USING MEYERS-BRIGGS TYPE INDICADOR IN ASSESSING PROJECT TEAMS WITHIN INFORMATION SYSTEMS FIELD

Rodríguez Montequín, V. *; García Nieto, A.; Alvarez Cabal, V.; Ortega Fernández, F.
* Área: Proyectos de Ingeniería -Universidad de Oviedo
Dpto. Explotación y Prospección de Minas
C/Independencia s/n (33004) Oviedo.
Tfn. : + 34 985104272 Fax: + 34 985104256 e-mail: montequi@api.uniovi.es

RESUMEN

El indicador de personalidad Meyers-Briggs (MBTI) se ha convertido en uno de los más usados instrumentos psicométricos para evaluar las características de la personalidad referentes al entorno de trabajo. El MBTI sugiere que cada tipo de personalidad tiene una contribución hacia el trabajo en grupo. Postula que hay cuatro estilos de comportamiento diferentes que dan lugar a cuatro separadas pero interrelacionadas rangos de preferencias personales o tendencias naturales en una situación dada. El propósito de este artículo es centrarse en las características más relevantes para un satisfactorio equipo dentro del entorno de los proyectos de Sistemas de Información (IS). Conocer más sobre la personalidad de los miembros del equipo y como diferentes personalidades se complementan o chocan puede ser una información muy útil a la hora de desarrollar el equipo de trabajo dentro del proyecto. Los resultados de este estudio tienen implicaciones para la gestión, desarrollo y aprendizaje. Pueden ser además de utilidad además para reclutar el equipo adecuado.

Palabras clave: Sistemas de Información, MBTI, trabajo en equipo

ABSTRACT

The Meyers-Briggs Type Indicator (MBTI) has become one of the most widely-used psychometric instruments for assessing personality characteristics regarding to work environment. The MBTI suggests that every personality type has a contribution to build the teamwork. It postulates that four different behaviour stiles give rise to four separate but interrelated ranges of personal preferences or natural tendencies in a given situation. The purpose of this paper is to focus on those characteristics most relevant to a successful project team within Information Systems (IS) field. Knowing more about the team members personality and how different personalities compliment or conflict can be useful information in building and leading a project team. The results of this study have implications for management development and training. They can also serve as a guideline for recruiting the right team.

Key Words: Information System, MBTI, team work

0 INTRODUCTION

The purpose of this paper is to focus on those characteristics most relevant to a successful project management team within Information Systems (IS) field. IS projects follow established management methodologies governing the life cycle of the project. IS projects are notorious for their failure rate. A 1998 survey found a 24% success rate of enterprise management solutions [1]. Klein and Jiang [2] state that much failure is due to a difference in expectations prior to the start of a new system development. Much of the difference in expectations may be in the use of metrics not fully understood by every stakeholder in a new system. Current theory and management practice suggests a better focus on building an understanding of the critical evaluators to develop a common understanding of expectations will improve success rates. Such activity requires broader viewpoints of success and the input of more stakeholders well before any project tasks are conducted. The difficulty in delivering IS project successfully comes from the challenge in specifying the system requirements in a way that will lead the business benefit and the intangible nature of the product being produced. Reel [3] defines ten signs that indicate that an IS project is in jeopardy:

1. Software people don't understand their customer's needs.
2. The product scope is poorly defined.
3. Changes are managed poorly.
4. The chosen technology changes.
5. Business needs change.
6. Deadlines are unrealistic.
7. Users are resistant.
8. Sponsorship is lost
9. The project team lacks people with appropriate skills.
10. Managers avoid best practices and lessons learned

