

# Measurement of Employee Well-being as a Resource of an Economic Entity: Towards a Comprehensive Measurement Framework

Ahamed Roshan Ajward

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## 1. Introduction and Background

The conceptualization that the *employees* of an organization are *assets* dates back to 1960s (Ortiz, 2006). Hermanson (1964) used the term *human asset accounting* attempting to measure the value of the workers of an entity and incorporate that value to financial statements. The objection that human assets are *not owned by the organizations* was rejected by Hermanson (1964). More recently, Roslender, Stevenson, & Kahn (2006) argue that employee *wellness* as defined as a fit and healthy workforce is a very valuable *organizational asset* and employee wellness can be conceptualized in terms of *primary intellectual capital*. Moreover, in an organizational behavior point of view, the positive relationships between forms of well-being and work performance of employees also has received considerable attention from past to present (Wright & Cropanzano, 2004). This is commonly referred a *happy-productive worker thesis* and represents one of the key characteristics of an intangible asset that has the nature of a resource and absence of physical nature. Further, it has been observed that the concept of well-being and *measurement of this construct* has intrigued researchers for a long period of time (see Samman, 2007; Page & Vella-Broadrick, 2009). However, a thorough investigation on the related literature reveals that there is no

comprehensive scorecard type of measure yet developed to capture this *overall employee well-being* construct. Specifically it is noted that the accounting literature lack conceptualization and measurement of employee well-being and hence this study draws its attention on organizational study discipline to supplement it. Many researchers (Page & Vella-Broadrick, 2009; Wright & Cropanzano, 2004), however, have indicated that the existing organizational study related measurement systems constitute improper and narrow conceptualization of the construct of well-being. Hence, this study attempts to conceptualize and test employee well-being as an entity's resource and suggest a comprehensive framework for the measurement of employee well-being in an organization using a non-monetary indicator approach. The test results indicate high internal reliability and validity of the framework while having significant and positive relationship among well-being and work performance. Hence, the resulting measurement framework is expected to be a tool of great value for business entities as to have a comprehensive view, tracking and improving the well-being of their employees while increasing the performance of employees. The originality of this study is based on its unique and comprehensive conceptualization of the construct of overall employee well-being. Next section reviews the related literature and finally moves in to the development aspects of the well-being framework.

## 2. Literature Review

This section elaborates the literature review related for the present study and commences discussing the Japanese context and moves into the discussions of intellectual capital and measurement approaches, the happy-productive worker thesis with a working hypothesis in the context of measurement of employee well-being.

### 2.1 The Japanese context

For verification of studies that address the measurement and relationship between employee well-being and employee performance in the Japanese context, a search was performed using ProQuest multiple academic database search feature. Search key words included: Japan, scorecard, measurement of well-being, measurement framework, employee happiness, job satisfaction. It is observed that there was no research study directly addressing the measurement and relationship between these constructs that has been published in English language either in accounting or organizational study disciplines. This fact is further

collaborated by Yasuto (2007) indicating that study of well-being is not popular among economists in Japan and Japanese econometricians commenced well-being studies only after 2005.

## 2.2 Intellectual Capital and Employee Well-being

From mid 1990s researchers focused on intellectual capital as a key determinant of ongoing wealth creation within organizations (Stewart, 1997). Intellectual capital is distinguished into two aspects by Edvinsson (1997) as human capital and structural capital. Lynn (1998) classifies educational and vocational qualifications, employee know-how, employment related knowledge, competencies etc., in to human capital. It is observed that as the term intellectual capital itself indicates, the asset has its origins in employees. A distinction between primary and secondary intellectual capital is suggested by Roslender and Fincham (2004), and Ahonen (2000), who distinguishes the same as generative and commercially exploitable intangible assets. Roslender, Stevenson, & Kahn (2006) indicate that primary intellectual capital is that category of intellectual capital presently designated as human capital. Further they state that employee wellness as defined as a fit and healthy workforce is a very valuable *organizational asset* and *employee wellness* can be conceptualized in terms of *primary intellectual capital*. Next section deals with the related measurement approaches of intellectual capital.

