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ASSESSING MOTIVATION IN PROJECT TEAMS

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People carry out the projects and the performance of the human team is a key success factor. This communication reflects the results of measuring satisfaction in different project teams, applying the theory of expectations.

The study focuses on a questionnaire based on the theory developed by the psychologist Vroom. Different aspects of motivation are analysed, grouped into three main blocks: intrinsic motivation, extrinsic motivation and transcendent motivation. In each of them, the valence and expectation that members have is evaluated.

The results obtained are considered for each group analyzed.

Keywords: *motivation; vroom; teamwork*

EVALUACIÓN DE LA MOTIVACIÓN EN EQUIPOS DE PROYECTOS

Los proyectos los realizan personas y el desempeño del equipo humano es un factor clave de éxito. Esta comunicación refleja los resultados de medir la satisfacción en distintos equipos de proyectos, aplicando la teoría de las expectativas.

El estudio se centra en un cuestionario basado en la teoría desarrollada por el psicólogo Vroom. Se analiza distintos aspectos de la motivación, agrupados en tres grandes bloques: motivación intrínseca, motivación extrínseca y motivación trascendente. En cada uno de ellos se evalúa la valencia y la expectativa que los miembros tienen.

Los resultados obtenidos se consideran para cada grupo analizado.

Palabras clave: *motivación; vroom; trabajo en equipo*

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1. Introduction

Drucker indicated in his book "Management challenges for the 21st century" that the enhancement of knowledge workers' productivity and motivation as the most important challenge of the 21st century (Drucker, 1999).

Many authors have analysed the project success and the factors that influence it from different perspectives. Being aspects related to the behaviour of the project team and/or the project manager a common factor that affects performance (Deutsch, 1991; Larson & Gobeli, 1989; Morris & Hough, 1987; Neumann, Glockner, Hite, & Taylor, 1993; Pinto & Pinto, 1991). Many project managers find project work motivating, stimulating and creative, but it also has a frustrating, ambiguous and stressful aspect to it (Koolhaas et al., 2011).

2. Main Theories of Motivation and Human Behaviour

There are several theories on motivation to be considered, i.e. hierarchy of needs (Maslow, 1943), theory X and theory Y (McGregor, 1957, 1960), acquired needs (McClelland, 1961), expectancy model (Vroom, 1995) and motivators and hygiene factors (Herzberg, 1966, 1968), goal setting (Locke & Henne, 1986) and theory Z (Ouchi, 1981).

Maslow explains that a person's motivation is based on a hierarchical structure of needs ranging from very basic physiological needs to the highest need on top of the pyramid, self-actualization. McGregor identified two different sets of assumptions about employees. In one hand, the traditional view, known as Theory X holds people have inherent dislike of work. In the other hand, Theory Y is more optimistic. It assumes that work is as natural as play or rest. In theory Y people want to work and can derive a great of satisfaction from work. McClelland considers that people acquire either a strong need for achievement, affiliation or power; and normally one or two of these needs will be particularly dominant in individuals. According to the expectancy theory, people will be motivated to do thing to achieve some goals to the extent they expect that certain actions on their part will help them to achieve the goal. Herzberg found that when absent, hygiene factors would decrease job satisfaction, but that their presence would not motivate people to do more work. Theory Z, as an evolution from the Theory X and Theory Y, bearing in mind management of both Japanese and American philosophies and cultures. It promotes common structure and commitment to the organization, as well as constant improvement of work efficacy.

Many theories conclude, first, in two types of motivation: intrinsic and extrinsic (Calder & Staw, 1975; Drucker, 1999; Ryan & Deci, 2000), and, then, some authors add a third one, transactional (Barbuto, 2005; Pablo Cardona, 2000; Sanders III, Hopkins, & Geroy, 2003). In this sense:

- Extrinsic motivation: people act as a function of external conditions.
- Intrinsic motivation: people act as a function of internal conditions.
- Transcendental or transactional motivation: people move because of the effects of their actions on others.