Most of the ten factors are strongly related with teamwork and personality aspects, especially communication and coordination aspects. The scale of many development efforts is large, leading to complexity, confusion, and significant difficulties in coordinating team members. Uncertainty is common, resulting in a continuing stream of changes that ratchets the project team. Interoperatibility has become a key characteristic of many systems. New software must communicate with existing software and conform to predefined constraints imposed by the system or product. In order to overcome these problems, a team working environment is needed. Researchers are beginning to postulate that the most effective software development teams are also the teams that contain a variety of different personality or temperament types [4][5]. Teamwork capability of team members and working relationships among team members, which directly affect team performance, are important for a successful project team and cannot be overlooked. If team members are not competent of effective teamwork and do not have good working relationships among them, the team will not funcition successfully although each team member has strong technical skills [6]. According to Amabile [7], "Team member diversity and mutual openness to ideas may operate on creativity by exposing individuals to a greater variety of unusual ideas; such exposure has been demonstrated to positively impact creative thinking."

As summarized by Allen [8], many studies have shown a positive relationship between project performance and communication within each project team. In particular, Smart and Barnum [9] stated that many teams fail often due to poor or inadequate communication. It is also one of the most recognized key success factors for IS projects. The important role of communication

between IS personnel and users during system development has been demonstrated in several studies [2].

Knowing more about the team member personality and how different personalities compliment or conflict can be useful information in building and leading a project team. MacDonald [10] highlighted the characteristics of design teams that include leadership, conflict, communication, size, team age, coordination, and cohesiveness. Prince [11] identified six skills of team process behaviours: leadership, assertiveness, decision-making, mission analysis, situation awareness, communication, adaptability and flexibility. Sundstrom [12] emphasized the important factor to be an effective team, such as organizational structure and culture, mature communication, group stability over time, experience, small group, and personality traits. The flexibility and involvement of teamwork also help ensure the quality of team performace [13][14]. The Meyers-Briggs Type Indicator has become one of the most widely-used psychometric instruments for assessing personality characteristics regarding to work environment. The MBTI suggest that every personality type has a contribution to make the teamwork. It postulates that four different behaviour stiles give rise to four separate but interrelated ranges of personal preferences or natural tendencies in a given situation. These ranges may be characterised as "information gathering" (extraversion or introversion), "focus" (sensing or intuition), "decision making" (thinking or feeling) and "orientation" (judgement or perceiving). The combination of these four ranges results in sixteen possible characteristic types. MBTI has applications in diagnosing organizational issues, teamwork, communication, counselling, strategic thinking, performance appraisal, leadership and stress management. Different types approach change situations in different ways. Using the right personality style can help reducing conflict and creating improved communication between team members. A true appreciation of the nature of differences in personality allows managers to manage effectively, thereby enhancing both individual and group performance.

The results of this study have implications for management development and training. They can also serve as a guideline for recruiting the right team.

1 THE MYERS-BRIGGS TYPE INDICATOR

The Myers-Briggs Type Indicator (MBTI) has been, for more than fifty years, the most trusted and widely used instrument in the world for determining the personality type. This tool was developed by Isabel Myers and Katherine Briggs [15], based on Carl G. Jung's work [16] of psychological types. This theory explains that differences in human behaviour are simply the result of a few variations in mental functioning. These differences relate to how people prefer to use their minds, and particularly how they perceive and make judgments, which are called functions. There are four groups with each group consisting of two opposite preferences:

1. Focus of Attention:
    - Extrovert (E): Those who relate best to the outer world. They are comfortable in talking and sharing with others. They gain their energy from working with groups.
    - Introvert (I): Those who relate best to their inner self. They are comfortable in working quietly alone. They drain their energy from interactions in a group.
2. Seeking Information:

- Sensing (S): Those who rely on facts, reality and no nonsense. They focus on the details. When asked to review a document, they like to find typographical errors and misspellings.
- Intuitive (N): Those who use intuition, speculation, possibilities and imagination. They focus on the big picture. When asked to review a document, they like to identify problems in how the topic in the document was developed.

