



British Journal of Economics, Management & Trade
4(8): 1285-1305, 2014



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The Effect of Change Management on Operational Excellence in Electrical and Electronics Industry: Evidence from Malaysia

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Authors' contributions

This work was carried out in collaboration between two authors. Both authors wrote the paper, read it and approved the final manuscript.

Original Research Article

Received 27th January 2014
Accepted 9th April 2014
Published 21st April 2014

ABSTRACT

The objective of this study is to investigate the main hypothesis between change management and operational excellence. This empirical research utilizes causal studies as it attempt to ascertain the relationship between the soft systems in the change management and operational excellence. The study focuses on the soft systems (i.e. leadership, human resource, culture) in the change management. Based on the literature review, the authors develop a linkage that the change management factors are likely to contribute positively to the operational excellence of the organization. A survey of a sample of Malaysia's manufacturing leading sector, Electrical and Electronics (E&E) industry was conducted between February 2013 and June 2013. More than 100 organizations responded to the questionnaire survey. Data was analyzed using multiple regressions. The theoretical framework guided by theoretical perspectives which is the resource-based view. There was a significant and positive relationship between transformational leadership style, human resource practices and involvement cultural trait on the achievement of operational excellence. Importantly, this research finding adds value to theory building in both change management and operational management domains. The contribution to a body of knowledge in terms of promoting better understanding of the operational excellence in Malaysian E&E industry. Practical adoption of change management may improve infrastructural decision areas of manufacturing

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strategy such as benchmarking, best practices, quality practices and human resource policies. Therefore, it has implication on activities concerning organization and managing change.

Keywords: Operational management; Operational excellence; Change management; Leadership; Electrical and Electronics (E&E) industry.

1. INTRODUCTION

The rapidly changing landscape in the globalized market has put new demands on organizations. In order to stay ahead of competition, companies need to re-invent itself by injecting new ideas and strategies to achieve business excellence. Excellence can be achieved by meeting or exceeding the expectations of all stakeholders. Furthermore, pursuing excellence keeps companies on right track to achieve their goals and mission. More important, companies today face incredible pressure to continually improve the products quality while simultaneously reducing cost, remain flexible, to meet short lead time delivery, everlasting legal, environmental and social requirements. The ability to achieve these goals depends to a large extent on how the managing its resources against the ongoing changing environment [1].

Recent studies on operational excellence focused on industrial context such as security [2], oil and gas [3], and university [4]. On a contextualized perspective, the Electrical and Electronics Industry is crucial to be revealed particularly on the soft issues which have been neglected in many ways by the previous studies. This is in line with [5] stressed the failure of system implementation such as ERP is because of the lack of attention to the soft issues. Hence, the latest development on the management of change and operational excellence has evolved. The focus is on the enhancing of the customer value and ensures the sustainability (for example, [5,6]. [6] stated the departure from the status quo to a desirable state in accordance to the challenges and opportunities faced by the companies. Furthermore, the alignment is necessary in the hard and soft factors with the company strategy.

To guide organizations on their journey towards excellence, investigations have largely focused on the identification of critical variables that might better explain how organizational change can be managed to the best effect [7,8]. Therefore, this study will provide an insight in understanding the contemporary influential systems that affect business excellence, particularly excellence in operations. The influential systems may serve as pre-conditions for any companies before embarking on the management of organizational change. The influential systems could be categorized either a 'soft' or a 'hard' [9]. [9] recognised the important of soft dimension in terms of skills, staff, style, system and shared values along with structure and strategy of hard dimension. Furthermore, [10] described hard system have precise objectives that can be expressed in mathematical terms while soft systems are used in relation to human activities where there is unlikely to be agreement about the precise objectives of the system.

In discussing the operational excellence, most of the researchers and practitioners like to relate it with manufacturers. The fact is, manufacturing operation is one of the prime strategic functions in any business. Manufacturing operation whether achieves its competitive position and strategic potential or not solely depends on how it runs its business [11]. Additionally, as manufacturing firms encounter global competition and the pressure to

become global, there is a demand for firm's ability to manage its organizational resources with the desire to attain operational excellence at global level.

When review the development in the world business market such as the issues of globalization, fierce competition and technology advancements, [12] suggested that manufacturing organisations in Malaysia need to have an ability to adjust and change to survive the challenging business environment. Organizations need to have a new set of capabilities to ensure their survival and growth in the market. Managers in a firm need to build its own internal competencies to deal with organization issues, change and strategizing. Even through E&E manufacturing sector is an important contributor to Malaysia's economic with manufacturing output, exports and employment, however, Malaysian E&E industry faces significant challenges in maintaining growth with growing competition from Taiwan, Singapore, China and other Asian countries. The E&E's share of Malaysia's exports has gradually declined from 59 percent in 2000 to 41 percent in 2009 [13]. Therefore, Malaysia E&E's organizations need to have a new set of capabilities to ensure their survival and growth in the market. Managers in a firm need to build their own internal competencies to deal with organization at issues, changes and strategies.

Operational management and performance have been an issue in both academia and industry for over three decades. The literature on operational excellence is growing, but Malaysian manufacturing industry is often lacking in these discussions. In Malaysia, studies of business or organizational performance were focus mainly in Small Medium Enterprises (SMEs) and little research solely in Electrical and Electronics (E&E) manufacturing. Among the studies in Malaysia manufacturing industry included Total Quality Management (TQM) practices [14,15] and best practices [11,16]. Therefore, present study attempts to understand further of Malaysia electrical and electronics firms managing change pertaining to operational excellence. In fact, the electrical & electronics (E&E) industry is the leading sector in Malaysia's manufacturing sector, contributing significantly to the country's manufacturing output (26.94%), exports (48.7%) and employment (32.5%) [17]. Due to that, the finding of this study is important and may contribute to the country economic.

2. LITERATURE REVIEW AND THEORITICAL FRAMEWORK

2.1 Resource-based View (RBV)

The RBV is the dominant theory being used in the empirical literature on organization's internal resources or capabilities and performance. The RBV theory emphasized the use of its internal resource and its developing capability within the firm as a source of competitive advantage. Numerous of its capabilities and resources on which competitive advantage are based, live entirely in its operational function [18]. The RBV deals with the competitive environment facing the organization but takes an '*inside-out*' approach. Its starting point is the organization's *internal* environment. Thus, its internal capabilities determine the strategic choice it makes in competing in its external environment. For example, build up a high performance team for a company to remain competitive and long term success in both economic and social aspects.

