PREDICTING COMPANY FINANCIAL PERFORMANCE BASED ON ASSESSING THE ENERGY PROFILE OF THE EMPLOYEES BY THE USE OF THE ELECTROPHOTONIC IMAGING DEVICE

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ABSTRACT
This paper explores the connection between company financial performance and the combined stress and energy level of employees assessed with the Electrophotonic Imaging Device.
The purpose is to develop a performance assessment tool based on the energy profile of employee(s), which includes aspects that are not found in the present array of Human Resource Management performance prediction tools.

KEYWORDS: *Electrophotonic Imaging, Energy, Human Resource Management, Performance Assessment, Stress*

JEL CLASSIFICATION: *L25, O15*

1. INTRODUCTION

This paper is a trans-disciplinary approach to Human Resource Management. It combines the contemporary understanding of Human Resource Management with that of Physics, as it seeks to clarify if, and in case so, how, the laws of Physics can be used to make valid predictions regarding human beings; in this case, employees in a company.
Approximately 100 years ago, personnel assessment became a scientific discipline, and the field has improved since then, meaning that the criteria used for making predictions regarding a person's future performance has become more and more accurate. At the present moment, it seems that Cognitive Ability test is the best predictor of future performance, with a performance prediction around 50%. This was found both by Hunter & Hunter (1984), and by Rynes et al. (2004, in Banfield & Kay, 2012). On the other side, it does not seem like the field of performance assessment has expanded much in its 100 years of existence. As Vinchur & Bryan write *"Although we have grown more sophisticated in measuring criteria, the criteria in use today are not much changed from the ratings and ranking used in the early days of the field."* (in Schmitt, 2012)
This paper is part of a scientific project which aims at clarifying if it is possible to add one more such measuring criteria to the field; that of assessing future performance based on an employee's stress and energy level.
If this is possible, it may expand the predictive capacity of the field; however, of course, only if this new assessment criterion includes aspects that are not found in the present array of assessment criteria. The hypothesis is that this criterion will either be able to stand alone in giving predictions regarding future performance, or that it can be combined with one or more of the present measuring criteria in order to improve the predictive capacity. For example, it can be hypothesized that a person with a high Cognitive Ability and a high level of energy has a higher performance than a person with the same level of Cognitive Ability, however, with a low level of energy.
Previous studies have been conducted within this field (Torp et al., 2014; Torp et al., 2015a;Torp et al., 2015b;Torp et al., 2016a;Torp et al., 2016b; Torp & Cipu, 2016c), however, this is the first such

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study that includes objective company performance data and thus the first study to establish a connection between company performance and the energyprofile of the employees.

2. METHODOLOGY

In his book „The Self-Aware Universe" (1995) Dr. Goswami, physics Professor, gives his interpretation of the present understanding of our universe. He writes, amongst others, that based on Einstein's famous $E=MC^2$ it can be considered that everything in this universe consists of energy. This must necessarily also include human beings, as we are part of this universe.
Professor Dr.Korotkov has developed a practical method to measure the energy of a human being, and based on that to make assessments about them. The tool developed by Professor Dr. Korotkov is called Electrophotonic Imaging (EPI) Device by Gas-Discharge Visualization. What it does is that it measures the photons which the body emits, and, based on the intensity and entropy, it assesses, in an objective and quantitative way, amongst others, the stress and the energy level of a person (Korotkov, 2002). This method seems to be more and more used worldwide, especially in medicine. However, it is also used with great success in predicting athletic performance at Olympic level. (Bundzen et al., 2005; Drozdovski et al., 2012)
The EPI Device gives a result regarding a person's stress level on a scale from 0-10, and regarding a person's energy level on a scale from 0-100.
One of the new things about this study is the integration of this kind of assessment in the field of Human Resource Management.

3. THE STUDY DESIGN

This study consists of two distinct separate parts, which were ultimately combined to establish a connection.
The first part was measuring the energy profile of employees in the company in which the study was performed. This measurement was conducted in the beginning of the year 2016, which was then taken to represent the energy and stress level of the employee for the previous year, meaning the fiscal year 2015. Then the same measurement was done in the beginning of the year 2017, which likewise was taken to represent the energy and stress levels of employees for the previous year, meaning the fiscal year 2016.
Both sets of measurements were conducted in the same month, February, on the same day, Thursday. In 2016 it was on the 18th of February, in 2017 it was on the 16th of February. This in order to diminish any external influencing factors, like for example what might be expected if one measurement was done Monday morning, and the other Friday afternoon. A total of five measurements of each employee were conducted every day; one at 9.00 o'clock in the morning, before starting work, then at 11.00, 13.00, and 15.00 o'clock, and finally a measurement at 17.00 o'clock after having finished the workday.
As the EPI Device can only measure one person at a time, as an independent unit, each participant was measured independently, and later the results were added in a linear way.
The second part of the study was to obtain the data regarding the financial performance of the company. This data was provided by the company and consists of:

- Turnover
- Number of transports
- Margin
- Profit

These arguably three, as margin is calculated based on turnover and profit, independent data set are taken to represent the performance of each of the years included in the study.