3. Decision-Making:
   - Thinking (T): Decisions are made by using sound principles, laws, policy and criteria. Thinkers are analytical, logical, and objective.
   - Feeling (F): Decisions are made by values, devotion, sympathy, and harmony. Feelers will take the emotions and opinions of others into consideration when making a decision. They have a strong need to maintain harmony within a group.
4. Relationships with the World:
   - Judging (J): They are outcome-oriented, regulated, and decisive. They make decisions quickly. Judging members like to get thing settled or come to a closure.
   - Perceiving (P): They are process-oriented, flexible, and open-minded. They make decisions slowly. Perceiving members like to get additional information or consider a new possibility.

Using the MBTI, every individual's personality type can be described through four variables of two opposite states, which makes up a total of sixteen possible personalities (figure 1). For example, if a person takes the MBTI test and the type reported is ISTJ, means that has preferences for Introversion, Sensing, Thinking and Judging.

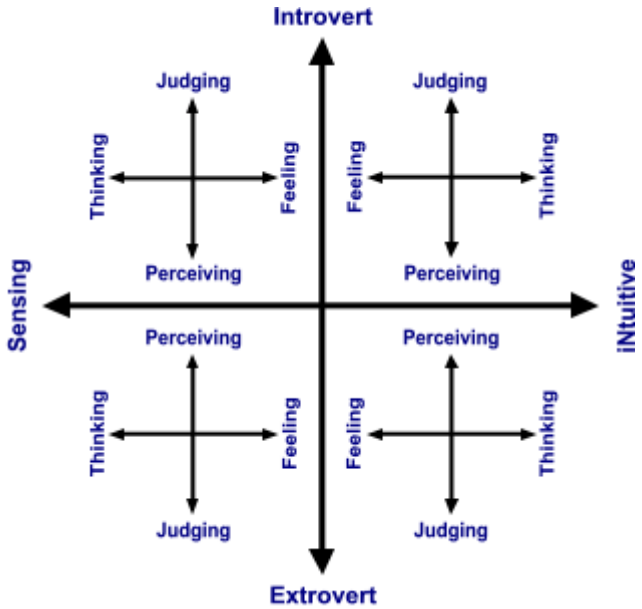

Figure 1: MBTI grid (Source: Max Wideman)

Keirsey and Bates [19] have identified the distribution of personality types through the sixteen cells of the four by four MBTI grid. By using this as a basis for comparison, we can gain an interesting insight into the availability of people suited to various roles in project work. The personality styles and their preferences represented by each cell in the grid reflect the interaction of various combinations of temperaments, rather than the individual temperaments

on their own. The descriptions provided by the MBTI give valuable insight into the differences between normal, healthy people. These differences can be the source of much difficulty in understanding and communication, attributes that are so important in project teamwork. The most effective teams should have a good combination of personality types.

To ensure a successful team, it is important to understand the characteristics of team members. To build a successful project team, teamwork capability of team members is needed by taking their experience, communication skills, and flexibility in job assignment into account. Personality profiling using Myers-Briggs type indicator serves as the basis of assessing each team member's abilities to work with others.

2 PERSONALITY TYPES IN COMPUTING

All the studies regarding personality types of computing professionals, including the major one developed by Lyons [17], conclude that IS people have MBTI combinations very different from general population but remarkable similar among them [18]. Although this fact might be affected by external influences, as prejudices of certain personalities to enrol computer science University courses and thereafter careers, the truth is that ISTJ and INTJ types are the two most common types found in this industry sector.

Study	I	E	N	S	F	T	P	J
General Population (%)	25	75	25	75	50	50	50	50
Computing Personnel (%)	67	33	54	46	19	81	34	66

Table 1: MBTI personality types of general population and computing personnel

Study	ISTJ	INTJ
General Population (%)	6	1
Computing Personnel (%)	22.6	15.5

Table 2: The two most common MBTI personality types in computing personnel

Table 3 shows the typical Myers-Briggs personality matrix [15] to describe the top five MBTI personality types taken from the different studies, using stronger shading to mean a higher percentage of representation. The underscore character in each of the sixteen personality combinations indicates the dominant process (namely, perception or judgment) for that type.