## 2.3 Intellectual Capital Measurement approaches

In the measurement of intellectual capital Sveiby (2007) draws a distinction between monetary intellectual capital measuring models, which express the value in monetary terms, and non-monetary intellectual capital measuring models, which measures intellectual capital using non-monetary methods (e.g. scorecards). Daniels and Noordhuis (2005) argues that the problem with models related to monetary intellectual capital measurement is that they may provide results that are unreliable due to the fact that all parameters have to be quantified in monetary valuations. Hence, they suggests that non-monetary intellectual capital scorecards provide *more reliable results* because they use the *more natural measurement scales* for each indicator, instead of converting all aspects into monetary figures. Next section discusses of the happy-productive worker thesis which provides the basis for being an intangible asset.

## 2.4 The Happy-productive Worker Thesis and Hypothesis building

One of the most important aspects in organizational study discipline is the relationship

between employee well-being and their performance. Staw (1986) indicates that the study of happy workers are more productive (also known as *happy-productive worker thesis*) has been decades of focus of organizational psychology research and practice. Wright and Cropanzano (2004) indicate that business executives and organizational researchers have been concerned about the happy-productive worker thesis for a long period. Hence, for the purpose of this study following hypothesis is expected to be tested as a means of strength of the proposed framework:

$H_1$ : There is a positive relationship between well-being of employees and their work performance.

Testing of this hypothesis will provide further assurance on the measurement framework. Next section elaborates the research objectives and methodology in achieving the objectives.

### 3. Objectives & Methodology

The overall aim of this study is to conceptualize employee well-being as an important resource of an economic entity and thereby to suggest a comprehensive measurement framework in measuring employee well-being comprehensively. Hence, the objectives of this study are to:

- a. Explore, critically evaluate and clarify theories and models related to the constructs of employee well-being and other related constructs through a comprehensive literature review.
- b. Conceptualize the construct of overall employee well-being as a resource of the economic entity and development of a comprehensive measurement framework in measuring it.
- c. Streamline and test the conceptually constructed well-being framework (i.e. created under the second objective) in the Japanese context by way of interviews and a mass survey.
- d. Investigate the relationship between employee well-being and work performance by way of testing the hypothesis between employee well-being and work performance constructs.

Section 4 deals with conceptualization of the framework while section 5 elaborates aspects of streamlining and testing of the conceptually developed well-being measurement

framework. Section 5 also provides the results of the hypothesis being stated under objective *d.* above.

## **4. Conceptualization of the Well-being Framework**

Following sections in the article discuss the result of the comprehensive and multidisciplinary literature review which leads to the proposed comprehensive employee well-being measurement framework. The lack of accounting literature related to conceptualization and measurement of well-being is noted and the discussion follows in an organizational study discipline direction.

### **4.1 Instruments for the Measurement of Well-being**

In the absence of directly related accounting measures on employee well-being, the sections that follow draw literature and findings on organizational study point of view. This section elaborates the case of single-item vs. multi-item issue, and validity of self administration.

Andrews and Withey (1976) indicates that early well-being studies generally posed a single question to measure the level of happiness or life satisfaction. It is noted during the time, several multi-item scales were created. These scales have shown greater reliability and validity. Diener (1994) indicates that the most common way to measure well-being is usage of self-administered scales which validates the own feelings of individuals. Sandvick, Diener, & Seidlitz (1993) reports that such self report scales converge with other assessment methods and thereby indicate validity. Therefore, for the purpose of measurement framework suggested by the current study, a self-reporting system is advocated. Section 4.2 that follows, elaborates this aspect in great detail while introducing the framework.

### **4.2 The Comprehensive Measurement Framework**

This section discusses the conceptualization of the proposed employee well-being measurement framework and succeeding section 5 elaborates the streamlining and testing of the framework. Due to the absence of directly related accounting indicators on employee well-being, the sections that follow draw literature and findings on organizational study point of view.

