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UNDERSTANDING ANALYST EFFECTIVENESS IN REQUIREMENTS ELICITATION: A GESTALT FIT PERSPECTIVE

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Abstract

Analyst effectiveness has been viewed as a critical success factor for information systems development (ISD) projects, especially for the requirements elicitation phase. Prior literature on "analyst effectiveness" has primarily focused on examining (and understanding) the specific set of capabilities an analyst needs to possess in order to be effective. We argue that such an assumption may not necessarily provide us with a comprehensive view of this critical issue, as capabilities of an analyst are necessary but not a sufficient condition leading to their effectiveness. Consistent with this view, in this paper we propose a fit perspective, and argue that analyst effectiveness is dependent on a fit between the contextual factors and the analyst's capability. Specifically, the manuscript argues for two gestalt fit constructs: analyst-project fit and analyst process fit for understanding analyst effectiveness, and explicates on the nature of the gestalt fit. Further drawing on the two gestalt perspective, we also propose a resourcing strategy, which may be used by organization and ISD project managers in recruiting suitable analysts for their projects.

Keywords: System Analyst, Analyst effectiveness, requirements elicitation, gestalt fit.

1 INTRODUCTION

A fundamental phase of information system development (ISD) projects is requirements elicitation (RE). The primary goal of RE is to objectify the nature as well as the boundaries of the problem domain that would be encapsulated within the proposed information system. Previous research acknowledges (Agarwal, Sinha and Tanniru, 1996) that it is a problematic process, and its success or failure has a significant impact on the success of the overall information systems development (ISD) project.

Given the importance of this phase and the ubiquitous nature of the problems associated with it, this topic has attracted significant amount of research. Investigations have been carried out in areas such as ontological assumptions about problem domain (Lewis, 1994) and methodological issues (Hirschheim, Iivari and Klein, 1997). Other researchers have examined issues such as alternative methodologies (Weaver, 1992), user participation (Barki & Hartwick, 1989) and the process through which the requirements are gathered (Pitts & Browne, 2004).

Acknowledging that the system analyst is a key player in this phase of the ISD (Coughlan, Lycett & Macredie, 2003), a number of studies have also examined the role played by the analysts, and factors affecting their effectiveness. Specifically a primary focus of investigation in this body of literature has been the enumeration of analyst capabilities. However analyst effectiveness may not be just a function of their capabilities. Drawing on the person-job fit literature we argue that analyst effectiveness is not contingent only on the analyst's skills, but also on the context created by the specific project, and the actual RE process. In other words, while there may be analysts with the requisite skills, their effectiveness may only be manifested if the *right* people are deployed for the *right* task—that is, a *fit* exists. Thus, our research question is:

> *What is the nature (and dimensions) of the fit that lead to analyst effectiveness during RE?*

The rest of the article is organized as follows: First, we examine previous research on analyst effectiveness. Next, we present our theory surrounding the conditions under which analyst effectiveness may be achieved during RE. Finally, we propose a strategy for optimal resourcing of systems analysts in an ISD project based on our fit perspective.

2 REVIEW OF PRIOR RESEARCH

2.1 Research on Analyst Effectiveness

In table 1 we provide a representative sample of some studies on this topic

Analyst Effectiveness Dimensions	Research Articles
Analyst characteristics based	Lerouge,Newton and Blanton (2005); Graf and Misic (1994); Green (1989); Nord and Nord (1997)
Cognitive or functional processes used by Analysts	Heiker (1974); Coughlan et al. (2003); Pitts and Browne (2004)
Other factors (e.g. Organizational factors, Education, Training, Interpersonal environment etc.)	Butterfield (1998); Misic and Graf (1993); Scharer (1982)

Table 1 Research investigating System Analysts

As Table 1 suggests, a large number of studies have proposed sets of generic capabilities/skills that analysts need to possess (such as expertise or knowledge of business/functional/technological

domains, analytic ability, and interpersonal skills) to be effective. Others have focused on understanding the cognitive activity and mental models of analysts (Pitts & Browne, 2004). Still others have examined the role played by isolated factors such as education (Heiker, 1974), performance evaluation (Scharer, 1982), and interpersonal environments (Misic & Graf, 1993).

