

Electrical Motor Diagnostics WIIFM: What's In It For Me?

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Introduction

One of the key issues to building buy-in for the new technologies has been the WIIFM factor. So far, in every application of Electrical Motor Diagnostics, the primary driver has been the 'Technology Champion.' The reason is that the champions have already determined what EMD will do for them. The problem is how to communicate the 'feeling' and understanding that these technologists have; in relation to what it will do for them, to the general maintenance, reliability or technology specialist.

So, let us explore the possible reasons for technology buy-in of the champions:

- ✓ Involvement in a ground-breaking technology
- ✓ Limited number of experts
- ✓ Understanding of what the technology will do for the company/employer
- ✓ Teaching/Training and Mentoring
- ✓ Leadership and Power

When applied to basic psychology, how do these champions differ from the norm? For this, we must explore Abraham Maslow (1954) and his work on human motivation.

Basic Human Needs

The science of psychology has identified four basic human needs. These set the groundwork for comfortable living. It is generally understood that if there is a deficiency in any of these needs, the individual will act to remove the deficiency:

- ✓ Physiological: Hunger, thirst, bodily comforts
- ✓ Safety/Security: Out of danger
- ✓ Belongingness and Love: Affiliation with others, acceptance
- ✓ Esteem: To achieve, be competent, gain approval and recognition

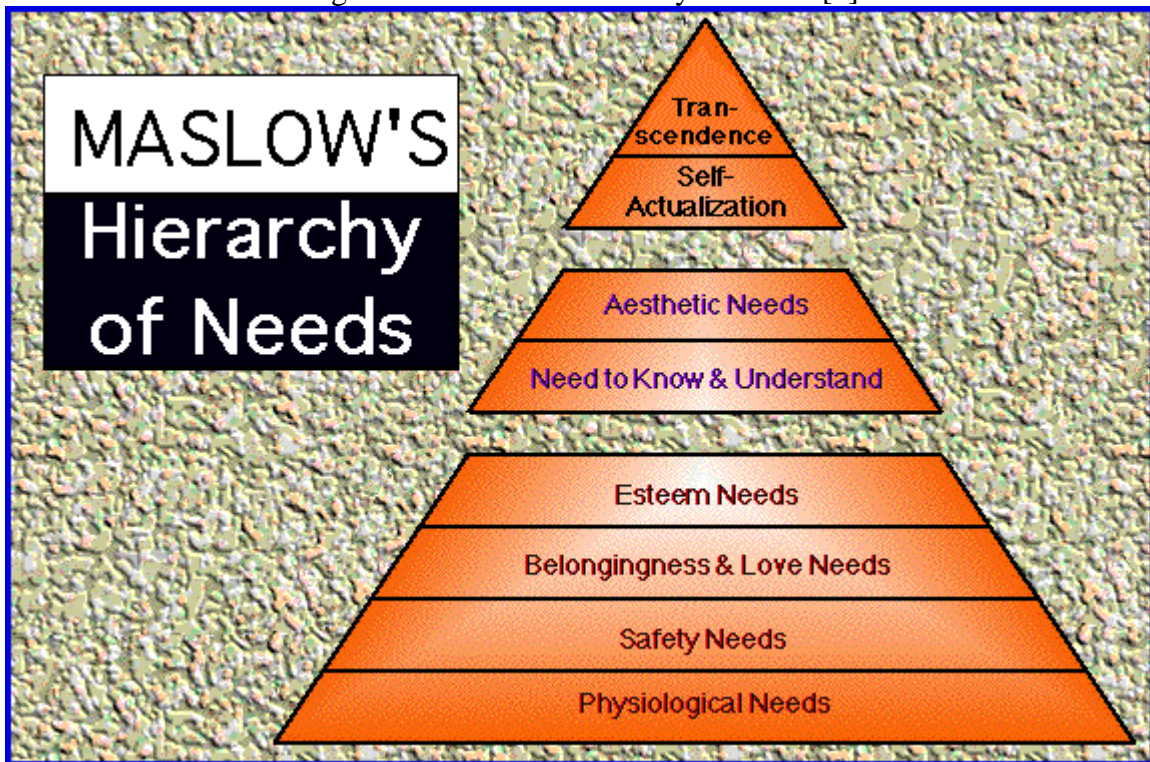
These are termed by Maslow as 'deficiency needs.' Once these needs have been actualized, then the individual tends to focus on the 'growth needs.'