On the operational excellence, RBV is found appropriate, presenting internal resources as a crucial element to gaining a sustained competitive advantage and superior performance that is the operational excellence [19,20]. The current study corresponds to the soft factors in

E&E to the operational excellence. The core competencies explain the companies' competitive success based on their competencies [21].

The resource-based view (RBV) highlights the firm as a unique collection of resources [22,23], but emphasizes that not all resources possess the potential to provide the firm with a sustained competitive advantage [24]. Previous literature on the RBV has frequently focused on resources as a stable concept that can be identified at a point in time and will endure over time [25]. RBV focus on strategic context, presenting resources and capabilities as essential to gaining a sustained competitive advantage and superior performance [20].

Furthermore, RBV points to intangible resources as the main drivers of the sustainability of performance differences across firms. In fact, such assets that are scarce, specialized and difficult to trade, imitate, or appropriate are viewed as intangible [19]. A variety of definitions have been offered when refer to these resources [26]. Therefore, the argument established in this study is focus on the managing firm's resources as determinants for operational excellence. The changes of the firm internal resource were identified through the operational excellence indicators.

2.2 Operational Excellence

According to [27], assessment of excellence is the process of evaluating an organization against a model for continuous improvement in order to highlight what has been achieved and what needs improving. European Foundation for Quality Management [28] defines excellence as "outstanding practice in managing the organization and achieving results". [29] argued that operational excellence is not just a matter of cost reduction and quality improvement, but also being smart about how to handle people and resources. It requires solid change management capability and strong leadership to become operational excellence. Operational excellence is also very much dependent on employees' empowerment, ownership and a culture of continuous improvement. Its adoption and introduction usually confronts a company with the need to change the way its employees think and act.

[30] conducted an investigation the use of business excellence in Asian organizations. Organizations in the manufacturing sector accounted for more than 40 percent of the total survey population. Even through organizations believe that deploy business excellence is important in helping them reach key objectives but the Asian region still suffers from some barriers including lack of development of a business excellence culture, a lack of resources and a failure to fully train the staff in business excellence. This study has examined the deployment of business excellence in five Asian countries (Japan, India, China, Thailand and Singapore) would be a gap undertake future study on other Asian counties which maybe at different stages of business excellence maturity.

[31] analyzed the success rate factors of company in achieving the excellence of business subjects in the Slovak Republic. The results showed that success rate factors do not lie in monetary values but in the overall functioning of the company. In other words, in de facto non-economical factors which reflect the level of innovations, employee's satisfaction, customer's satisfaction and social responsibility. Therefore, identification of correct factors of success rate serves more and more for the needs of looking for correct decision of organization. In view of this, non-economical factors of success rate, also known as non-monetary factors are substantiated for the needs of a business company. On the other hand, [32] analyzed the meaning of sustainability and its relation to excellence in an era of

management transformation, integration and evolution. They found that sustainability and excellence are two interrelated concepts. These two interrelated concepts have contributed in shifting the national, corporate and sometimes individual mentality to include the world and the society. The rapid enlargement and intensity of environmental and social consequences of the dominant global model push organizations towards an adoption of sustainability challenges and maintain their competitiveness through excellence.

[33] identified important challenges to sustaining business excellence amongst award winning companies in Australia. The challenges included strategy, leadership support, people, process, data and information and customers. [33] also suggested future research could consider different stages in the process of pursuing business excellence, for example, implementation, development, maturity and sustainability. In recent study, [34] examined factors that lead to sustained excellence whether they are “evergreen” or stayed the same over time. The eight factors included organizational design, process, strategy, technology, leadership, individuals and roles, culture, and external orientation. The finding shown that nearly 90 percent of the factors that create excellence found in studies done in and before 1995 are also found in studies done after 1995. Although the characteristics of factors may shift from time to time, however, those factor found to seem qualify as “evergreen of excellence” that are always crucial for creating and maintaining a high performance organization. In this respect, the research into factors that create excellence, as found in the earlier or recent literature, are constant over time.

In this study, results from application of operational excellence are focused operational performance and organizational sustainable performance. Operational performance reflects the performance of internal operations of a company in terms of quality improvements, flexibility improvement, delivery improvement, productivity improvement, cost and waste reduction. The organizational sustainable performance indicator measures in present study are environment performance and social performance, while the financial measures such as sales growth, profit growth, return on equity (ROE), return on assets (ROA) and gearing [35] will be ignored. In fact, many E&E manufacturing firms in Malaysia are owned by foreign investors and may listed in the their home country, thus the respondents may not be privy to the information and data related to financial performance. Although performance can be measured either as financial performance or as operational performance, operational priorities are more relevant than financial goals at the plant level [36]. It is therefore the discussed performance indicators (quality, time, flexibility, cost and sustainability) will be used to measure firm performance in achieving operational excellence. More specific, the dependent variable, operational excellence will be operationalized by quality, flexibility, speed, cost, social and environmental in present study. Moreover, managing people, technology, leadership, strategy, structure, culture and employees' involvement to change are important variables affect the operational excellence.

2.3 Evolution of Excellence

During the last 30 years, both definition and sustainability of excellence evaluations have undergone repeated changes. [37] have synthesized ‘excellence’ into five main stages and defining each excellence stage in details in literature. The synthetic conclusion of excellence is shown in Fig. 1.

Stage	Synthesized	Time	Explanations
Excellence 1.0	"Soft is important"	The early 1980s	<ul style="list-style-type: none"> Peters and Waterman (1982) reminded the world of professional managers that 'hard is soft'. In order to obtain hard results organizations need to take into account the soft side of the firm. Hard factors: system; structure; strategy; Soft factors: shared values; skills; style; staff.
Excellence 2.0	"Change"	1987	<ul style="list-style-type: none"> <i>Thriving on Chaos</i> (Peters, 1987). A new type of excellence is required: "Excellence firm don't believe in excellence – only in constant improvement and constant change".
Excellence 3.0	"Learning"	1990	<ul style="list-style-type: none"> <i>The Fifth Discipline</i> of Peter Senge (1990). Senge's analysis is at the base of a renewed interest for the concept of "learning organization".
Excellence 4.0	"Excellence models"	1990s	<ul style="list-style-type: none"> Increasing interest in "Excellence model" can be seen during the 1990s. Firms use these models to guide their efforts towards becoming "excellent" organizations.
Excellence 5.0	"Integrated development"	2000s	<ul style="list-style-type: none"> Difference schools of thought (e.g. social-technical, social-economic school) try to merge different approaches in order to better respond to management and organizational challenges, or the changing management paradigm.