#### 4.2.1 Definitions of key constructs

This section briefly indicates the definitions of the key constructs that are used in the proposed framework indicated in Table 1 under section 4.2.2. The stated definitions consist of both accounting and well-being related definitions.

*Intangible assets:* Financial Accounting Standards Board (2001) defines intangible assets as assets that *lack physical substance* excluding financial assets. In the context of strategic management, Hall (1992) defines intangible assets as those key drivers whose essence is an idea or knowledge, and whose nature can be defined and recorded utilizing some method. Primarily these definitions are utilized as a basis and for the purpose of the current study.

*Accounting for Human Resource:* Hermanson (1964) pioneered the term *human asset accounting* attempting to measure the value of the workers of an entity and incorporate that value to financial statements. Hekimian and Jones (1967) notes that human asset accounting is primarily concerned with of *putting people* in to the *balance-sheet* which is a highly “controversial” accounting issue up-to-date. However, later this focus was shifted to *management accounting* arena (Roslender & Finchham, 2004) which does not attempt to value but to measure human resources using a scorecard approach which is utilized in this study.

*Measurement:* Financial Accounting Standards Board (FASB, 1984) defines *measurement* as a concept of *valuation* of an element and which is a basic condition for recognition in the balance-sheet. Roslender and Finchham (2004) indicate that this is a *narrow view* and it prevents considering human resources as resources. Sveiby (2007) draws a distinction between monetary intellectual capital measuring models and Daniels and Noordhuis (2005) recommends using non-monetary measurement approach for human capital measurement. This perspective falls under the *management accounting perspective of scorecard measurement basis* which uses *indicators instead of valuations* for measurement. This former basis is used in the present study.

Following definitions relate to the well-being related aspects of the proposed framework.

*Positive Affect (PA) and Negative Affect (NA):* Simply stated these are the *moods* (i.e. happy mood or unhappy mood) of an individual employee. Positive Affect and Negative Affect represent the happy mood or the unhappy mood at a given point of time of a person (see Diener, Shu, Lucas & Smith, 1999). Happiness is defined based on these two moods (i.e. affects).

*General happiness:* Is having a positive mood over a negative mood over a time period. Bradburn (1969) defines *happiness* as having excessive Positive Affect (i.e. positive mood) over Negative Affect (i.e. negative mood). If a person is having a positive mood than a negative

mood over a given period of time, it is said that he is a “happy person”. Happiness is related to a mood (i.e. affect) and therefore is termed as an *affective element* of human well-being.

*Life Satisfaction:* In organizational psychology, *happiness* (as defined above) and *life satisfaction* are two separate constructs. Shin and Johnson (1978) have defined life satisfaction as an *overall assessment of an individual's quality of life according to his/her chosen criteria*. Life satisfaction is an individual's own *evaluation of his/her life* in contrast to a particular mood (affect). Hence, life satisfaction is identified as the *cognitive element* (i.e. it depends on thinking and evaluation) in human well-being in contrast to a particular momentary mood.

*Subjective Well-being:* Is the combination of both *happiness* and *life satisfaction* that are explained above. Diener, Suh, and Oishi (1997) defines Subjective Well-being as; “subjective well-being is a multidimensional construct consisting of three separate components: (1) the presence of positive affect; (2) the relative lack of negative affect and (3) people's cognitive evaluations of their life circumstances” (p. 27). Samman (2007) indicates that *cognitive element* in the definition of subjective well-being which relates to *life-satisfaction* should be measured as separate from happiness as happiness being an *affective element*. Hence, both of these measures are included in the proposed framework of this study.

The definitions that are explained below are further extensions of the happiness and life satisfaction concepts that are defined above.

*Work related happiness:* Page and Vella-Brodrick (2009) explains that general happiness and work related happiness are two different constructs where work related happiness is directly related to an employee's work and should be measured separately. They propose Daniels' (2000) conceptualization as a comprehensive conceptualization of work-related affect (work happiness) which is used in this study to ensure the comprehensiveness.