The motivation of a person has all three components, they do not act only for one or the other type. The purpose of this study is the hypothesis about what kind of motives stimulate in project management. The practice of resource management has to be consistent with this hypothesis.

Based on Vroom's theory of expectations later revised by Lawler for motivational analysis in organizations , three components of the motivational force can be distinguished (Lawler, 1983; Vroom, 1995):

- Expectancy: It considers the subjective probability of being successful if the person makes an effort.
- Instrumentality: It measures consequences of the success, like salary increase or recognition by a superior.
- Valence: This means the assessment of those consequences.

According to Vroom's theory, people before taking an action value these aspects. Imagine if you are going to succeed, evaluate the consequences and value them. The equation (1) shows in a "mathematical" way this relation.

$$Motivation = Expectancy \times Instrumentality \times Valence \quad (1)$$

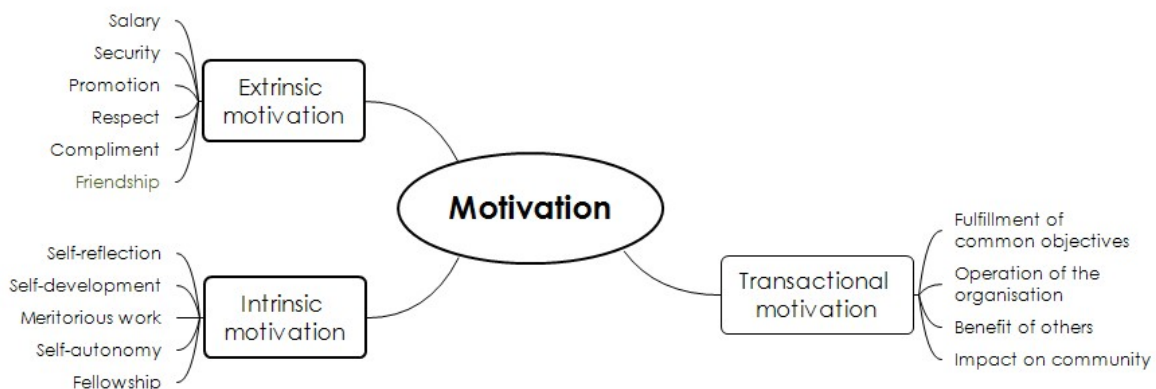
2. Research

With the basis on the questionnaire developed by Pin (2007), a new one was developed for the research. This includes thirty five closed questions, divided in three blocks:

- The first one is related to the instrumentality. It contains sixteen items under the question "How likely are you to get these things if you do your job especially well?"
- The second one implies to the valence. In a parallel way it also contains sixteen items; this time under the interrogation "To what extent are they important to you?"
- The last one, expectancy, includes only three considerations where the person surveyed values the frequency with which a first factor leads to a second factor.

For the first two blocks, the questions mixed different factors related to the three types of motivation: extrinsic, intrinsic and transcendental (Pin, 2007). The Figure 1 presents this considered factors sorted by the category of motivation. The researchers considered to use a scale from 1 to 10, considering 1 the most unfavourable and 10 the most favourable, for all of the questions.

Figure 1: Considered factors of motivation in the questionnaire.



For the data analysis, a different average value was obtained for each sort of motivation. The mean of all of them results the total motivation. Finally, multiplying for the expectation (average value from the third block) results the motivational force. It should be taken in mind, that the maximum punctuation for each kind of motivation is 100, for the total motivation is the average of these, that means also 100, and for the motivational force is 1000.

The research has extended among several years and in different types of organisations, SMEs and large-sized enterprises, specific departments and whole companies and public and private ones.

3. Results

Herewith the Table 1 shows eight different cases where the questionnaire was used. The first column is just as an identification of the survey. The second and third one indicates which level of people interviewed and the category of the organisation. Then, the table shows the different kinds of motivation that is exposed before in its corresponding column, and the average of them, under the header “Total Motivation”. The second last column presents the motivational factor; this is related to expectancy. Finally, the last columns shows the “motivational force”, that means the product of the total motivation by the motivational factor.