Fig. 1. Synthetic Conclusion of Excellence

Source: Adapted from Hermal and Pujol (2003)

[37] further explain that the series of excellence stages proposed are only tentative and could certainly be disposed in many different ways. They just hope that the different points addressed are at the base of production debate. In authors view, operational excellence via best practices in business organizations seems to be a natural evolution going forward. As present, the term of *operational excellence* is widely used approaches to measure the business excellence either by the corporations themselves, management consultants, academicians, government authorities, etc. Furthermore, the very definition of "operational excellence" has been continuously modified to accommodate for the context of rapid changes in the global business environment.

2.4 Change Management

Due to the fact that the future and success of every organization depends on how well manager handle change [38], therefore, discussion on this research is assessing the

relationship between change management and operational excellence. In addition, the integration of soft systems to predict operational excellence may not have a profound understanding by both academic and practitioners. This paper focuses on the soft systems in the E&E industry.

In the past organizational changes processes, many organizations only focus their efforts on hard factors. However, [9] argued that most successful companies work hard at the soft factors. Indeed, the soft factors can make or break a successful change process simply because we cannot impose hard systems on the organization without considering the effect on people [10]. With this approach, the researcher attempts to integrate the 'soft' elements under the Management of Change (MOC). Based on literature review, three soft elements were identified in this study were included leadership style, human resource and organizational culture.

2.4.1 Leadership style

Leadership is the other key component of successful change. Leadership is the first criterion of the European Foundation for Quality Management (EFQM) Excellence Model, a model of organizational excellence which is used by more than 30,000 organizations across Europe [39]. While change management depends on leadership to be enacted, specifically, the leadership style that is primarily concerned with the capabilities required enacts change successfully [40,41]. Recent study by [42] further addressed the importance of success in enacting change is a crucial issue faced by today's organizational leaders of today. Indeed, most of the research on the leadership paradigms has focussed on its relationship to followers [43,44]; the success of TQM programs [45]; organizational outcomes such as team performance [46,47] and financial performance [41]. Based on researchers' knowledge, there were limited literatures done on leadership styles and its impact on operational excellence in manufacturing industry, especially in the Malaysian setting.

Leadership has been recognized as a major factor on organization success and this has been empirically validated throughout many fields. However, a leadership style in the context of change management and its impact on operational excellence in manufacturing industry has not been as widely researched. Moreover, a transformational style of leadership is perceived can produce positive organizational change and create exceptional performance than transactional and laissez-faire leadership [40,48,49]. In the present study, we are interested in examining the positive impact of transformational leadership style on operational excellence. Hence, the researchers offer the following statement of hypotheses:

H₁: The inclination towards the transformational leadership style leads to achieving operational excellence.

2.4.2 Human resource

Any change program would revolve around people, changing their mind set, behaviour and motivational level. Human resource has always been central to organizations, to-day it has taken on an even more central role in building a firm's competitive advantage. Success increasingly depends on "people-embodied know-how". Thus, includes the knowledge, skills, and abilities imbedded in an organization's member. [38] argued that Human Resource is an intellectual asset, the sum total of the knowledge, skills and competencies that an organization processes and channelizes for sustained organizational excellence. Excellence

is surpassing on outstanding achievement, achievable by the use of Human resource strategies and practices as tool.

[50] suggested the future role of the Human resource function should focus on helping their organization to learn how to build a capability to change. In authors view, the human resource practices are Human resource tools use by organization to achieve excellence. It helps to develop human capabilities and organizational competencies to achieve success. However, very little attention has been paid to address the impact of managing human resource change on operational excellence. The universal use of Human resource practices such as recruitment and selection, training and development, performance appraisal and compensation and benefits [38,51,52,53] could be explored in present study to predict operational excellence. New knowledge generate from this study could inform theory building efforts in the Human resource field, particularly as it related to human resource-based view to meaningful organization outcomes and in due course excellence. Therefore, we hypothesize that human resource practices lead to positive impact to operational excellence.

H₂: Effectiveness of human resource practices leads to an impact on achievement of operational excellence.

2.4.3 Organizational culture

Operational excellence is an enterprise culture that improves the way a corporation delivers products and services to its customers. Operational excellence calls for more than subject matter expertise and a talented internal team. It requires a deep commitment and a culture of change. Changing to a culture of continuous improvement usually requires a paradigm shift. This change requires taking risks, opening up the firm culture and a great capacity to learn [54]. [55] suggested that a link between corporate culture traits such as consistency, mission, involvement, and adaptability and business performance exists. These four different aspects of culture can be stressed by different functions. Its *consistency* and *mission* either tend or to encourage or promote stability. However, the *involvement* and *adaptability* allow for change. Furthermore, consistency and involvement see culture as focusing viewpoint on internal dynamic of the organization. It mission and adaptability see culture as a way of life in addressing the relation between the organization and its external environment.

The present study embraces on managing change and focus on internal organization, therefore, the *involvement trait* (Internal Focus) is the best dimension to evaluate its effecting desired change within organization [55,56]. This trait is measured by the three indices namely empowerment, team orientation and capability development. In addition, [57] found empirical support for the involvement view of culture, higher levels of employee participation were correlated with better organizational performance. Whilst organizational culture has been researched worldwide, little research has been done in Malaysia, with its unique culture and concentrated business environment. This leads to the following hypothesis:

H₃: Higher levels of individual involvement cultural trait leads to an impact on operational excellence

Overall, literatures indicate that firm managing change is vital in ensuring competitive advantage to the firms [58]. In essence, effective approaches in organizational change will involve not only one system but also have to understand other relevant systems of entire organization. Moreover, change management and these soft systems have not being

integrated in any research which develop new knowledge in the study of operational excellence. Integrating change management maturity with associated soft systems in order to remain competitive, is absent in most Operational Excellence initiatives.