Growth Needs

Maslow identified four growth needs that can explain quite a bit about the motivation of the existing EMD champions, as well as pioneers, in general:

- ✓ Cognitive: To know, understand and explore
- ✓ Aesthetic: Symmetry, order and beauty
- ✓ Self-Actualization: To find self-fulfillment and realize one's potential
- ✓ Self-Transcendence: To connect to something beyond the ego or to help others find self-fulfillment and realize their potential.

Figure 1: Maslow's Hierarchy of Needs [1]



The self-actualized people tend to be characterized by:

- ✓ Being problem-focused
- ✓ Incorporating an ongoing freshness and appreciation of life
- ✓ A concern about personal growth
- ✓ The ability to have peak experiences

Each level of need is accompanied by different levels and types of information that can be accepted:

- ✓ Coping Information: Survival information, all other types are normally discarded if they do not assist in the goal of supplying deficient needs.
- ✓ Helping Information: Seeking information on dealing with safety needs
- ✓ Enlightening Information: Seeking information on belonging.
- ✓ Empowering Information: For people looking for information on developing their ego and self-esteem
- ✓ Edifying Information: For people in the Growth needs.

C.H. Patterson [2] describes the self actualized person, as compared to the average person, as follows (Maslow, 1956 - Quote):

- ✓ More efficient perception of reality and more comfortable relations with it. This characteristic includes the detection of the phony and dishonest person and the accurate perception of what exists rather than a distortion of perception by one's needs. Self-actualizing people are more aware of their environment, both human and non-human. They are not afraid of the unknown and can tolerate the doubt, uncertainty and tentativeness accompanying the perception of the new and unfamiliar. This is clearly the characteristic described by Combs, Snygg and Rogers as awareness of perceptions or openness to experience.
- ✓ Acceptance of self, others and nature. Self-actualizing persons are not ashamed or guilty about their human nature, with its shortcoming, imperfections, frailties and weaknesses. Nor are they critical of these aspects of other people. They respect and esteem themselves and others. Moreover, they are honest, open, and genuine, without pose or façade. They are not, however, self-satisfied but are concerned about discrepancies between what is and what might be or should be in themselves, others and society.
- ✓ Spontaneity. Self-actualizing people are not hampered by convention, but they do not flout it. They are not conformists, but neither are they anti-conformists for the sake of being so. They are not externally motivated or even goal-directed. Rather their motivation is the internal one of growth and development, the actualization of themselves and their potentials.
- ✓ Problem-Centering. Self-actualizing people are not ego-centered but focus on problems outside of themselves. They are mission-oriented, often on the basis of a sense of responsibility, duty or obligation rather than personal choice. This characteristic would appear to be related to the security and lack of defensiveness leading to compassionateness.
- ✓ The Quality of Detachment; The need for Privacy. The self-actualized person enjoys solitude and privacy. It is possible for him/her to remain unruffled or undisturbed by what upsets others. He may even appear to be asocial. This is a characteristic that does not always appear in descriptions of self-actualized persons.
- ✓ Autonomy, Independence of Culture and Environment. Self-actualized persons, though dependent on others for the satisfaction of the basic needs of love, safety, respect and belongingness, are not dependent for their main satisfactions on the real world, or other people, culture or means-to-ends, or, in general, on extrinsic satisfactions. Rather, they are dependent for their own development and continued growth upon their own potential and latent resources.
- ✓ Continued Freshness of Appreciation: Self-actualizing persons repeatedly, though not continuously, experience awe, pleasure and wonder in their everyday world.
- ✓ The Mystic Experience, The Oceanic Feeling. In varying degrees and with varying frequencies, self actualizing people have experiences of ecstasy, awe and wonder with feelings of limitless horizons opening up, followed by the conviction