Review of this body of literature, reveal some patterns: First, the primary focus of this research has been towards identifying analysts' capabilities; and second, studies in general have pursued an isolationist approach where only a particular dimension has been investigated. We believe that this lack of integration is a gap in the literature, and propagates an assumption that identification of an ideal analyst (with certain skills) is sufficient for analyst effectiveness. We argue that *while these skills are necessary, they may not be sufficient*. We address this void by proposing an alternative lens that adopts the perspective of 'fit' to understand and investigate analyst effectiveness.

2.2   Directions in resourcing research

We argue that the identification of the appropriate analyst for a given context is essentially a resourcing problem. Resourcing in general has been addressed at length in the human resource and psychology literature. A predominant theme in this research has been to examine resourcing in terms of compatibility or optimal fit. Among the various fit perspectives proposed, the person-job fit (Edwards 1991), which examines the compatibility of individuals with specific jobs, is most suited to our ISD context, where RE is a specific job that analysts need to perform.

Edwards (1991) defined person-job fit as a fit between the abilities of a person and the demands of the job or the desires of a person and the attributes of a job. Research conducted in the area of person-job fit indicates that there is a positive relationship between such a fit and performance (Caldwell & O'Reilly, 1990). While this body of literature provides us with the conceptual framework for examining our research question, given that the person-job fit literature characterises job in terms of a more macro conceptualisation, and resourcing for RE in a project requires a much more micro-level of focus, there is a need to formulate the specific nature of such fit in the context of RE.

3   DEVELOPMENT OF THE THEORETICAL MODEL

3.1   Fit and Analyst Effectiveness

In order to better understand the nature of fit, and its implications for analyst effectiveness it is important to examine the context of RE. Previous research indicates three important components of RE – the **analyst,** the specific **project** (which represents the task at hand, as well as the working environment) and the **process** of performing RE (Jiang, Klein & Means, 1999; Alshawi & Al-karaghouli, 2003; Pitts & Browne, 2004). At this point, we would like to note that by the term "process" we do not refer to the methodology employed during RE but rather the internal mechanisms utilised by the analysts to gain an understanding of a problem at hand. Specifically, we define the process as *the manner in which an analyst internalises and applies relevant information to formulate an understanding of the specific requirements.*

Each of the components of RE have certain dimensions that assume importance for the RE activity. These are the set of generic capabilities that the analyst needs to possess (**Analyst Capability**), the characteristics that defines the particular project (**Project Characteristics**) and characteristics of process (**Process Characteristics**).

We believe that these three components are multi-variate and conceptualise them as three independent sets. Now, one can logically argue that an alignment amongst these sets would lead

to analyst effectiveness, and increase the likelihood of a successful RE. The question remains as to what is the nature of this alignment or congruence? We propose that for this alignment to occur *the individual would need to possess a minimum subset of capabilities required of an analyst. These capabilities possessed by the individual need to be congruent to the specific characteristics of the project. Further, the capabilities of the individual have to be congruent with the characteristics of the process such that he/she is maximally efficient in carrying out the process.* In other words, extending on our set characterisation, the congruence or alignment can be conceptualised as an intersection between these sets (see Figure 1). This implies that analyst effectiveness would be enhanced if there were an intersection between the set of capabilities possessed by the analyst and the set of characteristics demanded by the project and the process. We further argue that this intersection is obtained through a mechanism of fit.
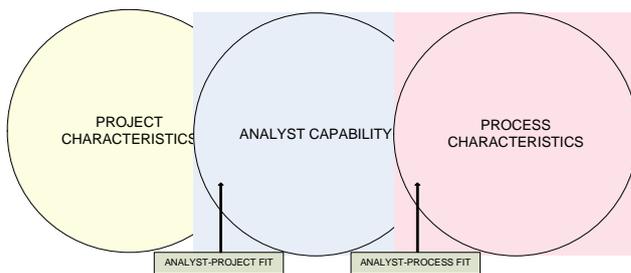

Figure 1-Conditions for analyst effectiveness

Therefore the two intersections shown in figure 1 essentially depict two different types of "fit" - **Analyst-Project Fit** and **Analyst-Process Fit.**

Based on the above discussion we propose that these two types of fit would enable the analyst to optimally meet the demands of the particular ISD project, therefore be more effective. Thus, we have:

Proposition 1 – Analyst-Project fit leads to increased analyst effectiveness.

Proposition 2 - Analyst-Process fit leads to increased analyst effectiveness.