2.5 Hypotheses and the Research Model

Based on the previous literature, three hypotheses were proposed. The relationship among the various factors discussed in this literature is depicted in a framework as shown by Fig. 2 below. Based on the literated syntheses, the authors develops a linkage that the change management systems are likely to have impact on operational excellence of the organization only in situations where change management practices are implemented.

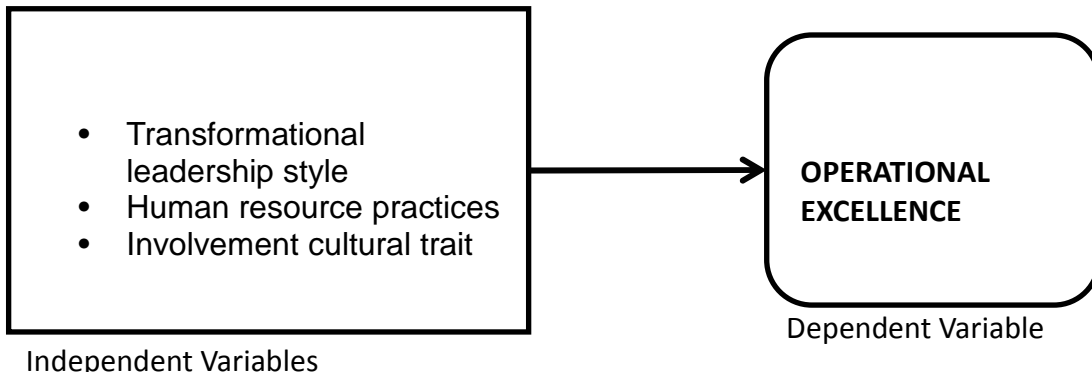


Fig. 2. Theoretical framework

3. RESEARCH METHODOLOGY

3.1 Population and Sample Size

The nature of the problem in this study determines that it leans more towards a causal. The main goal of causal research is to identify cause-and-effect relationship among variable [59]. The literature review was carried-out in sufficient details to provide the understanding on the change management and operational excellence. The researchers also investigated how the previous studies done in order to study the relationship of both change management and operational excellence. Therefore, the researchers believed that it is appropriate to consider the manager who involved in the manufacturing operations to give inputs on the subject matter. In this context, samples of the population are drawn from the FMM-MATRADE Industry Directory Electrical and Electronics Malaysia 2007/08 [60] and Federation of Malaysian Manufacturers (FMM) Industry Directory 2012 of Malaysian Manufacturers [61]. The sampling frame of this study is the manufacturing companies from electrical and electronics industry situated in Malaysia. By using systematic random sampling method, 321 firms were identified from population of 1952 firms. All questionnaires were distributed to the respondents using postal mail. The unit of analysis for this study was organizational where one respondent represent one organization. Between February 2013 and June 2013, a total of 121 usable questionnaires were obtained which yielding a response rate of 37.7 percent. Therefore, the response rate was normal and acceptable as compared with past studies in Malaysia.

3.2 Instrument Development and Measurement

The survey questionnaire was developed based on early studies [35,55,57,62,63,64,65,66]. The Table 1 summarizes the reliability test of the measures. The results showed that all the Cronbach's Alphas measures were above the lower limit of acceptance ($\alpha > .70$). Therefore, all the measures were highly reliable [67].

Table 1. Summary of variable measurement

Variables Names	Cronbach's Alpha	N of Items	Authors
Operational excellence	.942	23	Laugen et al. (2005); 31* Hubbard (2009); Kurupparachchi & Perera (2010).
Transformational leadership style	.915	12	Bass & Avolio (1992).
Human resource practices	.843	12	Snell & Dean (1992)
Involvement cultural trait	.772	9	Denison et al. (2003); You, et al. (2010).

In a Likert scale, each respondent will be asked to indicate the extent of each statement on a five-point. The options given in the questionnaires for Section A are "strongly disagree (1)"; "disagree (2)"; "Neutral (3)"; "agree (4)" and finally "strongly agree (5)". For Section B, respondents are requested to rank their answers to 5-points Likert-type interval scale, ranging from 1 for "worst in industry (1)"; 2 for "bad in industry"; 3 for "average in industry"; 4 for "good in industry" and 5 for "best in industry". Thus, researchers were able to solicit answers about the given statement through a set of response keys.

3.3 Respondent's Profile

3.3.1 Profile of the respondent companies

The E&E industry is further breakdown to four sub-sectors which included (1) consumer electronics (2) electronic components (3) industry electronics and (4) electrical products [16]. As presented in Table 2, the majority of the manufacturing firms that responded to the survey were under the electronic component sector which comprised 43.8 percent of the number of respondents, followed by those in industrial electronics (24.8%), consumer electronics (15.7%) and electrical products (15.7%).

Table 2. Respondents by sub-sector

Sub-sector	Frequency	Percent	Valid Percent	Cumulative Percent
Electronic components	53	43.8	43.8	43.8
Industrial electronics	30	24.8	24.8	68.6
Consumer electronics	19	15.7	15.7	84.3
Electrical products	19	15.7	15.7	100.0
Total	121	100.0	100.0	

3.3.2 Profile of the respondents

For ease of understanding is a tabulation of the profiles of the respondents as per Table 3. In terms of gender, the majority of the respondents were male which comprised of 71.9 percent as compared to their counterparts at 28.1 percent. Generally, 45.5 percent of the respondents are from the age between 36 and 45 followed by age above 46 (34.7%), then age between 18 and 35 with a response if 19.8 percent. This showed that majority of the questionnaire were answered by the middle and senior management from manufacturing companies. Most of the respondents (33.1%) have less than 5 year's tenure employment to their current companies. In contrast, 31.4 percent of the respondents have more than 16 years attaching to their current companies. The remaining respondents were between 6 to 10 years are 21.5 percent and between 11 to 15 years are 4.0 percent respectively. Almost half of the questionnaires are answered by the managers (44.6%). Other respondents, which represent 19.0 percent of senior executive or senior engineer, 5.8 percent of section head and assistant manager respectively, 14.0 percent of senior manager, 6.6 percent of directors, 4.1 percent of director and of professional. The professional group includes Consultants and Advisors. The results imply that majority of the E&E manufacturing companies have followed the requirements as stated in the cover letter which attached with the questionnaire.