*Global Life Satisfaction and Domain Life Satisfaction:* Diener (1994) states that *life satisfaction* is a very broad overall concept taken as a whole for a person's life (i.e. *global life satisfaction*) and is different from specific aspects (i.e. domains) of life satisfactions as satisfaction from family, friends (i.e. *domain life satisfactions*). Diener explains that life satisfaction is a global judgment that individuals make and hence is termed as global life satisfaction which is different from domain satisfactions. Finally he concludes that both aspects need to be dealt with separately. Hence the proposed well-being measure captures both aspects.

*Job satisfaction:* Is a specific *domain specific satisfaction* and is the most important domain in terms of an employee. Locke (1976) defines job-satisfaction as “a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences” (p. 1304).

This aspect is measured separately as a specific and important domain in the well-being framework.

*Positive functioning (i.e. Overall Employee Well-being)*: Is the overall well-being of an employee that comprises of all the well-being elements discussed above. Samman (2007) suggests that *positive functioning* is characterized by *eudemonic*, *hedonic* and *mental health* dimensions of well-being (see Figure 1 and 2 of section 4.2.2 for further details and explanations). This is the core construct measured under the proposed framework in this study.

*Mental ill-being*: Ryff (2008) explains mental health is typically defined in the context of psychological disorders as anxiety and depression (i.e. *psychological maladjustment*). Samman (2007) indicates that a comprehensive measure of well-being should include this aspect as well and hence taken in to consideration in developing the measurement framework of this study.

Section 4.2.2 below explains the conceptualization of the proposed well-being framework utilizing these key definitions.

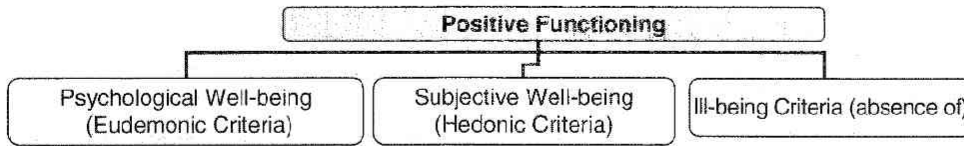
#### 4.2.2 Conceptualization of a comprehensive employee well-being framework

Thorough investigation of literature on multi-dimensional measurement frameworks reveals that such comprehensive frameworks are rare and probably seen as incomplete. The researcher, however, observed that two appreciable attempts made on creation of well-being frameworks: studies of Page and Vella-Brodrick (2009), and Samman (2007) are worthwhile for noting.

Samman (2007) indicates that the research on well-being has followed two traditions i.e. research based on hedonistic tradition and eudemonic tradition. She explains that hedonic dimension mainly deals with *happiness* and *satisfaction* while eudemonic dimension is a multifaceted dimension of *human flourishing*. Samman further elaborates that eudemonic (also referred to as “eudaimonic”) measures relate with *psychological well-being* while hedonic measures reflect *subjective well-being*. Hence, she indicates that both the eudemonic and hedonic measures should be used to capture the *holistic concept of psychological and subjective well-being*. Further, Samman indicates that in the measurement of positive functioning, a third category of measure, i.e. *ill-being* measures (mental health) should be considered. In constructing the proposed framework, these three dimensions are taken into the consideration. Figure 1 in the next page depicts this distinction which has been used in this research study.



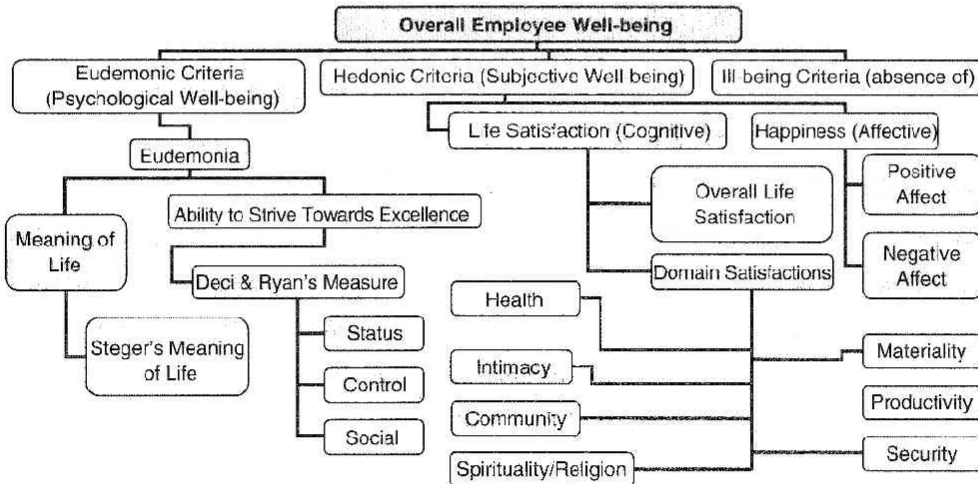
Figure 1: Dimensions of well-being measures