Analyst-process fit refers to the suitability of an individual in performing the task of RE. Conformance to this criterion leads to the selection of individuals who would be effective as an analyst because they possess the capability that the process demands. The analyst-project fit on the other hand represents a contextual fit between the analyst's capability and the project characteristics. This fit is critical for success in a particular project.

In order for the organizations to draw on these fit constructs in resourcing a project we need to understand how such a fit may be achieved. In the next section we take the first steps towards that

3.2   Dimensions of Fit Antecedents

The fit constructs have three primary constituents – the analyst capability, the project characteristic and the process characteristic. Analyst skill and capabilities has been the subject of a number of IS research (Green, 1989; Lerouge et al., 2005). A recurrent theme in this work has been that analyst capabilities are multidimensional and encompass various elements ranging from skills related to the job at hand to socio-political skills (See section 2.1). Drawing on this literature, we propose that analysts have two primary sources of skill – *job related and individual-specific*. The job related skills are – *technical knowledge* and *business knowledge*. The skills arising from individual characteristics are *analytic skills* and *interpersonal skills*.

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Further, interpersonal skills are composed of political skills, communication skills and management skills.

Prior research argues that any ISD project has two dimensions: the problem domain (the specific information system being developed), and the social environment (the interaction amongst the stakeholders) (Jiang et al., 1999). The problem domain includes both the business perspective, and the technological perspective (Ratbe, King & Kim, 1999). In a successful RE, the problem domain needs to be clearly and unambiguously described in terms of both these perspectives. The understanding of both the business and technology perspective is contingent on the inherent complexity of the problem in hand Therefore we define *business complexity* and *technological complexity* as two dimensions of the project. We differentiate between these two forms of complexities, as the complexity of the technological domain may be independent of the nature of the business specifications. For example, the generation of a business report, a relatively simple business requirement, could pose different technological challenges based on the underlying infrastructure of the organization. Requirements of e-mailed business reports become a technologically challenging task if the underlying system is based on mainframe computers and a trivial task if it is a client-server based system. The final dimension is the *socio-political environment*, which defines the project environment, and is a function of the social interaction between the human actors. This could be benevolent or hostile to the ISD process. A benevolent environment would facilitate the RE task, while a hostile environment would severely inhibit it.

Given our conceptualisation of the process by which the analyst as an individual performs RE (see section 3.1), it is important to try and understand what are the pertinent characteristics of this process. Every RE activity is unique and the analyst has to often reinvent the wheel (at least important parts of it) each time he/she undertakes such an activity. Therefore in order to determine the problem boundary, the analyst has to learn about the problem in greater detail. Prior literature has argued that there is a process of extensive knowledge sharing regarding the systems requirements between the parties involved in RE (Alshawi & Al-karaghouli, 2003). We believe that this knowledge transfer facilitates the understanding of the problem and is thus a fundamental characteristic of the RE process. Specifically as a part of this process, the analyst assimilates new knowledge, and applies his/her existing knowledge on the problem at hand (Cook & Brown, 2002). Thus, we propose as dimensions of the knowledge transfer process– *Absorption of Knowledge* and *Application of Knowledge.*[1]

In Table 2, we provide a summary of the operational definitions of all the dimensions of Analyst Capability, Project Characteristics and Process Characteristics.

Analyst Capability	Definition
Business Knowledge	Knowledge of business processes that facilitates understanding of the business problem and allows the analyst to align information technology with the Business Objectives (Lee, Trauth & Farwell, 1995)
Technical Knowledge	Knowledge of software, hardware, programming techniques as well as the techniques that facilitate the activities of analysis, design, development and implementation of Information Systems (Misic & Graf, 2004)
Analytic Skills	The ability to examine things critically, and to segregate the broad scope into its individual components (Misic & Graf, 2004)

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[1] Our view of knowledge sharing in this paper adheres to the principles of the cognitivistic epistemology (e.g. Venzin, von Krogh and Roos, 2000) , which has dominated much of the research on organizational knowledge. Drawing on this perspective, our study assumes that knowledge of the system requirements is a "representable entity" that can be shared by the knowledge source (often, the business users) and assimilated and internalised by the recipient (i.e. the analyst).