Then these two different sets of data were combined in order to establish if there exists any connection between them.

4. THE FINDINGS

Part one of the analysis was to determine the combined energy and stress level for each of the years in the study.
This result was obtained by adding the assessed stress and energy level for each of the employees on each of the assessment days, and then dividing it by the number of assessments made that day.
By this, a yearly overview for each employee was obtained. This is shown in Table 1.

Table 1. Stress and Energy assessment for year 2016

2016	Stress					Energy					Daily average	
Employee	09:00	11:00	13:00	15:00	17:00	09:00	11:00	13:00	15:00	17:00	Stress	Energy
002-001	5,49	4,73	3,31	2,75	3,43	24	35,82	40,47	40,98	37,83	3,942	35,82
002-002	4,38	3,94	3,01	3,45	2,7	34,71	38,73	45,08	35,99	44,8	3,496	39,862
002-003	2,4	3,03	3,11	3,82	3,6	51,85	41,15	48,23	39,69	46,73	3,192	45,53
002-006	2,97	2,9	2,81	2,84	2,83	40,5	42	44,3	42,72	47,2	2,87	43,344
002-007	2,53	2,67	2,09	2,07	3,26	41,69	41,37	51,66	45,39	43,02	2,524	44,626
002-008	3,07	2,28	2,3	9,74	2,03	38,05	37,59	47,77	41,63	48,08	3,884	42,624
002-009	2,72	3,96	2,18	3,45	2,64	40,55	37,7	48,61	43,64	44,69	2,99	43,038
											3,27	**42,12**

Source: The data is obtained by the use of the EPI Device.

This table shows the stress and energy level for each employee at each of the five daily assessments, as well as a daily average. It also shows a company average, which is calculated based on adding each individual result for both stress and energy and then dividing that result by the total number of employees.Table 2 shows the same as table 1, just for year 2017.

Table 2. Stress and Energy assessment for year 2017

2017	Stress					Energy					Daily average	
Employee	09:00	11:00	13:00	15:00	17:00	09:00	11:00	13:00	15:00	17:00	Stress	Energy
002-001	3,05	3,63	2,62	3,25	4,75	47,25	57,04	59,17	66,19	53,5	3,46	56,63
002-002	2,59	2,75	2,55	2,43	2,62	54,07	55,91	54,25	65,05	68,49	2,588	59,554
002-003	2,47	2,91	2,69	3,46	4,61	48,42	53,55	51,6	51,33	59,81	3,228	52,942
002-006	2,78	2,9	2,83	2,89	2,96	50,83	55,8	54,97	66,01	64,28	2,872	58,378
002-007	2,32	2,14	2,23	2,39	2,23	51,88	58,72	59,75	63,63	67,61	2,262	60,318
002-008	2,14	2,2	2,11	2,15	2,19	56,63	58,46	57,92	58,53	61,11	2,158	58,53
002-009	2,95	3,03	2,36	2,27	2,31	51,92	49,49	57,13	68,25	61,41	2,584	57,64
											2,74	**57,71**

Source: The data is obtained by the use of the EPI Device.

The relative values, meaning the difference between the assessment of the stress and energy level for the two years of the study, 2016 and 2017, is shown in table 3.
Table 3 shows that there has been a fall in the combined stress level of all the employees in the company of 16.36% between the two years. And that at the same time there has been a total increase in the combined energy level of 37.02%.
In the same period, the financial data of the company developed as shown in table 4.

Table 3. The relative frequencies between the yearly assessments.

	Relative frequencies	
Employee	Stress	Energy
002-001	-12,23%	58,10%
002-002	-25,97%	49,40%
002-003	1,13%	16,28%
002-006	0,07%	34,69%
002-007	-10,38%	35,16%
002-008	-44,44%	37,32%
002-009	-13,58%	33,93%
	-16,36%	**37,02%**

Source: Table 1 and 2.

Table 4. The financial data for year 2015 and 2016 for the company. Turnover and profits are in Euro.