Table 3. Profile of the respondents

Characteristics		Frequency (n = 121)	Percent (Total 100%)
Gender:	Male	87	71.9
	Female	34	28.1
Age:	Between 18 to 35 years	24	19.8
	Between 36 to 45 years	55	45.5
	Above 46 years	42	34.7
Number of years working in this company:	Less than 5 years	40	33.1
	Between 6 to 10 years	26	21.5
	Between 11 to 15 years	17	14.0
	More than 16 years	38	31.4
Position held:	Senior Executive / Senior Engineer	23	19.0
	Section head	7	5.8
	Assistant Manager	7	5.8
	Manager	54	44.6
	Senior manager	17	14.0
	Director	8	6.6
	Professional	5	4.1

3.4 Factor Analysis

The factor analysis was based on principal component analysis (PCA) with Varimax rotation for all components. In determining the factorability of the dimensions, the Bartlett's test of Sphericity had to be significant and the Kaiser-Meyer-Olkin (KMO) Measure of sampling adequacy had to be more than 0.50 in order to be acceptable [67]. The following Table 4 shows the results of all variables. The Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy from 0.692 to 0.906 which all above 0.5 acceptable level [68]. All results indicate

that factor analysis can be conducted on the data [62,69]. Moreover, there is a sufficient correlation among the analyzed items when Bartlett's test was significant (Sig.0.000).

Table 4. KMO and Bartlett's test

		OPX	TLS	HRP	ICT
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.881	.906	.797	.692
Bartlett's Test of Sphericity	Approx. Chi-Square	1590.599	757.645	555.269	410.166
	Df	190	66	66	36
	Sig.	.000	.000	.000	.000

OPX=Operational excellence; TLS= Transformational leadership style; HRP= Human resource practices; ICT=Involvement cultural trait

3.5 Data Analysis

The data analysis tools such as Statistical Package for Social Science (SPSS) software will be used to process the data obtained from this survey. Responses on all parts of the questionnaire will be analyzed using frequency, means, standard deviations, reliability, and inter correlations to calculate different characteristics of the data. Factor and reliability analyses to test the goodness of measures, descriptive statistics to describe the characteristic of respondents and correlation analysis to describe the inter correlation among the variables. Moreover, multiple regression analysis was used to achieve the objective with testing the hypothesis.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

The means and standard deviations of each variable were shown in Table 5. The results of Pearson's correlation test for independent variables and dependent variable was shown in Table 6. This result revealed that all the independent variables and dependent variable were positive and significant at a level of 99 percent. The strength of relationship varies from lowest at 0.561 and to the highest at 0.639. These findings support the notion that change management systems as predictor variables had a positive correlation and linear with operational excellence. On the other hand, the correlation was also further evidence of validity and reliability of the measurement scales used in this study.

Table 5. Means and standard deviations

	N	Mean	Std. Deviation
Transformational leadership style	121	3.6515	.56765
Human resource practices	121	3.7576	.48233
Involvement cultural trait	121	3.7530	.41857
Operational excellence	121	3.7373	.48899

Table 6. Pearson's correlation test for independent variables and dependent variable

	Transformational leadership style	Human resource practices	Involvement cultural trait	Operational excellence
Transformational leadership style	1			
Human resource practices	.586**	1		
Involvement cultural trait	.561**	.586**	1	
Operational excellence	.616**	.639**	.563**	1

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

4.2 Testing of Hypotheses

In order to measure the combined effect of all the soft systems in the change management towards operational excellence, the analysis of multiple regressions was performed on the variables in question. Refer to Table 7, results from the analysis of multiple regression show that among soft systems of change management which were proposed to have a significant relationship with operational excellence, all of them namely transformational leadership, human resource practices and involvement cultural trait were significantly supported.

Table 7. Results of multiple regression analysis of change management and operational excellence

Variable	Coefficient			Model Summary
	B	T	Sig.	
Transformational leadership style	.296	4.160	.000*	R square: .505
Human resource practices	.323	3.832	.000*	Adjusted R square: .493
Involvement cultural trait	.211	2.101	.038*	F: 39.839, P < .000 df1: 3, df2: 117 Durbin-Watson: 1.996

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

All the soft systems were found to have positive and significant ($p < 0.05$) relationship toward operational excellence. This statistical result suggested that a human resource practices, with Beta value of .323 has the strongest effect (most important) on operational excellence in this study, follow by transformational leadership style (important), with Beta value of .296. Organizational culture has least important, with Beta value of .211 to produce sufficient support of significance in its relationship towards operational excellence.

In *Model Summary* at Table 7, the adjusted R Square (.505), which is explained the change management (composite independent variables) accounted 50.5 percent of the variance (R squared) in operational excellence (dependent variable). According to [70], R Square between the range of 1.0 to 5.9 percent is consider as small size, follow by the moderate range between 5.9 to 13.8 and range which is above 13.8 percent is consider large. In the

result of multiple regression analysis, the R Square, .505 means 50.5 percent consider large effect. Therefore, the results explain that is 50.5 percent of the variance (R Square) in operational excellence has been significantly explained by the three independent variables under change management.

4.3 Discussions

This paper is focused on linking between the change management to operational excellence within E&E companies of Malaysia. Furthermore, the paper organises the burgeoning change management literature soft systems, which are transformational leadership, human resource and organizational culture. The purpose of this study is to give an increased understanding of the operational excellence in Malaysian manufacturing industry and its implication on activities concerning organisation and managing change.

The respondents were top managers and those identified as responsible in running the companies which closely linked to manufacturing operations including General Manager, Operation Manager, Factory Manager, Production Manager, Engineering Manager, Manufacturing Manager, Planning Manager, Materials Manager, Lean Manager and Project Manager (involve in Change Management or Continuous Improvement programs). So this study cannot be used to represent the operational of others industry because the effect of change management to operational excellence could be different.

Responding to the hypotheses, this study found all three soft systems of change management have effect on the achievement of the company's operational excellence. In respond to the findings, *transformational leadership style*, *human resource practices* and *involvement cultural trait* were found to have an effect on the achievement of operational excellence for Malaysian E&E manufacturing companies. The hypotheses were positive and significant and thereby confirmed.