- that the experience was important and had a carry-over into everyday life [I refer to this as 'passion' - HWP].
- ✓ **Gemeinschaftsgefühl.** Self-actualizing people have a deep feeling of empathy, sympathy or compassion for human beings in general. This feeling is, in a sense, unconditional in that it exists along with the recognition of the existence of others of negative qualities that provoke occasional anger, impatience and disgust.
 - ✓ **Interpersonal Relations.** Self-actualizing persons develop deep interpersonal relations with others. They are selective, however, and their circle of friends may be small, usually consisting of other self-actualizing people, but the capacity is there. They attract others to them as admirers or disciples.
 - ✓ **The Democratic Character Structure.** The self-actualizing person does not discriminate on the basis of class, education, race or color. He is humble in his recognition of what he knows in comparison with what could be known, and he is ready and willing to learn from anyone. He respects everyone as potential contributors to his/her knowledge, merely because they are human beings.
 - ✓ **Means and Ends.** Self-actualizing persons are highly ethical. They clearly distinguish between means and ends and subordinate means to ends.
 - ✓ **Philosophical, Unhostile Sense of Humor.** Although the self-actualizing persons studied by Maslow had a sense of humor, it was not of the ordinary type. Their sense of humor was the spontaneous, thoughtful type, intrinsic to the situation. Their humor did not involve hostility, superiority or sarcasm.
 - ✓ **Creativeness.** All of Maslow's subjects were judged to be creative, each in his own way. The creativity involved here is not special-talent creativeness. It is a creativeness potentially inherent in everyone but usually suffocated by acculturation. It is a fresh, naïve, and direct way of looking at things.

While this last passage of points is relatively long. I have noticed, in my travels, that most of the champions of EMD can be identified with most, if not all, of the above traits. This does not exclude others, of course, that have not accepted EMD, as the focus of self-actualization does have to do with the person's interests.

Exploring the Potential – Motivation

What we are left with is the need to explore how to motivate others. A common method is fear – a motivating method that is commonly used in sales. However, I, personally, feel that this is a very weak means of motivating someone. It stresses the basic deficiency needs but, once the need is realized (ie: the technologist bought the equipment or started the program), interest is lost. As a result, while this is a short-term solution for some sales organizations, it is not a successful long-term strategy, including for sales.

This fear also stands in the way of the application of EMD as many, even self-actualized persons, can have a temporary reduction of basic needs (ie: If I mess up, I could lose my job), even if it is just perceived, concerning technology.

Instead, the concept needs to be approached from a more realistic side. There are several approaches that can be considered, of which I will briefly explore two: Cognitive Expectancy Theory; and, Humanistic Theories.

Using Cognitive Expectancy Theory, we are given the equation: Motivation = Perceived Probability of Success (Expectancy) * Connection of Success and Reward (Instrumentality) * Value of Obtaining Goal (Value). All three must be of relatively high values and present for motivation to occur.

Maslow presents the Humanistic Theory, which provides that there must be a combination of basic needs fulfillment for motivation. From this standpoint, there are five factors of motivation:

1. Instrumental Motivation (Rewards and Punishers);
2. Intrinsic Process Motivation (enjoyment and fun);
3. Goal Internalization (Self-determined values and goals);
4. Internal Self Concept Based Motivation (Matching behavior with internally-developed ideal self); and,
5. External Self Concept Based Motivation (Matching behavior with externally-developed ideal self).

Factors one and five are both externally oriented and influence those who react to the immediate actions in the environment. Factors two, three and four are internally oriented, and influence those who are task-oriented.

By taking a close look at transitions of persons from fair to no interest in EMD to champions of the technologies, we can explore which of these motivating means would be more successful.