Table 1: Motivation levels for different teams and organisations.

| Group | Level | Organisation type | Extrinsic Motivation | Intrinsic Motivation | Transcendental Motivation | Total Motivation | Motivational Factor | Motivational Force |
|-------|---------------------------|-------------------|----------------------|----------------------|---------------------------|------------------|---------------------|--------------------|
| 1 | All organisation | SME | 45.61 | 59.39 | 52.62 | 52.54 | 6.64 | 348.67 |
| 2 | All organisation | SME | 47.12 | 59.81 | 53.15 | 53.36 | 6.82 | 363.92 |
| 3 | CEOs | SMEs | 47.71 | 68.71 | 67.50 | 61.31 | 7.03 | 430.86 |
| 4 | All organisation | SME | 29.96 | 37.08 | 51.47 | 39.51 | 5.28 | 208.50 |
| 5 | Project managers | Various | 41.93 | 63.32 | 45.56 | 50.27 | 6.48 | 326.00 |
| 6 | Middle and upper managers | Public sector | 34.63 | 63.49 | 60.58 | 52.90 | 6.68 | 353.29 |
| 7 | Central services | Public sector | 37.09 | 66.87 | 61.57 | 55.18 | 6.88 | 379.61 |
| 8 | Middle managers | Public sector | 32.72 | 61.28 | 59.40 | 51.13 | 6.00 | 306.80 |

As the table shows the intrinsic is the most relevant of the tree. Contrary to what could be considered, the second one in almost all the cases is the transcendental motivation, even once this was the highest scored. The extrinsic motivation is usually the last one.

One point to be taken into account is that the global motivation is usually exceeding 40 points and the expectancy is higher than a medium position (5). But if the motivational force is considered, this does not overcome half of the total possible score in all the cases.

Other aspects is that the research does not show that the motivation depends on the organization size. The survey developed only with CEOs presents a higher score than the others.

Going deeper into some details of each type of motivation, there are certain aspects to be taken into account in the project resource management. Comparing the results between SMEs and public sectors surveys, all the data related to extrinsic motivation are similar. In case of salary, even in both cases is one of the lowest, for the public sector results is almost the half. The less relevant factors are in both cases promotion and salary. In the other hand, instrumentality is substantially lower than expectancy in all factors.

Table 2: Detailed factors for extrinsic motivation in SMEs.

| Motivation factor | Average | | Standard deviation | |
|-------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Compliment | 6,29 | 5,39 | 2,58 | 2,65 |
| Friendship | 7,64 | 6,11 | 1,99 | 2,35 |
| Promotion | 6,44 | 3,67 | 2,52 | 2,75 |
| Respect | 8,27 | 6,55 | 1,61 | 2,24 |
| Salary | 8,03 | 4,19 | 1,48 | 2,54 |
| Security | 7,80 | 6,76 | 2,32 | 2,54 |

Table 3: Detailed factors for extrinsic motivation in Public Sector.

| Motivation factor | Average | | Standard deviation | |
|-------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Compliment | 6,09 | 5,88 | 1,96 | 2,31 |
| Friendship | 6,73 | 5,55 | 2,12 | 2,37 |
| Promotion | 5,45 | 3,59 | 2,38 | 2,43 |
| Respect | 8,30 | 6,93 | 1,54 | 2,03 |
| Salary | 7,55 | 2,38 | 1,78 | 2,33 |
| Security | 7,84 | 5,05 | 1,95 | 2,89 |

Comparing data for intrinsic motivation, all results are above 5. Bear in mind that it was not the same for the extrinsic perspective. Also the difference between instrumentality and expectancy is not as pronounced as in the previous case.