This study has provided evidence that transformational leadership style have a significant positive effect on operational excellence. The hypothesis, H_1 accepted is not surprising because strong theoretical and practical support transformational leadership is enacting change successful. Present study also concur with the findings of past study by [48,49] who claimed that the transformational leadership style can produce positive organizational change and create exceptional performance. Furthermore, transformational leadership is directly correlation to long-term high performance [71], therefore, towards business sustainability.

This study adds another perspective into the earlier findings conducted in Malaysia, [41] found that the transformational type of leaders will give impact to company performance if best practices management takes place. Under these argument, transformational leader who promote the adoption of best practices leads to superior performance. This finding is consistent with the results from prior studies [11,16,62,72] on companies that adopted best practices showed better operation performance. In this study, the effect of transformational leadership style on achieving operational excellence is supported. In other word, lower and middle management of Malaysian E&E manufacturing companies perceived their top management use transformational leadership style in pursuing excellence.

The statistical result also revealed that the human resource practices have effect on operational excellence of Malaysia E&E manufacturing companies in this study. Therefore, the hypothesis, H_2 is fully supported. This finding is consistent with earlier studies by [38]

who argue human resource is an intellectual asset that channelizes for sustained organizational excellence and has a positive effect on the firm's performance [73]. This study also support past studies that the human resource practices included recruitment and selection, training and development, performance appraisal and compensation and benefits, are human resource tools use by organization to achieve excellence [38,51,52,53].

The aforementioned results have also provided the required empirical support that influence of human resource practices indicating positive and significant relationship on organizational performance in the area of research for the past 25 years [74]. The finding of present study provides empirical evidence again on the role of human resource practices on the achievement of operational excellence. Obviously, the human resource has taken into account as a crucial factor in E&E organizations to develop internal capabilities for better fit with changing environment.

The result indicates that the involvement cultural trait, H_3 does significantly have impact in achieving operational excellence. The involvement cultural trait comprises of empowerment, team orientation and capability development did played a major role in the effectiveness of operational excellence in E&E firms. This finding appears to be consistent with previous study that argued involvement as the most important dimension of culture for firms whose focus was employee satisfaction and overall performance [75]. Past studies by [76] stated that organizational culture is a key foundation for the high-performance work practices and employee involvement such as teamwork, capability development and empowerment positively influence outcomes measures. For example, high performing firms motivate their employees to achieve superior results by making decisions at the lower level. In addition, high performing firms have organizational structure based on teams, therefore they encourage teamwork. Moreover, these firms continually invest in improving their employees' skills. Hence, the high levels of employee involvement in the company's activities did play an important and integrated role in achieving operational performance outcomes.

The success of organization lies on how well the employees are empowered to take decisions through building their capabilities and harnessing their skills. Indeed, an organization with a high level of employee involvement will develop the employees' capability at all levels and create a sense of ownership, responsibility and loyalty toward their organization. Another plausible reason of significant relationship between involvement cultural trait and operational excellence was in the way the culture trait was measured. Past research showed that internally focus traits involvement is generally better predictors of operating performance measures such as quality, flexibility, employee satisfaction [57,77] and change [56]. The finding of present study pointed to high involvement of employees as relatively important influential culture traits in determining operational excellence in the context of the Malaysia E&E industry.

Furthermore, present study supports resource-based view (RBV) theories. The RBV on inimitable recourses and dynamic capabilities suggest that organizational should have their own competence according to knowledge resources. These competencies must be rare and unique. Moreover, researchers also found many of resources and capabilities on which competitive advantage is based reside in the operations function [18]. Firstly, RBV may assist operations reach up to the leadership of excellence. Secondly, RBV helps to providing clear rules to develop and train human resource and retain talents in a systematic manner. Thirdly, the involvement cultural trait that is originated from organizational culture is unique and hard to imitate by any rival firms. Thus, the argument established in this study was transformational leadership style, human resource practices and involvement cultural trait.

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

5.1 Summary of Finding

This study is on the relationship among the change management and operational excellence. The multiple regression results revealed that the transformational leadership style, human resource practices and involvement cultural trait statistically significantly and positive relation with the achievement of operational excellence. Approaches to theory uses, this study utilize resource-based view.

5.2 Limitation and Directions for Future Research

The conclusions drawn from present study should be interpreted in a limited way, which would potentially represent opportunities for further exploration in future research. First, this study is a cross sectional study, as it is carried out once and represents the issue at a specific time. Therefore, future study may look into a longitudinal study in order to expand the findings that are pre-changes and post-changes. Second, this study used the Electrical and Electronics (E&E) manufacturing firms that have high foreign ownership but also many restrictions in responding to the study. It is suggested that using Malaysian local owned firms like small-medium enterprise (SME) or small-medium industry (SMI) may add more insight. In addition, future study in service industry will add richness to the area of interest. Third, this study had proven the important of few change management systems in affecting the achievement of operational excellence. In contrast, further studies could focus on others systems or dimensions which have been excluded in this study. Fourth, future study can also investigate the change management due to external environment. Perhaps it will be able to provide a new insight on how firm react to external force and also improve the operational performance.

5.3 Implication and Conclusion

An evident in the data analysis findings above, this study has provided several contributions to practice, methodology and theory. The practical implications for E&E manufacturing organization is success in change initiatives depends on proper integration of transformational leadership style, human resource practices and involvement cultural trait. Hence, management is advised to establish policy, systems and process that integrate three soft systems in their planning and strategic direction. On the other hand, the finding is hoped to provide the managers with the insight in order to assist them to identify the appropriate operational excellence model based on organizational needs. As for methodology contribution, this study was add-on sustainability performance metrics (non-economic measure) on top of the conventional performance metrics (economic measure) in a composite performance index by averaging scores across the six performance indicators. Since sustainability is very important aspects of today business environment [35,78], therefore, this methodology can be validated in future research to measure operational excellence or business excellence. The new measurement method in this study could fill up the perceived performance gaps by merging both economic and non-economic measures. From the theoretical perspective, it is discovered the originality in terms of the model to reflects a growing interest in extending operational management paradigms to emerging in developing country context, particularly on the knowledge on the insight of change management and operational excellence. In contrast to most previous studies identified each of system separately, this paper will be among the first few studies that examine the soft