In each case, the concept of a new technology drew a large number of questions, as would be expected, from those who became champions. The primary issues had to do with one, or a combination, of the following:

- ✓ Fear of new technology due to negative influence by competitors (security – ie: loss of job)
- ✓ Fear of making a bad call on a potential problem (security, esteem, belonging)
- ✓ Fear of making a purchase decision (security, esteem, belonging)
- ✓ Fear of changing the status quo (security, esteem, belonging)
- ✓ Fear of the reduction of esteem should it be the wrong decision (security, esteem, belonging)
- ✓ Fear of the unknown (security, esteem, belonging)

In effect, the primary motivation for not moving forward with technology is fear. The fears fall upon specific basic needs. Therefore, the easiest choice is often the choice to do nothing, in order to satisfy short term basic needs.

Resolution – Getting Around the Negative Motivations

From a corporate or reliability standpoint, EMD has been found to be a ‘no-brainer’ once it has been applied. Financial paybacks are normally presented in terms of days and equipment availability increases. This is known, and therefore, we shall consider fact.

The problem, however, is that the concept of EMD is relatively new (20 years) and has only come into its own in the late 1990’s and strongest over the past 2-3 years. The vast potential for EMD has barely been tapped, with less than 2% of potential applications having been realized in the USA, alone.

The key appears to be two-fold: Eliminating the basic needs issue of fear; and, Expounding upon the rewards.

There are several approaches that can be successful:

1. **Eliminate the Fear:** So far this has been performed by companies or individuals. Instead, the introduction of a recognized organization, not affiliated with the manufacturers of the technology, must be created. Also, articles and information produced by users of the technology must be presented and published. Companies can reduce fear of failure by recognizing that there are a minority of specialists, at this stage in the technology, as compared to infrared and vibration. The issues are also quite different. However, the beginning has been similar to those beginnings of well-accepted technologies. Ensuring that training will be provided is an excellent method of removing this issue, as well as the implementation of recognized standards. Recognize that negative attacks by competing technologies are strictly a commercial reaction to a loss of market share and that the best approach is to seek neutral users of the technology for clarification.
2. **Personal Recognition:** The application of the technology puts the technologist in a unique position. At this stage in the technology, he/she has the opportunity to make a significant and measurable impact on the organization and, should the person wish, on the industry. While there are hundreds of authors on other maintenance technologies, there are only a handful in the area of EMD, just as with other emerging technologies.
3. **Security:** The demand for EMD specialists is on the rise and experts are extremely rare in all sectors. While the technology is not a tremendous burden to learn, and some of the technologies can be self-taught relatively quickly, there is not a ready supply of EMD specialists as opposed to vibration, infrared and other technologies.
4. **Education:** There needs to be a continuous and expanding source for education to provide support for the above points. This can be achieved through a recognized organization, which satisfies the need of belonging.

Conclusion

The primary barrier for the application and acceptance of Electrical Motor Diagnostics is Fear as it relates to the basic needs. In order to combat this problem, we must eliminate this fear and, instead, provide the concepts of increased prestige, security, belonging and ego (personal recognition) as primary drivers. The minority of self-actualized individuals will not require the same motivation as the majority, but will, instead, emerge as leaders and champions of EMD.

The best approach to building the EMD industry, and its positive impact upon industry as a whole, is to present the primary drivers of security, prestige and belonging through education, communication and the development of an organization. Industry can achieve buy-in, within itself, by expressing job security, potential promotion, prestige and understanding (ie: recognize the potential for mistakes) by recognizing those individuals who are willing to take risks, good or bad. The potential economic return for industry is tremendous.

For the individual technologist, EMD is a ground-breaking technology with a limited number of experts who are badly needed within industry. The technology has taken hold and is no longer a risky proposition. With modern technology, instruments and computers provide much of the analysis, making the entrance to the specialty far easier than with other technologies. By entering the EMD and reliability job market, you are ensuring your future with far more potential than the average maintenance or reliability professional.

About the Author

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