	2015	**2016**	**Relative frequencies**
Turnover	5491287	5536516	0.8237%
No of transports	3738	4082	9.2028%
Profit	305215	365935	19.8942%
Margin	5558168786	6609481486	18.9147%

Source: The data was provided by the company.

Here, it shows that in the period of the study, the turnover of the company increased by less than 1%. The number of transports increased by approximately10%, and finally both profit and margin increased by approximately 20% each.
Figure 1 shows these developments visually.

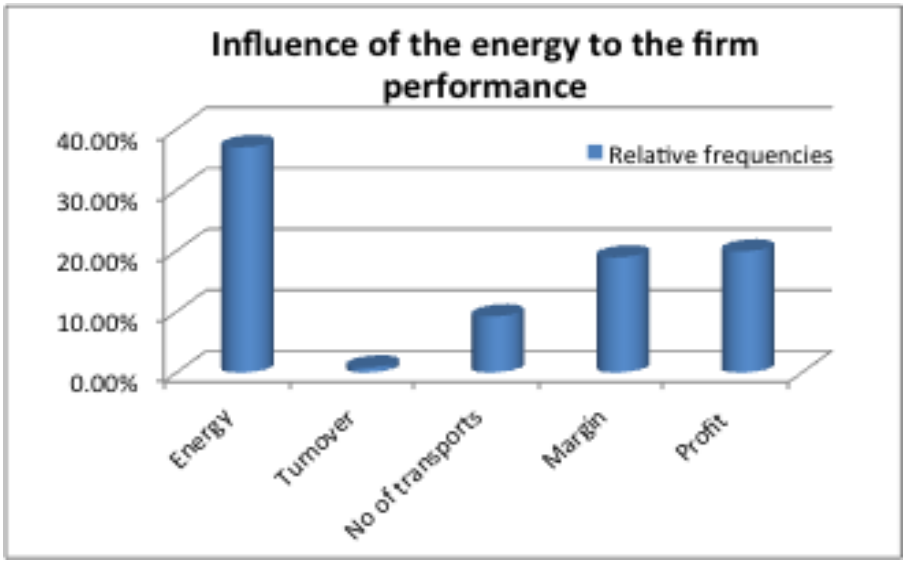

Figure 1. The relation between the indicators of company performance and the energy level.
Source: The data is taken from table 3 and 4.

This figure shows that, in approximated values, the 40% increase in the average energy level of the employees in the company has led to an insignificant increase in turnover. At the same time,it led to an approximately 10% increase in the number of transports performed. Another way to express this is to say that for every 4% increase in the total energy level in the company the number of

transports increased by 1%. As the last element, both margin and profit increased by approximately 20%. In other words, for every 2% increase in the total energy level, margin and profit increased by 1% each.

Figure 2 shows the same as figure 1, just for stress instead of energy.

Figure 2. The relation between the indicators of company performance and energy level.
Source: The data is taken from table 3 and 4.

In approximated values, the stress level decreased by 20%. It goes without saying that the financial indicators are the same as previously stated. Hence, it has been found that there is an insignificant relation between the change in stress level and the change in turnover. However, regarding the connection between stress and number of transports, it seems that with every 1% decrease in stress, transports increased by½%. The figure also shows that with every 1% decrease in stress level, both margin and profit increased by 1%.

5. DISCUSSION OF THESE FINDINGS

It might not come as a big surprise that this preliminary case study has found a connection between the total stress and energy level of the employees in the company and the company's financial performance for the examined period.
It has been found that a high level of energy seems to translate to higher company performance. Thus any company that wishes to improve its financial performance can start by increasing the energy level of their employees. This has already been shown to be possible, amongst others in Torp et al. 2015a, and Torp et al. 2016a.
It has also been found that a low level of stress seems to translate to higher company performance. Thus, another way for the company to improve its financial performance seems to be to diminish the stress level of its employees. This has also been shown to be possible, for example through sport (Torp et al, 2015a), and through the practice of mindfulness (Torp et al, 2016b).
It is clear that further scientific studies are required to validate these preliminary findings. In time, the study needs to be expanded with more years, and hopefully similar studies will also be conducted in other companies to determine the universality of this kind of energy assessment in matters of company performance.

6. CONCLUSIONS

In this preliminary study, it has been found that there seems to be a connection between the total energy and stress level amongst employees in a company and certain aspects of company performance.
Thus, it seems that the present array of HR performance predictors may be expanded with stress and energy, which measure elements that are new to HR assessment.
However, before making any general conclusions, it is strongly advised to expand the empirical foundation with further scientific studies.

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