systems of change management to predict operational excellence. The integration of soft systems in this study has developed new knowledge that could assist theory building efforts particularly in the operation management field and organizational change management. The researcher might use the findings for further research.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Dungan KJ. Design for Operational Excellence: A Breakthrough Strategy for Business Growth; 2011. Accessed 3 March 2012.
Available: <http://books.google.com.my/books>
2. Yilmaz S, Ozgen H, Akyel R. The impact of change management on the attitudes of Turkish security managers towards change. *Journal of Organizational Change Management*. 2013;26(1):117-138.
3. Sudarmo. Influence of business principles, organizational culture, fundamental safe work practices, operational excellence expectations and corporate commitment to the tenets of corporate operations and corporate performance: Oil and gas Chevron Indonesia. *Journal of Accounting-Business & Management*. 2013;20(1):71-90.
4. Samuel K. The effect of change management in an organisation: A case study of National University of Rwanda (NUR). *Wyno Journal of Management & Business Studies*. 2013;1(1):1-18.
5. Al-Ghamdi AA. Change management Strategies and Processes for the successful ERP System Implementation: A Proposed Model. *International Journal of Computer Science and Information Security*. 2013;11(2):36-41.
6. Hurn BJ. Management of Change in a multinational company. *Industrial and Commercial Training*. 2012;44(1):41-46.
7. Kanter RM, Stein BA, Jick JD. *The Challenge of Organisational Change: How Companies Experience It and Leaders Guide It*. Free Press, New York, NY; 1992.
8. Saka A. Internal change agent's view of the management of change problem. *Journal of Organizational Change Management*. 2002;16(5):480-496.
9. Peters TJ, Waterman RH. In *Search of Excellence: Lessons from America's Best Run Companies*, 1st ed., Harper & Row, New York, NY; 1982.
10. Kirk D. Hard and soft systems: a common paradigm for operations management. *International Journal of Contemporary Hospitality Management*. 1995;7(5):13-16.
11. Yusuff RM. Manufacturing best practices of the electrical and electronic firms in Malaysia. *Benchmarking. An International Journal*. 2004;11:361-369.
12. Mokhtar SSM, Yusoff RZ. Exploring the relationship of Key Strategic Orientation towards Sustainable Organizational Performance. *International Journal of Business and Management Science*. 2009;2(1):79-87.
13. ETP (Economic Transformation Programme) Annual Report 2011. Accessed 15 January 2013.
Available: http://etp.pemandu.gov.my/annualreport2011/12_National_Key_Economic_Areas-@-Electrical-%e2%97%98-Electronics.aspx

14. Arumugam V, Ooi KB, Fong TC. TQM practices and quality management performance: An investigation of their relationship using data from ISO 9001:2000 firms in Malaysia. *The TQM Magazine*. 2008;20(6):636-650.
15. Abdullah MMB, Uli J, Tari JJ. The influence of soft factors on quality improvement and performance: Perceptions from managers. *The TQM Journal*. 2008;20(5):436-452.
16. Anuar A, Yusuff RM. Manufacturing best practices in Malaysia small and medium enterprise (SMEs). *Benchmarking: An International Journal*. 2011;18(3):324-341.
17. MIDA (Malaysian Investment Development Authority) 2012. Accessed 21 November 2012. Available: <http://1web.mida.gov.my/env3/index.php?page=ee>
18. Lucas MT, Kirillova OM. Reconciling the resource-based and competitive positioning perspectives on manufacturing flexibility. *Journal of Manufacturing Technology Management*. 2011;22(2):189-203.
19. Barney JB. Resource-based theories of competitive advantage: a ten year retrospective on the resource-based view. *Journal of Management*. 2001;27(6):643-650.
20. Ferreira J, Azevedo S. Entrepreneurial orientation as a main resource and capability on small firm's growth, Munich Personal RePEc Archive. 2007;5682:1-20.
21. Ritter T, Gemunden HG. The impact of a company's business strategy on its technological competence, network competence and innovation success. *Journal of Business Research*. 2004;57:548-556.
22. Barney JB. Firm resources and sustained competitive advantage. *Journal of Management*. 1991;17(1):99-120.
23. Wernerfelt B. A resource-based view of the firm. *Strategic Management Journal*. 1984;5:171-180.
24. Clulow V. The resource based-view and value: The customer-based view of the firm. *Journal of European Industrial Training*. 2007;31(1):19-35.
25. Wright PM, Dunford BB, Snell SA. Human Resources and the Resource Based View of the Firm. *Journal of Management*. 2003;27:701-721.
26. Villalonga B. Intangible resource, Tobin's q , and sustainability of performance differences. *Journal of Economic behaviour & Organization*. 2004;54:205-230.
27. Hillman GP. Making self assessment successful. *The TQM Magazine*. 1994;6(3):29-31.
28. EFQM (European Foundation for Quality Management). *The Excellence Model, EFQM, Brussels; 1999.*
29. Van Assen MF. *Operational Excellence for Services*. Center of operational excellence; 2011. Accessed 29 February 2012.
Available: <http://www.vanassen.info/wp-content/uploads/Position-paper-Operational-Excellence-for-Services.pdf>
30. Mann R, Adebajo D, Tickle M. Deployment of business excellence in Asia: an exploratory study. *Deployment of business excellence in Asia: an exploratory study*. *International Journal of Quality & Reliability Management*. 2011;28(6):604-627.
31. Jankalova M. Conceptions Based on Definition of Business Factors of Successfulness for the Support of Reaching the Excellence of Enterprise Subjects. *Procedia - Social and Behavioral Sciences*. 2012;81:531-535.
32. Anninos & Chytiris. The sustainable management vision for excellence: implications for business education. *The International Journal of Quality and Service Science*. 2012;4(1):61-75.