IS<u>T</u>J	IS<u>F</u>J	IN<u>F</u>J	IN<u>T</u>J
IS<u>T</u>P	IS<u>F</u>P	IN<u>F</u>P	IN<u>T</u>P
ES<u>T</u>P	ES<u>F</u>P	EN<u>F</u>P	EN<u>T</u>P
ES<u>T</u>J	ES<u>F</u>J	EN<u>F</u>J	EN<u>T</u>J

Table 3: Five most common MBTI personality types in computing personnel

3 TEAM BUILDING IN COMPUTING

After studying thoroughly different software engineering methods and the newest IS development techniques, everybody agrees that human factor is the key. People are the ultimate tools to develop any system and therefore deserve the respect and study necessary to bring them up to their best performance. If a team can be thought as a group of two or more people working together to achieve common goals, it is obvious that all or most of the IS developments

nowadays are done by teams. Thus the question is how to build a team which is efficient and effective? Focusing on people, everybody agrees that any individual is unique, but also that has certain personality attributes that make him work and feel better on certain tasks and with certain people. Type characteristics and affinity are essential to handle teambuilding with success. Myers [15] describes it perfectly, “The best co-workers probably are people who differ on perception (S/N) or judgment (T/F) (but not both) and are alike on at least one other preference. This much difference is useful, and the two or three preferences they have in common help them to understand each other and communicate”. She also mentions, “Two people, alike in their kind of perception or their kind of judgement but not both, have the makings of a good working relationship. Their shared preference gives them common ground and their dissimilar preference gives them, as a team, a wider range of expertness than either has alone. When co-workers differ on both perception and judgment, they have a problem”. This is especially important in teamwork in which a mixed group of SN and TF members is needed fro problem solving and decision making.

Therefore, the rule of thumb is that diversity in personality, as it always happens in nature, is positive for a team to accomplish goals efficiently, but it implies the necessity to balance properly the perception and judgement functions to avoid future problems. Another fact that contributes to alikeness and understanding is the difference in temperament [19] among individuals. Based on Keirsey theories, there are four major temperament patterns: Idealist, Guardian, Rational and Artisan. A person with an Idealist temperament would tend to have an altruistic perspective and be a natural catalyst for forming a high-performing group. A person with a Guardian temperament would tend to protect and preserve the order of the group. A person with a Rational temperament would tend to be innovative and would excel in design and analysis. A person with an Artisan temperament would tend to be spontaneous and prefer autonomy.

As we talk previously, communication is a key success factor for IS projects. According to Myers theory [15], thinkers are by nature impersonal and critical of anything they consider wrong. When they disagree with feeling types, thinkers may state their disagreement so forcefully and bluntly that the feeling types feel attacked. Communication with feeling types should make use of their feeling. Communication with a thinker should be as logical and orderly as the feeling type can make it. Communication between sensing and intuitive types presents also several problems due to personality differences. Sensing types want the solution to be workable, thinkers want it systematic, feeling types want it humanly agreeable, and intuitives want a door left open for growth and improvement. Given understanding and good will, they should be achievable.

The different temperament types are four and the MBTI variables that identify them are: SJ, SP, NT and NF. Kroeger [20] describes their traits as follows.

- SJ: Administrators, precise, structure, orderly
- SP: Problem solvers, practical, resourceful, quick starters
- NT: Conceptualizers, systems planners, architects of change
- NF: People motivators, empathic, aware of others feelings, persuaders

Whithin IS projects we can find three main profiles: Analyst, Designers and Programmers. In the next sections we will show the most recommended MBTI type combinations for specific IS

roles given a standard software engineering method, as well as possible personality type combinations to improve team performance.