Interpersonal Skills	Interpersonal Skills are essentially people skills that allow the analyst to interact effectively with the individuals associated in an IS project and also act as an effective mediating or negotiating agent when the situation demands it. (Lee et al., 1995)
Project Characteristics	**Definition**
Business Complexity	The inherent nature of the business functionality to be implemented in the information system, in terms of the number of requirements, the clarity of understanding about the requirements and the structural aspect of the requirements. (Ratbe, King & Kim, 1999);
Technological Complexity	The degree of compliance of the underlying information system with the business requirements (for existing systems) in terms of the size of the proposed system, or the amount of change in the underlying information system (Roberts, Cheney, Sweeney & Hightower, 2004)
Socio-political environment	The social and political climate of the project in terms of uncertainty and the degree of alignment of the objectives, and relationship amongst the project stakeholders
Process Characteristics	**Definition**
Absorption of Knowledge	The difficulty that the analyst faces in internalising or assimilating the new knowledge specific to the particular project (Cook & Brown, 2002)
Application of Knowledge	The difficulty that the Analyst faces in applying the project specific knowledge that has previously been internalised. (Cook & Brown, 2002)

Table 2 Dimensions of Analyst Capability, Project Characteristics and Process Characteristics

The analyst-project fit and analyst-process fit can be achieved through an association between the dimensions (described above), which we describe in further details below.

3.3 Operationalizing the nature of the Fit constructs

'Fit' has been conceptualized in different ways by prior research. Venkatraman (1989) has identified six different perspectives of fit – fit as moderation, fit as mediation, fit as matching, fit as gestalts, fit as profile deviation, and fit as covariation. Each of these perspectives implies distinct theoretical meanings, and requires the use of specific analytic techniques. Venkatraman (1989) suggests that it is important to specify the perspective of fit being adopted in a particular study.

Both the analyst-project fit and the analyst-process fit are *multivariate*. For example, the analyst-project fit can be perceived as a fit between the requirements of the project and the skills that can be supplied by the analyst. This fit has to occur at multiple levels, where each dimension of the project makes different demands on each of the analyst capabilities. An overall analyst-project fit is obtained through the various contingent fits at the sub-dimensional levels. Similarly, the analyst-process fit is also multidimensional, where an overall synergy results from the fit between the 'parts' of the constructs. Among the six perspectives of fit proposed by Venkatraman (1989), the *gestalt fit* represents such a multidimensional perspective. Specifically, Venkatraman (1989) argues that a gestalt fit focuses on the "identification of gestalts which is defined in terms of internal coherence among a set of theoretical attributes," and is inherently "multivariate" in nature. In other words a gestalt fit exemplifies a feasible set of consistent or equally feasible configurations (Venkatraman 1989). We thus conceptualize the fit in this manuscript as a gestalt. Below, we describe our gestalt fit perspective in further detail.

3.3.1   The Fit constructs as a gestalt fit

The gestalt conceptualization of the analyst-project fit results from a matching or degree of consistency among the different dimensions of *analyst capability* and *project characteristics*. As mentioned earlier, we conceptualise both of these as two distinct sets. Let PC represent the set of project characteristics and AC represent the set of the capabilities required by the analyst. Thus,

PC = {Business Complexity, Technological Complexity, Socio-Political Environment} and AC = {Business Knowledge, Technological Knowledge, Analytic Ability, Interpersonal Skill}

The fit that we are attempting to conceptualise is essentially a function that maps the different elements of AC to corresponding elements in PC. For example an attempt to optimise performance in an environment of high "business complexity" would require high *business knowledge* as well as *analytic skill* (Butterfield, 1998) on behalf of the analyst. The inherent business complexity of a proposed information system poses a dual challenge for the analyst – the need for an adequate understanding of the underlying business processes as well as an ability to arrive at a problem solution based on the information at hand. Given such a situation, we argue that *business knowledge* of the analyst would allow him/her to grasp the intricacies of a complex business problem, and his/her inherent *analytic ability* would enable the formulation of the solution. In terms of our gestalt analyst-project fit this suggests that there needs to be an association between the business complexity (belonging to PC) and business knowledge and analytic ability (AC). Following similar logic we can also associate the other dimensions of AC with corresponding dimensions of PC (see below).

