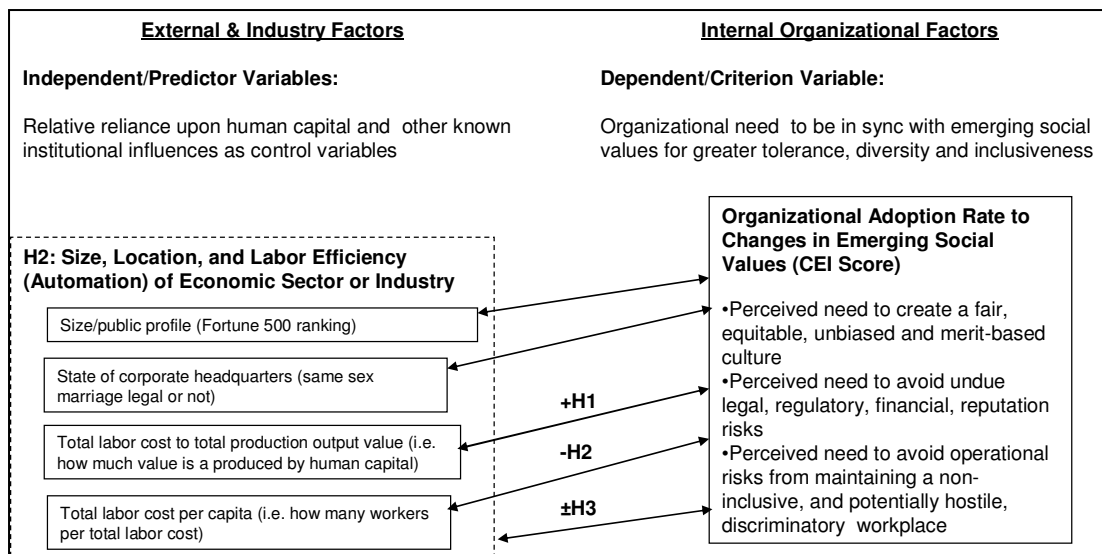


Table 1: Pearson Product Moment Correlation Results

Correlations			
	CEI Score	Fortune 500 Ranking	Same Sex Marriage State 1 = Yes; 0 = No
CEI Score	1		
Fortune 500 ranking	-.410**	1	
SS Marriage State 1 = Yes; 0 = No	.326**	-.116*	1
Industry Labor Cost per Prod Value	.114*	.074	.167**
Industry Labor Cost per Capita	-.152**	-.067	-.098*
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 2: Model Summary of the Hierarchical Multiple Regression for H3

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.410 <sup>a</sup>	0.168	0.166	34.685	0.168	97.875	1
2	.497 <sup>b</sup>	0.247	0.244	33.035	0.079	50.555	1
3	.519 <sup>c</sup>	0.27	0.265	32.565	0.023	15.055	1
4	.531 <sup>d</sup>	0.282	0.276	32.332	0.012	7.966	1
a. Predictors: (Constant), Fortune 500 ranking							
b. Predictors: (Constant), Fortune 500 ranking, SS Marriage State 1 = Yes; 0 = No							
c. Predictors: (Constant), Fortune 500 ranking, SS Marriage State 1 = Yes; 0 = No, Industry Labor Cost per Capita							
d. Predictors: (Constant), Fortune 500 ranking, SS Marriage State 1 = Yes; 0 = No, Industry Labor Cost per Capita, Industry Labor Cost per Prod Value							

Table 3: Parameter Estimates

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Fortune 500 ranking	-0.108	0.011	-0.41	-9.893	0
2	Fortune 500 ranking	-0.099	0.01	-0.377	-9.494	0
	SS Marriage State 1 = Yes; 0 = No	21.527	3.028	0.283	7.11	0
3	Fortune 500 ranking	-0.102	0.01	-0.389	-9.907	0
	SS Marriage State 1 = Yes; 0 = No	20.287	3.002	0.266	6.759	0
	Industry Labor Cost per Capita	-0.136	0.035	-0.152	-3.88	0
4	Fortune 500 ranking	-0.105	0.01	-0.401	-10.213	0
	SS Marriage State 1 = Yes; 0 = No	18.702	3.033	0.246	6.167	0
	Industry Labor Cost per Capita	-0.144	0.035	-0.161	-4.123	0
	Industry Labor Cost per Prod Value	44.709	15.841	0.111	2.822	0.005