Table 4: Detailed factors for intrinsic motivation in SMEs.

| Motivation factor | Average | | Standard deviation | |
|-------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Fellowship | 7,55 | 7,18 | 1,78 | 2,30 |
| Meritorious work | 6,68 | 7,07 | 2,16 | 2,03 |
| Self-autonomy | 7,78 | 6,18 | 1,60 | 2,25 |
| Self-development | 7,86 | 7,03 | 1,67 | 2,43 |
| Self-reflection | 8,26 | 7,87 | 1,16 | 1,46 |

Table 5: Detailed factors for intrinsic motivation in Public Sector.

| Motivation factor | Average | | Standard deviation | |
|-------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Fellowship | 7,96 | 7,27 | 1,72 | 1,93 |
| Meritorious work | 7,00 | 7,54 | 2,06 | 1,97 |
| Self-autonomy | 7,45 | 6,52 | 2,32 | 2,46 |
| Self-development | 8,55 | 8,06 | 1,29 | 1,85 |
| Self-reflection | 8,82 | 8,86 | 1,24 | 1,07 |

For intrinsic factors, the lowest factor is self-autonomy, but at the level of extrinsic motivation values.

By last, transactional motivation is also quite different between workers in SMEs and in public sector. In both situations, the impact on community is the less valued factor, especially in companies. Operation of the organisation is the most relevant factor in private sector, even above all factors for both cases.

Table 6: Detailed factors for transactional motivation in SMEs.

| Motivation factor | Average | | Standard deviation | |
|---------------------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Benefit of others | 7,85 | 7,85 | 1,75 | 2,09 |
| Fulfilment of common objectives | 8,06 | 7,93 | 1,45 | 2,11 |
| Impact on community | 6,54 | 5,32 | 2,56 | 2,43 |
| Operation of the organisation | 8,53 | 8,21 | 1,22 | 1,74 |

Table 7: Detailed factors for transactional motivation in Public Sector.

| Motivation factor | Average | | Standard deviation | |
|---------------------------------|------------|-----------------|--------------------|-----------------|
| | Expectancy | Instrumentality | Expectancy | Instrumentality |
| Benefit of others | 8,13 | 7,73 | 1,50 | 1,68 |
| Fulfilment of common objectives | 8,63 | 7,73 | 1,21 | 2,18 |
| Impact on community | 7,87 | 6,73 | 1,64 | 2,38 |
| Operation of the organisation | 8,41 | 7,43 | 1,45 | 2,01 |

Considering the dispersion measure, the data from SME shows more scattering than from public sector. In general, the factors in extrinsic and intrinsic motivation are more dispersed; being more stable in the transactional motivation.

As a general rule, the expectancy is higher than the instrumentality except for the factor of meritorious work (intrinsic motivation), both in the public sector and in the SME.

The Figure 2 shows graphically the values obtained for all factors, independently of the sort of motivation, for the workers of SMEs. As well as the Figure 3 shows the same information for the workers in public sector.

Figure 2: Comparison of factors in SMEs.