{Business Complexity} is associated with {Business Knowledge, Analytic Ability}

{Technological Complexity} is associated with {Technological Knowledge, Analytic Ability}

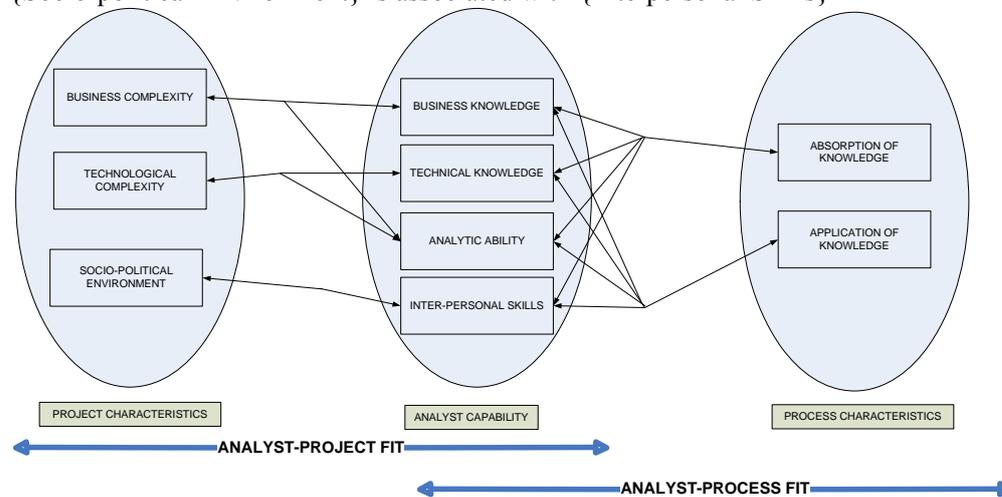{Socio-political Environment} is associated with {Interpersonal Skills}

Figure 2 Analyst-project fit and analyst-process fit as a gestalt fit

Similar to the analyst-project fit, we could conceptualise the analyst-process fit as a function that maps the different elements of AC with their corresponding elements of PRC (where PRC represents the set containing all the process characteristics). Thus,

AC = {Business Knowledge, Technological Knowledge, Analytic Ability, Interpersonal Skill} and PRC = {Absorption of Knowledge, Application of Knowledge}

The fit in this context consists of the following combinations: Absorption of knowledge would be associated with all the dimensions of analyst capability (Joshi and Sarker 2003). The analyst's

background of business and technological knowledge would facilitate the comprehension of the problem at hand. In addition, the analyst's analytic ability would positively influence the rate of absorption of the knowledge. Absorption of knowledge would also be an artefact of the interactions during the knowledge transfer process, and would be positively affected by the analyst's interpersonal skill. In a similar manner, the application of the analyst's existing knowledge would be related to a combination of all the dimensions of his/her capability. Based on the above we get the following association rules (See right hand side of Figure 2)

{Business Knowledge, Technological Knowledge, Analytic Ability, Interpersonal Skill} is associated with {Absorption of Knowledge} and

{Business Knowledge, Technological Knowledge, Analytic Ability, Inter-personal Skill} is associated with {Application of Knowledge}

We would like to emphasize that both analyst-project fit and analyst- process fit share certain commonalities. Both denote an overall fit that is composed of lower level fits (i.e., a synergy between the elements of the AC set and the PC set, or between the AC set and the PRC set). Each of the lower level fits constitute the building blocks that specify the overall fit. Each of the lower level fits are characterised by degrees of consistencies within the participating elements. For example, if *business complexity* has a high value, a fit would be obtained by high values of the *business knowledge* and *analytic capability*.

Below, we draw on this fit perspective, and propose a strategy that organizations can adopt in order to optimise their *resourcing* of ISD project

4   A STRATEGY FOR OPTIMAL RESOURCING

In this section, we describe a resourcing strategy that may be adopted, based on two important assumptions described in the previous sections: 1) effectiveness of analysts may be enhanced through an intersection between analyst capability and project/process characteristic, 2) that these intersections may be characterised as two gestalt fit constructs where the fit is obtained through an association between the constituent dimensions. The previous discussion on the gestalt nature of the fit essentially proposes that the overall fit is achieved through maximising the lower level fits. The lower level fit can be conceptualized as a type of covariation. Therefore the fundamental assumptions that form the basis of our resourcing strategy are:

a) Matches between the individual dimensions of the two participating sets (lower level fits) would lead to overall optimization of fit.

b) At the element level, the fit can be characterized by following a categorized covariation rule (i.e. high values are matched by high values, low values are matched by low values).