Source: based on Samman (2007)

The broad framework depicted in Figure 1 above is further expanded and under this study by performance of a comprehensive survey of literature. Figure 2 in the next page depicts the holistic structure of the proposed employee well-being measurement framework introduced under this study which is the result of summarizing and synthesizing the findings of the comprehensive literature survey performed. Based on these findings the final elaborate version of the employee well-being framework is depicted in Table 1 at the end of this section.

Figure 2: The synthesis, summary and structure of the proposed comprehensive well-being framework <sup>[1]</sup>



Source: Created by author via comprehensive literature review

Following paragraphs discuss the three perspectives depicted in Figure 2 above.

Eudemonic criteria: Samman (2007) proposes that to measure the *flourishing need* of human beings (i.e. eudemonia), a two-pronged approach needs to be utilized i.e. a. perception of meaning of life as defined by his or her *own unique potential* and b. ability to *strive towards*

excellence in fulfilling the *meaning of life*, should be measured. She proposes that in measuring the these two aspects, two well established measures can be utilized, i.e. to measure perception of *meaning of life*, Steger's (Steger, Frazier, Oishi, & Kaler, 2006) *Meaning of Life questionnaire* can be used, and to measure the next aspect of *ability to strive towards excellence*, Deci and Ryan's (Deci & Ryan, 2000) *measure of basic psychological needs* can be used. These two measures *encapsulate* eudemonia based on Samman's conceptualization. Hence, these two measures indicated by Samman are utilized for the proposed measurement framework in this study after adjusting for a work place context.

*Hedonic criteria*: The results of the comprehensive literature survey indicate that hedonic measures should consist of both *life satisfaction* and *happiness* dimensions (see Samman, 2007 for a full review). Research indicates that *global life satisfaction* and *domain life satisfactions* are two separate constructs and therefore should be measured separately. In measuring global life satisfaction, Daukantaite (2006) claims that probably most often used measure is Diener, Emmons, Larsen, and Griffin (1985)'s *Satisfaction With Life Scale*. On the other hand Cummins explains that Personal Wellbeing Index - PWI-A (International Wellbeing Group [IWG], 2006) can be used to measure domain life satisfactions. Cummins had identified seven life domains i.e. material well-being, health, productivity, intimacy, safety, community and emotional well-being. Hence, these two measures are utilized for measuring both aspects of life and domains satisfaction and incorporated in the proposed well-being framework.

Further, in terms of satisfaction, research indicates that *life satisfaction* and *job satisfaction* are two separate dimensions (Page & Vella-Brodrick, 2009). Moorman (1993) suggests that job satisfaction measures differ on whether they address *state* (i.e. static) or *trait* (i.e. nature) elements. Moorman explains *Minnesota Satisfaction questionnaire* of Weiss, Dawis, England, and Lofquist (1967) is a best *trait* based measurement tool in which the respondent is asked to *appraise* job conditions (working conditions, pay, autonomy etc.). Schleicher, Watt and Greguras (2004) share the same idea on Minnesota Satisfaction questionnaire and indicate that *Overall Job Satisfaction scale* of Brayfield & Rothe (1951) is suggested to be used to for the state dimension. Both these measures are incorporated in the proposed well-being framework.