3.1 Analyst role:

In the following table, Teague [18] shows the preferred MBTI personality types for this role.

ISTJ	ISFJ	INFJ	INTJ
ISTP	ISFP	INFP	INTP
ESTP	ESFP	ENFP	ENTP
ESTJ	ESFJ	ENFJ	ENTJ

Table 4: Adequate MBTI personality types for Analysts (stronger shading means more preferred)

The analysts should have the ability to see the 'big picture', the ability to single out the items that are relevant from large quantities of data, and the ability to interact with users and management to get their support and obtain from them the maximum amount of relevant information. When building a team of analysts the most preferred personalities should include NT and/or NF pairs. Although Teague says that Extroversion is best suited for this role, the variable Extroversion/Introversion is measured as a percentage, which means that a moderate Introverted individual (i.e., E 40% / I 60%) could do this function as well as an Extroverted and actually are more common in these careers [Table 2 and 3]. Also when teaming up people we must look for individuals that match on perception and/or judgment MBTI values, and to obtain a final group with similar number of people who prefer perception and who prefer judgment as their "dominant" process, to ensure enough time to collect information and to make a decision.

3.2 Designer role:

In the following table, Teague [18] shows the preferred MBTI personality types for this role.

ISTJ	ISFJ	INFJ	INTJ
ISTP	ISFP	INFP	INTP
ESTP	ESFP	ENFP	ENTP
ESTJ	ESFJ	ENFJ	ENTJ

Table 5: Adequate MBTI personality types for Designers (stronger shading means more preferred)

The first part of the design stage will require characteristics similar to those required for analysis, as it involves group discussion and consideration of large amounts of data. In the larger stages of design, the work requires detail, often performed by individuals working alone. When building a team of designers, we should include a diverse combination, if available, of the most shaded MBTI types shown above in Table 5. If we take a close look at these personalities, we find that represent the four temperaments described earlier which means that we must take special care when mixing them because conflict and poor performance is likely to arise. Thus we must look for individuals that match on perception and/or judgment MBTI values as much as possible, and to obtain a final team with similar number of people who prefer perception and who prefer judgment as their "dominant" process, to ensure enough time to collect information and to make a right decision. Common personalities as INTJ and ISTJ are very welcome to this type of team but to make it more balanced it would need, when possible, to include members with a judging dominant process and extroversion.

3.3 Programmer role:

In the following table, Teague [18] shows the preferred MBTI personality types for this role.

ISTJ	ISFJ	INFJ	INTJ
ISTP	ISFP	INFP	INTP
ESTP	ESFP	ENFP	ENTP
ESTJ	ESFJ	ENFJ	ENTJ

Table 6: Adequate MBTI personality types for Programmers (stronger shading means more preferred)

When building a team of programmers, we should include basically ISTJ personality types and to compensate the group we could use another ST type with a judging dominant process, a good election would be an ESTJ personality. Contrary to what Teague shows in Table 6, INTJ individuals would be also excellent members of this type of team, due to their capacity to bring up new ideas and to their skilled abstraction.

4 SUMMARY

In this paper, we presented a review about the influence of different personality types over the IS projects. MBTI, is the most used personality profiling regarding to working relationships. MBTI is a tool with intent not to stereotype, but to allow understanding of individual preferences to facilitate all aspects of life: differences in learning and communication styles, conflict management, and relationships.

IS projects have specific characteristics due to the intangible nature of the product. People are recognized by most experts as a key aspect within these projects. Nowadays efforts for improving IS projects are focused in teamwork aspects, mainly communication and coordination. Teamwork capability of team members and working relationships among team members, which directly affect team performance, are important for a successful project team. When staffing a team, attention should be paid both in technical competences and relational competences. Knowing more about the team member personality and how different personalities compliment or conflict can be useful information in building and leading a project team. Communication can be improved paying especial attention to the differences between personalities.