At this point, we would like to introduce an exception to the heuristic or rule derived from the second assumption. *We believe that analysts by definition cannot be realistically low in either analytic ability or interpersonal skill. Thus, for the purpose of the illustration here, we only categorize analysts as high or medium in these particular dimensions.* Given the above assumptions, the basic steps of our resourcing strategy are as follows –

1. Create a categorisation of the existing analyst pool or the Analyst Profile Matrix (e.g. This categorization would be based on the dimensions of the analyst capability – Business Knowledge, Technological Knowledge, Analyst Ability and Interpersonal Skills, where each analyst is rated as High, Medium or Low on each dimension)

2. Create the profile of the project and process characteristic specific to the project to be executed, based on the respective dimensions and the categories mentioned earlier

3. Identify resources for each of the low level fit associations

4. Optimally combine the low level fits to obtain the higher order fit

The objective of step 1 is to essentially create a profile of the analysts, categorising their various skills into High, Medium, or Low. The categorisation levels would of course have to be an organization specific decision based on the nature of their work and their resource demographics. If we consider that an organization has the following analysts {A1, A2, A3, A4, A5, A6}, then after performing step1 the organization should have the following matrix provided in Table 3. Each cell in Table 3 has the following information: First, there is the name of the set of business analysts that satisfy the analyst capability dimension and the value corresponding to the cell. The nomenclature convention for each of these sets is as follows - for example BKH denotes the set of analysts with high business knowledge, BKM refers to the set of analysts with medium business knowledge and BKL the set of analysts with low business knowledge. Second, the cells also identify the actual analysts in the organization that possess that corresponding level of the capability. For example the inclusion of analysts {A1, A2, A3, A5) in the first cell implies that they possess high levels of business knowledge. The low value cells for analyst ability and interpersonal skills are left blank because of the restrictions enforced earlier. Please note that this matrix represents a specific business domain. We believe that the organization should create such a matrix for each of its business domains

Analyst Capabilities	Categories		
	High	**Medium**	**Low**
Business Knowledge (BK)	BKH = {A1, A2, A3, A5}	BKM= {A4}	BKL= {A6}
Technological Knowledge (TK)	TKH = {A2, A3, A4}	TKM ={A5, A6}	TKL = {A1}
Analytic Ability (A)	AH = {A5, A6, A2, A3}	AM = {A1, A4}	-
Interpersonal Skill (I)	IH = {A2, A3, A5}	IM = {A4, A1, A6}	-

Table 3: Analyst Profile Matrix

Step 2 of our strategy involves creating a matrix for each ISD project in the organization, categorising the differing levels of project and process characteristic (see Table 4). The reason for such matrices leads from our belief that projects differ in terms of their <u>complexity</u> (both business and technological) and their surrounding <u>socio-political environment</u> and this difference would affect the analysts' ability to absorb or apply the knowledge. Please note that a high value for the process characteristics would indicate increased difficulty of the process. Similarly a high value of the socio-political environment implies a hostile environment, requiring higher levels of interpersonal skills from the analyst

Project	Project characteristics			Process Characteristics	
	Business Complexity	**Technological Complexity**	**Socio-Political Environment**	**Absorption of Knowledge**	**Application of Knowledge**
Project 1	High	High	High	High	High
Project 2	Low	High	High	Low	High
…….	……	……	……	…..	……
Project N	High	Low	Medium	High	Low

Table 4 Project Profile Table

Once the profiles for the analysts and the projects have been created the final step of the resourcing strategy involves identifying the analysts who embody the analyst-project fit and analyst process fit. This is pictorially depicted in Figure 3. For example, analyst A2 and A3 (by being in the intersection regions) embodies both analyst-project fit and analyst-process fit. As both analyst-project fit and analyst-process fit is required for analyst effectiveness, the final analyst pool is obtained by including all the analysts that embodies both the fits (i.e. A2 and A3). The process of identification of these analysts involves steps 3 and 4 of our strategy. We discuss them in detail below.
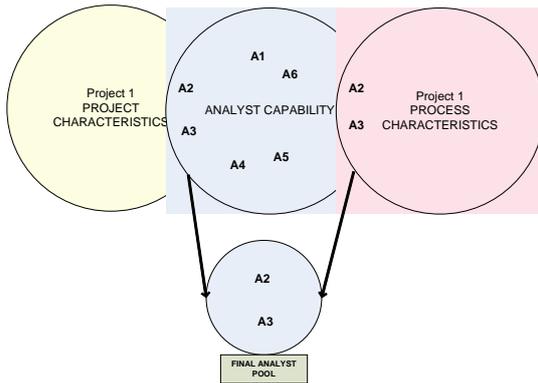