In measurement of *general happiness*, after reviewing extensive literature on measurement scales Kercher (1992) concludes that the scale of Watson, Clark, & Tellegen's (1988) PANAS questionnaire (Positive and Negative Affect Schedule) is psychometrically superior (also see Clark & Watson, 1989, for Japanese version that is used in this study). On the other hand Page and Vella-Brodrick (2009) observes that work happiness is a different

dimension from general happiness and proposes Daniels' (2000) measurement framework as a comprehensive measurement tool. These both measures are incorporated in the proposed framework.<sup>[1]</sup>

*Ill-being measures:* Samman (2007) indicates that measures on mental ill-being are based on *objective clinical criteria* and are directed towards measurement of *negative functioning*. Ryff (2008) cites that depression and anxiety as examples of mental ill-being. Hence, to measure the construct of depression the Major Depression Inventory is proposed as it has been widely used and is a one-dimensional instrument which consists of 12 questions (see Bech et al., 1997).

*Control and other variables:* Review of literature indicated several control variables including moderators and mediators. They are also included in the measurement framework as for control, moderation and mediation purposes.

These findings of the comprehensive survey of literature and through the streamlining, testing and adjusting process discussed in section 5, which encapsulates the proposed employee well-being measurement framework in a holistic manner, is presented in Table 1 in the next page.

**Table 1: The proposed comprehensive framework for the conceptualization and measurement of overall employee well-being<sup>[1],[2]</sup>**

Concepts*	Variables/ Sub-variables*		Proposed Measure** (Indicator tool)	
Overall Employee Well-being	Eudemonic Variables	Eudemonia	Meaning of Life	
			Meaning of Life questionnaire (Steger et al., 2006)	
			Psychological Needs	
			Measure of Basic Psychological Needs (Deci & Ryan, 2000)	
	Hedonic Variables	Overall Life Satisfaction		Satisfaction With Life Scale (Diener et al., 1985)
		Domain Life Satisfaction		Personal Wellbeing Index [PWI-A] (International Wellbeing Group [IWG], 2006)
		Work related happiness		Work Related Affect Scale (Daniels, 2000)
		General happiness		PANAS questionnaire (Clark & Watson, 1989)
Mental ill-being	Depression		Major Depression Inventory (Bech et al., 1997)	
Job Satisfaction	State aspect		Overall Job Satisfaction scale (Brayfield & Rothe, 1951)	
	Trait aspect		Minnesota Satisfaction questionnaire (Weiss, Dawis, England, & Lofquist, 1967)	
Moderators and Mediators	Personality traits		Big 5 Inventory (John & Srivastava, 1999)	
	Organizational culture		Organizational Cultural Profile (O'Reilly, Chatman, & Caldwell, 1991)	
	Job characteristics		Job Diagnostic Survey (Hackman & Oldham, 1980)	
Control Variables	Work-life balance		Work-family Conflict Scale (Carlson, Kacmar & Williams, 2000)	
	Tenure with the organization, Employment-level and Status, Gender, Education-level, Ethnicity, Family membership, and Marriage.		To be tailored according to the context	

\* Section 4.2.1 elaborates the key definitions of constructs and variables that had been utilized in this framework.

\*\* The proposed measures (indicated the third column of the table) which all are in Likert rating scales are proposed to be converted into a percentage basis and used as non-monetary accounting indicators for each employee.

Section 5 that follows elaborates the streamlining, adjusting and testing of the framework that is conceptualized in this section and further tests the related hypothesis established.

## 5. Streamlining, Adjusting & Testing the Framework and Hypothesis

This section elaborates the streamlining, adjusting and creation of the Japanese version of the well-being framework questionnaire (i.e. based on the framework in Table 1 in section 4.2.2), administration of mass survey, validity and reliability results and testing of the hypothesis.