33. Brown A. Managing Challenges in Sustaining Business Excellence. *International Journal of Quality & Reliability Management*. 2012;30(4):461-475.
34. Waal AA. Evergreens of excellence. *Journal of Management History*. 2013;19(2):241-278.
35. Hubbard G. Managing Organizational Performance: Beyond the Triple Bottom Line. *Business Strategy and the Environment*. 2009;19:177-191.
36. Brown S, Squire B, Blackmon K. The contribution of manufacturing strategy involvement and alignment to world-class manufacturing performance. *International Journal of Operations & Production Management*. 2007;27(3):282-302.
37. Hermal P, Pujol FR. An evolution of excellence some main trends. *The TQM Magazine*. 2003;15(4):230-243.
38. Kalyani M, Sahoo MP. Human Resource Strategy: A Tool of Managing Change for Organizational Excellence. *International Journal of Business and Management*. 2011;6(8):280-286.
39. EFQM (European Foundation for Quality Management). *The Excellence Model, EFQM, Brussels*; 2010.
40. Burke WW, Church AH. Managing Change, Leadership Style and Intolerance to Ambiguity: A Survey of Organization Development Practitioners. *Human Resource Management*. 1993;31(4):301-318.
41. Idris F, Ali KAM. The impacts of leadership style and best practices on company performances: Empirical evidence from business firms in Malaysia. *Total Quality Management*. 2008;19(1-2):163-171.
42. Abrihem TH. Managing Transformation and Change for the Business Leader. *Business and Management Review*. 2013;3(2):14-22.
43. Burns JM. *Leadership*. New York: Harper and Row; 1978.
44. Shin SJ, Zhou J. Transformational leadership, conservation, and creativity: Evidence from Korea. *Academy of Management Journal*. 2003;46(6):703-714.
45. Choi TY, Behling OC. Top managers and TQM success: one more look after all these years. *Academy of Management Executives*. 1997;11(1):37-47.
46. Sauer SJ. Taking the Reins: The Effects of New Leader Status and Leadership Style on Team Performance. *Journal of Applied Psychology*. 2011;96(3):574-587.
47. Mannheim B, Halamish H. Transformational leadership as related to team outcomes and contextual moderation. *Leadership & Organization Development Journal*. 2008;29(7):617-630.
48. Bass BM. *Leadership and performance beyond expectations*, New York: Free Press; 1985.
49. Boehnke K, Bontis N, DiStefano JJ, DiStefano AC. Transformational leadership: an examination of cross-national differences and similarities. *Leadership & Organization Development Journal*. 2003;24(1):5-15.
50. Court T. How the HR function can build the capacity to change. *Development and Learning in Organizations*. 2011;25(1):16-18.
51. Ferguson KL, Reio Jr TG. Human Resource Management Systems and Firm Performance. *Journal of Management Development*. 2009;29(5):471-494.
52. Gurbuz S, Mert IS. Impact of the Strategic Human resource Management on Organizational Performance: Evidence from Turkey. *The International Journal of Human resource Management*. 2011;22(8):1803-1822.

53. Dimba AD. Strategic Human Resource Management Practices: Effect on Performance. *African Journal of Economic and Management Studies*. 2010;1(2):128-137.
54. Markovic MR. Managing the organizational Change and Culture in the Age of Globalization. *Journal of Business Economics and Management*. 2008;9(1):3-11.
55. You CLK, Coulthard M, Petkovic-Lazarevic S. Changing Corporate Culture to Improve Business Performance: Case of the Australian. *Journal of Global Strategic Management*. 2010;7:53-63.
56. Denison DR, Haaland S, Goelzer P. Corporate culture and organizational effectiveness: is there a similar pattern around the world? *Advances in Global Leadership*. 2003;3(2):205-227.
57. Denison DR. *Corporate Culture and Organizational Effectiveness*. New York, John Wiley & Sons; 1990.
58. Kotter JP. Leading change why transformation efforts fail. *Harvard Business Review*. 2007;85(1):96-103.
59. Zikmund WG. *Business research methods (7th ed.)*. Ohio: Thomson South Western; 2003.
60. FMM. *FMM-MATRADE industry directory electrical and electronics Malaysia 2007/08 (3rd ed.)*. Kuala Lumpur: Federal of Malaysian Manufacturers (FMM); 2008.
61. FMM. *Directory of Malaysian Industries*. Federation of Malaysian Manufacturers (FMM); 2012.
62. Laugen BT, Acur N, Boer H, Frick J. Best manufacturing practices: What do the best performing companies do? *International Journal of Operation & Production Management*. 2005;25:131-150.
63. Kurupparachchi D, Perera HSC. Impact of TQM and Technology Management on Operations Performance. *The IUP Journal of Operations Management*. 2010;15(3):23-47.
64. Nahm AY, Vonderembse MA, Koufteros XA. The Impact of Organizational Structure on Time-based Manufacturing and Plant Performance, *Journal of Operations Management*. 2003;21:281-306.
65. Bass BM, Avolio BJ. *Multifactor Leadership Questionnaire-Short form 6S*. Binghamton, NY: Center for Leadership Studies; 1992.
66. Snell SA, Dean Jr JW. Integrated Manufacturing and Human Resource Management: A Human Capital Perspective. *Academy of Management Journal*. 1992;35:467-504.
67. Hair JF, Black B, Babin B, Anderson RE. *Multivariate Data Analysis: A Global Perspective, Seven Edition*, Pearson; 2010.
68. Igbaria M, Iivari J, Maragahh H. Why do individuals use computer technology? A Finnish case study. *Information & Management*. 1995;29:227-238.
69. Coakes SJ, Steed LG. *SPSS: analysis without anguish: version 11.0 for Windows*. Brisbane: Jacaranda Wiley; 2003.
70. Cohen JW. *Statistical Power Analysis for the Behavioral Sciences (2nd ed.)*. New Year. Erlbaum; 1998.
71. Bass BM, Riggio RE. *Transformational leadership*. New Jersey: Lawrence Erlbaum Associates; 2006.
72. Voss CA. Alternative paradigms for manufacturing strategy. *International Journal of Operations & Production Management*. 1995a;15(4):5-16.
73. Otterlo RCH. Does human resource management help a company's financial result? *Journal of Service Science and Management*. 2013;6:273-282.

74. Qureshi MT, Hijazi TS, Ramay IM. Impact of Human Resource Management Practices on Pakistani organizations. *J. Bus. Policy. Res.* 2007;3(2):128-138.
75. Nasir and Lone. *VISION. The Journal of Business Perspective.* 2008;12(11).
76. Gupta V. Cultural basis of high performance organizations. *International Journal of Commerce and Management.* 2011;21(3):221-240.
77. Denison DR, Mishra A. Towards a Theory of Organisational Culture and Effectiveness. *Organisational Science.* 1995;6(2):204-223.
78. Muogboh OS, Salami A. A New Perspective on the Manufacturing Strategy: Performance Relationship. *International Journal of Business Research.* 2009;9(3):114-126.

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