Figure 3 Final analyst pool

Steps 3 and 4 of our strategy involve the use of the dimension level fit heuristics (assumptions a and b above), and the dimension level association rules discussed in the previous section. This would result in the creation of one more set of matrices to identify the dimension level fit for analyst-project/process fit (see table 5). We take Project 1 as an exemplar and show how the cells of these matrices should be populated, and would ultimately lead to the identification of analysts in the intersection regions of Figure 3. Project 1 scored high on each of the dimensions of project complexity (Table 4). The association rule for analyst-project fit, suggests that business complexity should be associated with business knowledge and analytic ability. Further, our assumption that high values should match high values for an optimal low-level fit, results in the need for analysts to have high values in both business knowledge (BKH) and analytic ability (AH). So the optimal set of resources for the business complexity dimension AP1 is obtained by performing the following operation − BKH ∩ AH (Cell 1 table 5). This operation enables us to identify the analysts who possess both high levels of business knowledge as well as analytic ability as a result of which we obtain the set AP1 = {A2, A3, A5} (from table 4 and 5). Similarly, as shown in table 5 we obtain the optimal resource sets for technological complexity (AP2), socio-political environment (AP3), absorption of knowledge (APR1), and application of knowledge dimensions (APR2)

Project 1			
Project Characteristic	**High**	**Process Characteristic**	**High**
Business Complexity	AP1 =BKH ∩ AH={A2, A3, A5}	Absorption of Knowledge	APR1 =BKH ∩ TKH ∩ AH ∩ IH={A2, A3}
Technological Complexity	AP2 =TKH ∩ AH= {A2, A3}	Application of Knowledge	APR2 = BKH ∩ TKH ∩ AH ∩ IH = {A2, A3}
Socio-Political Environment	AP3 =IH = {A2, A3, A5}	-	-

Table 5 Analyst Capability-Project Characteristic Matrix

Once the set of individuals have been identified, we can proceed with the final step of the resourcing strategy. The analysts who would represent the optimal resource pool for the projects in terms of analyst-project fit (say AP) would be obtained by the following logical set operation

AP = AP1 ∩ AP2 ∩ AP3 = {A2, A3} (From Table 5 – as this would represent individuals who embody a fit at all the low level dimensions)

Similarly, the two sets obtained from table 5 (APR1 and APR2), could be used to obtain the analyst-process fit (APR): APR = APR1 ∩ APR2 = {A2, A3}

Drawing on our overall theoretical model (discussed earlier), we propose that the final analyst pool (AT) may be obtained as follows: AT = AP ∩ APR = {A2, A3} (As these set would contain analysts who embody both of the fit constructs)

Thus, AT would represent the pool of analysts from which the analysts for the particular project should be selected. While we have used an exemplar project with only high values on all these dimensions, a similar logic could be used for projects with medium or low values on some dimensions

5   CONTRIBUTIONS

The fit perspective conceptualized here contributes to the existing literature examining analyst effectiveness by proposing a more integrative view of this complex issue, and thus, deviating from the deterministic view of analyst effectiveness that has focused on analysts' capabilities and has dominated much of the prior research on this topic. Specifically, the conceptualization is rooted in a contingent framework, and takes into consideration the different contextual factors (e.g., the specific project environment) that could play an important role on an analyst's ability to be effective during RE. The proposed conceptualization provides two gestalt fit constructs related to analyst effectiveness – analyst-project fit and analyst-process fit. Further, it also provides an explanation on how the sub-dimensional elements of these constructs interact to create a fit. Finally based on the fit perspective, a strategy is proposed and explicated for optimal resourcing of effective system analysts in ISD projects

The practical implications of the resourcing strategy extend beyond the simple identification of right resources for a project. First, the dimensions of the AC set may be used to develop an analyst profile, which in turn would provide the organization with an evaluation of their existing resource pool, and therefore guide future hiring decisions. Second, the resourcing strategy would also enable organizations to identify the shortcomings of their existing analysts, and therefore plan for appropriate training strategies.