### 5.1 Creation of the Japanese Version of the Framework Questionnaire and Interviews

First the paper-based English language version of the questionnaire was developed using the related literature and conceptualization (see Table 1 in section 4.2.2) and was streamlined for possible overlapping questions among and between the selected questionnaires. All key scales were in Likert rating scale and the original ranges were maintained. Initially it was pilot tested with three Japanese employees. According to their comments the English version was revised to suit the Japanese context. Subsequently, a variation of the original *back-translation method* (see Brislin, 1970) was applied and the amended Japanese language version of the framework questionnaire was prepared. Subsequently, for the pilot testing procedure and further streamlining the framework survey questionnaire, a group of twelve Japanese citizens who are/were employees in Japan were chosen and the Japanese language version of the framework questionnaire was administered. A comprehensive discussion was held and each respondent's views were discussed as individually and as a group. Especially it was discussed the aspect of how to adapt this tool in the business context and use as a management tool. Necessary suggestions and amendments were noted and adjustments were incorporated. Hence the final paper based Japanese language version of the framework was prepared which is used as the basis of the web-based version of the framework survey questionnaire that is discussed in the next section. Based on the results of the testing (see section 5.2) the well-being framework was streamlined and adjusted again. <sup>[2]</sup>

### 5.2 Survey Administration and Testing for Reliability of the Framework

Utilizing the *SurveyMonkey* ([www.surveymonkey.com](http://www.surveymonkey.com)) web-based survey system, both the Japanese and English language web versions of the questionnaires were prepared by utilizing the outcomes of the pilot testing discussed above. Again a pilot test was performed via two Japanese employees using the Japanese web-based version who took an average of 36 minutes to complete. For the mass survey, a convenience sampling methodology was utilized and 78 Japanese employees (male=46, female=32) completed the survey. Their age and period of work experience are indicated in Table 2 in next page. Their employment fields, organizations were diversified resulting in a diversified sample. Next section elaborates the testing performed. <sup>[3]</sup>

**Table 2: Descriptive statistics for age and work experience for Japanese employees**

Dimensions	Number	Minimum	Maximum	Mean	Standard Deviation
Age*	78	22	61	33.87	8.53
Work experience*	76	1	29	6.99	5.73

\*Stated in years. Employees completed the survey were from different organizations and backgrounds.

### 5.3 Results of Internal Reliability of the Framework and Testing of the Hypothesis

The reliability analysis using Cronbach's alpha (see Table 3 below) proves that most of the scales are having acceptable to high levels of internal reliability<sup>[4]</sup> (alpha=0.70 to 0.90). This indicates that the framework questionnaire is having high internal reliability and consistency.

**Table 3: Reliability analysis on the key scales of the employee well-being framework\***

Scale**	MOL***	BPN		SWLS	WRA		PANAS		MDI	OJS	MSQ
		Autonomy	Competence		Positive Affect	Negative Affect	Positive Affect	Negative Affect			
Cronbach's alpha	0.88	0.71	0.79	0.85	0.84	0.89	0.92	0.89	0.89	0.90	0.86
Items per Scale	3	3	3	5	15	15	11	11	5	18	20

\*The alpha for domain life satisfactions represented by Personal Wellbeing Index [PWI-A] ranged from 0.72 to 0.90.

\*\*Scales that are streamlined, amended and adjusted according to the Japanese context have been used.

\*\*\*MOL = Meaning of Life questionnaire, BPN = Measure of Basic Psychological Needs, SWLS = Satisfaction With Life Scale, WRA = Work Related Affect Scale, PANAS = PANAS questionnaire, MDI = Major Depression Inventory, OJS = Overall Job Satisfaction scale, MSQ = Minnesota Satisfaction questionnaire.

For testing the hypothesis as whether the existence of positive relationship between employee well-being constructs and employee performance, Pearson's correlation test was performed (see Table 4 below).

**Table 4: Pearson's correlation coefficients between well-being and employee performance**

Dimensions	MOL*	BPN	SWLS	WRA	PANAS	MDI	OJS	MSQ	OEW
Overall Job Performance**	0.16 <sup>a</sup>	0.31 <sup>a</sup>	0.38 <sup>a</sup>	0.49 <sup>a</sup>	0.39 <sup>a</sup>	0.47 <sup>a</sup>	0.38 <sup>a</sup>	0.27 <sup>b</sup>	0.44 <sup>a</sup>

\*For abbreviations, please see notes of Table 3 above. Further, OEW = Overall Employee Well-being (i.e. OEW is calculated by summing up all the well-being indicators and averaging).