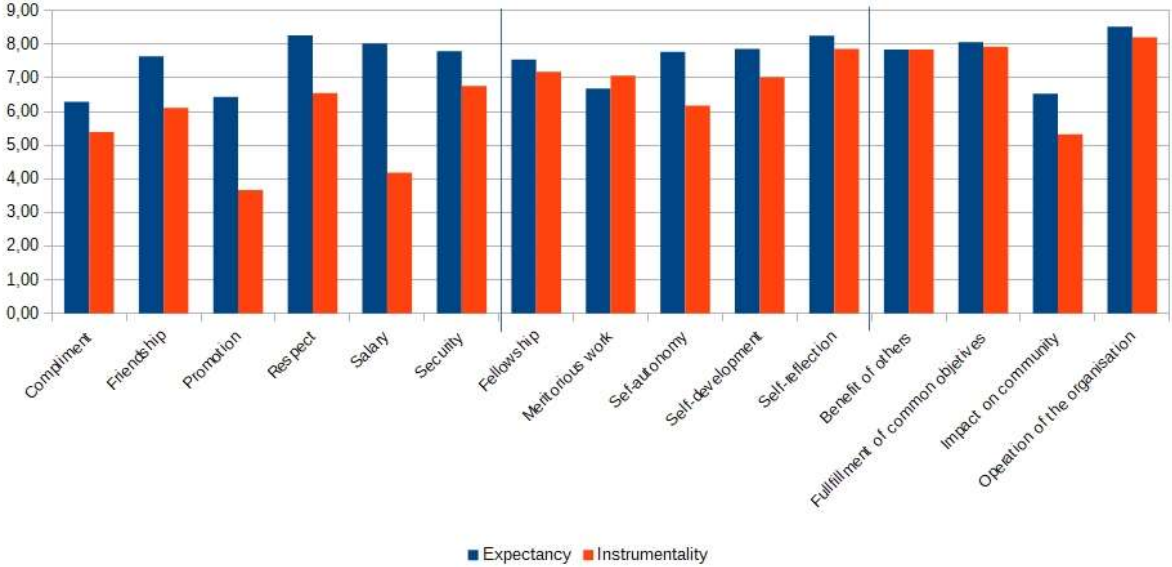
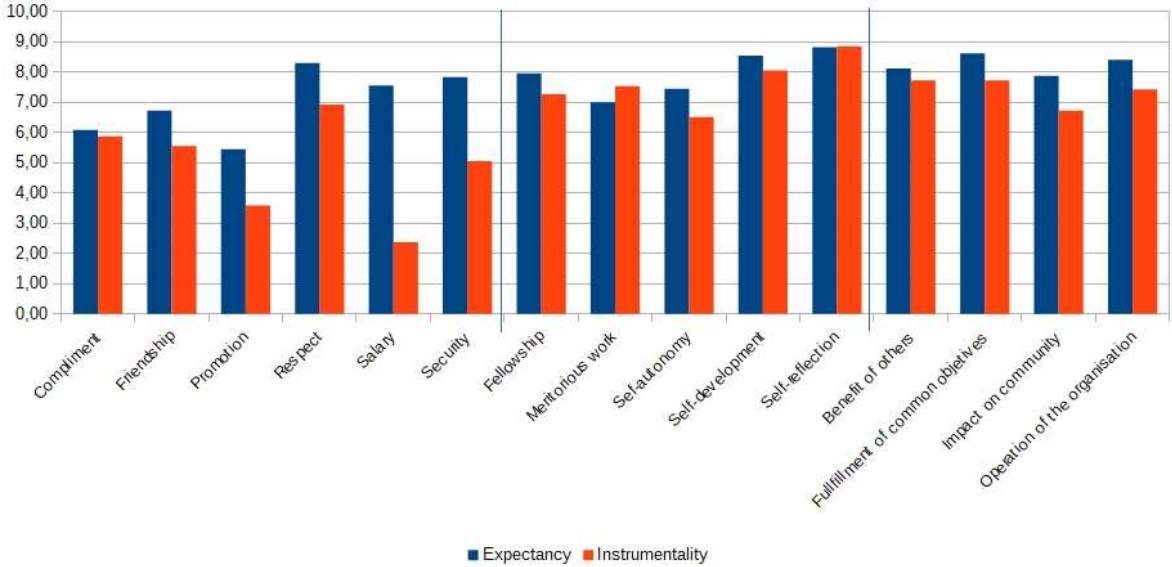


Figure 3: Comparison of factors in Public Sector.



4. Conclusions

How can we motivate project team members when so many circumstances influence them? The answer is, in a large part, to make people feel secure, needed and appreciated. If project managers, who have to be leaders in their projects, take into consideration the needs of the individual, the new technology that provides challenges and opportunities for meeting those needs, and provides the training to meet both sets of needs, enhanced employee motivation and commitment is possible.

It is interesting to consider that intrinsic and transactional motivations are dominant in all cases studied. The cause analysis about the sharing among motivation kinds could be a future aspect to research.

To bear in mind is that there are only two “failed” factors (value below 5), both in the extrinsic motivation, and they are “promotion” and especially “salary”. This valuation coincides both in the public sector and in the SME.

Other points for future investigations could be the correlation between motivation and motivational factor or which specific aspects of each sort of motivation is most or less relevant.

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