In conclusion, we would like to explicitly state that this research is a work in progress and represents a first attempt at taking a holistic and contingent view of analyst effectiveness. Subsequent steps of this research program would endeavour to empirically test the proposed gestalt fits and its efficacy in formulating an optimal resourcing strategy for analysts.

6   REFERENCES

Agarwal, R., Sinha, A. P. and Tanniru, M. (1996) Cognitive fit in requirements modelling: A study of object and process methodologies. *Journal of Management Information Systems* 13 (2), 137-162.

Alshawi, S. and Al-Karaghouli, W. (2003) Managing knowledge in business requirements identification. *Logistics Information Management* 16 (5), 341-349.

Barki, H. and Hartwick, J. (1989) Rethinking the concept of user involvement. *MIS Quarterly* 13 (1), 53 - 63.

Butterfield, J. (1998) The analyst's view of complex systems projects. *Information Systems Management* 15 (1), 34-40.

Caldwell, D. F. and O'reilly, C. A. (1990) Measuring person job fit with a profile comparison process. *Journal of Applied Psychology* 75, 648 - 657.

Cook, S. D. N. and Brown, J. S. (2002) *Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing.* Sage Publications, Thousand Oaks.

Coughlan, J., Lycett, M. and Macredie, R., D. (2003) Communication issues in requirements elicitation: A content analysis of stakeholder experiences. *Information and Software Technology* 45 (8), 525 -537.

Graf, D. K. and Misic, M. M. (1994) The changing roles of the systems analyst. *Information Resources Management Journal* 7 (2), 15 - 23.

Green, G. I. (1989) Perceived importance of systems analysts' job skills, roles. *MIS Quarterly* 13 (2), 115-123.

Heiker, V. (1974) The education of the systems analyst. *Journal of Systems Management* 25 (9), 18.

Hirschheim, R., Iivari, J. and Klein, H. (1997) A comparison of alternative approaches to information systems development. *Australian Journal of Information Systems* 5 (1), 3-29

Jiang, J. J., Klein, G. and Means, T. (1999) The missing link between systems analysts' actions and skills. *Information Systems Journal* 9 (1), 21-33.

Lee, D. M. S., Trauth, E. M. and Farwell, D. (1995) Critical skills and knowledge requirements of IS professionals: A joint academic/industry investigation. *MIS Quarterly* 19 (3), 313-340.

Lerouge, C., Newton, S. and Blanton, J. E. (2005) Exploring the systems analyst skill set: Perceptions, preferences, age, and gender. *The Journal of Computer Information Systems* 45 (3), 12-23.

Lewis, P. (1994) *Information systems development.* Pitman, London.

Misic, M. and Graf, D. (1993) The interpersonal environments of the systems analyst. *Journal of Systems Management* 44 (9), 12-16.

Misic, M. M. and Graf, D. (2004) Systems analyst activities and skills in the new millennium. *The Journal of Systems and Software* 71 (1-2), 31-36.

Nord, G. D. and Nord, J. H. (1997) Information systems project development: Knowledge and domain requirements for the systems analyst. *Industrial Management + Data Systems* 97 (1), 17-24.

Pitts, M. and Browne, G. J. (2004) Stopping behaviour of systems analysts during information requirements elicitation. *Journal of Management Information Systems* 21 (1), 203-226.

Ratbe, D., King, W., R. and Kim, Y.-G. (1999) The fit between project characteristics and application development methodologies: A contingency approach. *The Journal of Computer Information Systems* 40 (2), 26-33.

Roberts, T., Cheney, P., H., Sweeney, P., D. and Hightower, R., T. (2004) The effects of information technology project complexity on group interaction. *Journal of Management Information Systems* 21 (3), 223-247.

Scharer, L. L. (1982) Systems analyst performance: Criteria and priorities. *Journal of Systems Management* 33 (2), 10-15.

Venzin, M., Von Krogh, G. and Roos, J. (2000) Future research into knowledge management. In *Knowing in firms: Understanding managing and measuring knowledge* (Von Krogh, G. and Roos, J. and Kleine, D., Eds), Sage Publications, Thousand Oaks, CA.

Weaver, P. L. (1992) *Practical ssadm version 4.* Pitman, London.