\*\*Overall Job Performance was measured by a self-rated single item scale used by Wright and Cropanzano (2004).

<sup>a</sup> Correlation is significant at the 0.01 level (2-tailed). <sup>b</sup> Correlation is significant at the 0.05 level (2-tailed).

The results indicate that the alternative hypothesis (i.e.  $H_1$ ; there is a positive relationship between them; see section 2.4 for the derivation of hypothesis) cannot be rejected under a significance level of  $p < 0.01$  for all most of the well-being measures, *concluding that there is a quite strong positive and statistically highly significant relationship between employee well-being and their performance*. This is a significant finding as rather low and *insignificant* correlations (i.e. approximately 0.30) had been previously reported which is observed due to narrow conceptualization of well-being in earlier studies (see Page & Vella-Brodrick, 2009).

Hence, it can be safely concluded that the proposed comprehensive measurement framework is having a high internal reliability, validity (i.e. where validity being already established due to using of pre-established highly recognized scales and interviewing) as a measurement tool and is able to predict and explain employee performance to an acceptable level in a business entity.

## 6. Conclusion

The in-depth review of literature, streamlining and testing discussed in the preceding sections lead to the suggested comprehensive employee well-being measurement framework depicted in Table 1 in section 4.2.2, which had followed a non-monetary accounting indicator approach as the basis of measurement. To ensure the comprehensiveness of the construct of *overall employee well-being* of employees (see Figures 1 and 2 in section 4.2.2), all three dimensions (i.e. hedonic, eudemonic and mental-health) were utilized. Further, sub dimensions, variables and measures (indicators) were selected through the comprehensive literature survey performed. Under section 5 this conceptualization was streamlined by way of interviews and tested by way of a mass survey involving a sample of 78 Japanese employees. The results of the testing provide higher internal reliability (Cronbach's  $\alpha = 0.70$  to  $0.92$ ) of the measures (where validity being already established by prior studies and the interviews conducted), and higher significant and positive correlations with work performance than previously reported. The proposed comprehensive measure is suggested to be administered as a questionnaire in an entity and the Likert rated results to be scored under each well-being dimension. The framework is expected to be a management accounting tool of great value for an economic entity in tracking and managing its employees' well-being and at the same time to increase their performance.

In terms of limitations of the study, the concept of well-being and certain of its related

sub-constructs are yet evolving and may have no universal agreement for definition and measurement concerns. Utmost care was taken, however, in the current study to ensure appropriate definitions and indicators are utilized in the proposed framework while performing the comprehensive survey of literature and streamlining the framework. In citing future directions, it is suggested to test the suggested comprehensive well-being measurement framework internationally and to perform further streamlining using a larger diversified sample.

### [Notes]

- [1] Prior research indicates strong relationships between general well-being constructs (e.g. *general happiness and life satisfaction*) with employee specific well-being constructs, although they are distinct. Hence, the general well-being constructs cannot be excluded. Further, to ensure the comprehensiveness of the proposed well-being framework under this study, the general well-being constructs are also included. See Page and Vella-Brodrick (2009) for a full review on this aspect.
- [2] The streamlined and adjusted (i.e. based on pilot discussions and mass survey as discussed in section 4 and 5) final version of Japanese and accordingly amended English version of the measurement framework in a questionnaire form can be made available upon a request to author via: [ajward@fuji.waseda.jp](mailto:ajward@fuji.waseda.jp).
- [3] The full details of the sample, complete analysis of reliability of all sub-scale elements depicted in Table 1, inter-scale Pearson's correlation analysis have not been depicted in the paper and can be made available through a request to the author.
- [4] It has been indicated that Cronbach's alpha of 0.70 to be an acceptable internal reliability coefficient of a survey instrument [see Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill].

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