IS people have MBTI combinations very different from general population, although remarkable similar among them. ISTJ and INTJ types are the two most common types found in this industry sector. Both profiles are very suitable for designers and programmers roles, but not the most adequate for analysts, where extroverted NT and NF profiles are desired.

The team will be compounded of all three roles: analysts, designers and programmers. When selecting the staff, a balance must be kept, including different profiles for diversity, but avoiding conflicts. This can be done choosing the right people with compatible MBTI profiles, covering both all the technical and relational functions. The results of this study have implications for management development and training. They can also serve as a guideline for recruiting the right team.

5 REFERENCES

[1] Gallagher, S., 1998. Beat the systems management odds, Information Week, No. 675 March 30, pp. 61–76.

[2] Klein, G; Jiang, JJ. Seeking consonance in information systems
J SYST SOFTWARE, 56 (2): 195-202 MAR 1 2001

[3] Reel, J.S.. Critical Success Factors in Software Projects. IEEE Software, May 1999.

[4] Hohmann, L., 1997. Journey of the Software Professional: the Sociology of Software Development, Prentice-Hall, Upper Saddle River, NJ.

[5] Constantine, L., 1995. Constantine on Peopleware, Prentice-Hall, Englewood Cliffs, NJ.

[6] Shi-Jie Chen and Li Lin. Modeling Team Member Characteristics for the Formation of a Multifunctional Team in Concurrent Engineering. IEEE Transactions on Engineering Management, Vol. 51, No. 2, May 2004.

[7] Amabile, T.M., Conti, R., Coon, H., Lazenby, J. and Herron, M., 1996. Assessing the work environment for creativity. Academy of Management Journal 39, pp. 1154–1184.

[8] Allen, T.. Organizational structure, information technology, and R&D productivity. IEEE Trans. Eng. Management. Vol. EM-33, no. 4, pp. 212-217, 1986.

[9] Smart, K. L. and Barnum, C.. Communication in cross-functional teams. IEEE Trasn. Prof. Commun. pp. 19-21, Feb./Mar. 2000.

[10] MacDonad, W.R. et al. Characteristics of interdisciplinary research teams. Interdisciplinary Analysis and Research. D. E. Chubin et al. Eds: Lomond, 1986, pp. 395-406.

[11] Prince, A. Brannick, M. T., Prince, C., and Salas, E.. Team process measurement and implications for training" in Proc. Human Factors Soc. 36th Annual meerint, vol. 2. San Francisco, CA, 1992.

[12] Sundstrom E., DeMeuse K. P., and Futrell D. Work teams, applications and effectiveness." Amer. Psychologist, vol. 45, no.2, 1990.

[13] Campion M. A., Medsker G. J., and Higgs A. C.. Relations between work group characteristics and effectiveness: Implications for designing effective work groups" Pers. Psychology, vol. 46, 1993.

[14] Stinson, T.. Teamwork in real engineering. Mach. Des., vol. 22, Mar. 1990.

[15] Myers, Isabel Briggs, with Peter B. Myers, Gifts Differing, Consulting Psychologists Press, Palo Alto, CA, 1980

[16] Jung, Carl G., Psychological Types, Journal of Psychological Type, Volume 15, 1988, pp. 50 – 53

[17] Lyons, M. L., The DP Psyche, Datamation, vol. August 15, pp. 103–110, 1985

[18] Teague, G.J., Personality type, career preference and implications for computer science recruitment and teaching, in Proceedings of the Australasian Computer Science Education Conference '98, P. Strooper, Editor. 1998, The Association for Computing Machinery, Inc.: Brisbane. p. 155– 163

[19] Keirsey, David, and Marilyn Bates. 1984. Please Understand Me: Character and Temperament Types. Prometheus Nemesis Book Company, CA: 3-4

[20] Otto Kroeger Associates, An MBTI® Qualifying Programme, 2nd ed. Fairfax, Virginia: Otto Kroeger Associates, 1985