

# CASE STUDIES ON THE APPLICATION OF THE CORE MODEL FOR REQUIREMENTS ENGINEERING PROCESS ASSESSMENT

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## Abstract

*Existing Requirements Engineering (RE) process assessment models lack the components necessary to provide enough information about the quality of a RE process. The concept of “Concern of Requirement Engineering” (CORE) and the assessment models proposed in our previous research provide a method and new perspectives to assess the quality of a RE process. The case studies presented in this paper provide a comprehensive view of the application of the CORE model. The advantages of using the model for RE process assessment are two fold: first, it is more flexible because the major COREs assess the main contents of the activities of a RE process. Second, the categories classified in the model allow RE process assessment based on several categories. This allows for process improvement in an incremental manner. The CORE model is part of our RE process development framework and is used to assess the quality of the RE process under development.*

**Keywords:** Requirements engineering, process model, CORE, process development, process assessment.

## 1. Introduction

Requirements engineering (RE) is a technical as well as a social process that involves a variety of stakeholders participating in diverse activities [1]. This is especially true for the RE process of any non-trivial system which will inevitably involve a lot of factors and numerous activities. The selection of the most-appropriate RE process model for a given project and the evaluation of the quality of a RE process for a given project have been challenging issues for years. It is difficult to give a specific list of activities that requirements engineers should follow due to the diverse nature of software; hence it will also be difficult to assess the quality of a RE process.

The concept “CORE”, proposed in our previous research [2], is defined as “a specific interest and/or

objective of the RE process which should be addressed to ensure the development of a well-defined, high-quality requirements specification that is complete, concise, unambiguous and consistent.”

The aim of CORE is to use the abstraction of major issues and/or objectives of RE to provide a comprehensive model for aiding RE process development and assessment [6]. This approach is complementary to other existing RE process assessment models with the aim of providing a more comprehensive vision for the assessment of a RE process. The aim of the case studies presented in this paper, based on the CORE models, is to demonstrate the feasibility of the model.

The rest of the paper is organized as follows: Section two discusses the major COREs and the list of major COREs. The assessment models based on concept COREs is given in Section three. Two cases studies are given in Section four. Final conclusions and future work is detailed in Section five.

## 2. The Major COREs of RE Process

The major COREs deduced from research and a survey of both people from industry and academia are listed in Table 1. These COREs cover various issues in RE and are classified into the following seven categories (see Table 1):

- Requirements elicitation concerns.
- Requirements analysis and negotiation concerns.
- Requirements documentation concerns.
- Requirements verification and validation concerns.
- Requirements managements concerns.
- RE process managements concerns.
- RE tool concerns.

These COREs should be addressed by all RE process models. They cover technical, organizational, management, and social aspects. Furthermore, COREs provide criteria for the assessment of the quality of RE processes.

## 3. RE Process Assessment Models

The RE process assessment based on major COREs includes three models:

- Overall assessment model of the RE process
- Category-based assessment model of the RE process
- Problem domain-oriented assessment model

The research related to the problem domain-oriented model is still in progress. The case studies presented in this paper focus on the first two models.

**Table 1.** The major COREs

Main activities of RE process	No.	Major concerns of RE process within each activity
Requirements Elicitation	1	Stakeholder identification
	2	User participation
	3	Identification of the goals, expectation, scope and context of the project or system
	4	Effective communication
	5	Elicitation of functional requirements
	6	Elicitation of non-functional requirements and system constraints
	7	Identification of reusable requirements
	8	Consideration of social, organizational, and political issue
	9	Recording requirements sources
Requirements Analysis & Negotiation	10	Assessment of system feasibility
	11	Classification of requirements
	12	Requirements prioritization
	13	Negotiation with stakeholders to ensure agreed-upon requirements are finalized
	14	Modelling and understanding functional requirements
	15	Understanding of non-functional requirements and constraints of the system
	16	Identification of the pertinence of requirements
	17	Identification of the requirements with the highest risk with regards to some project constraints
	18	Identification of domain specific requirements for the system
	19	Development of test cases for the requirements with important functionalities
	20	Requirements analysis using checklists
Requirements Documentation	21	Definition of a well-defined documentation structure and system terminology
	22	Selection of a suitable language representation for documentation based on the characteristics of the project at hand
	23	Documentation of functional requirements
	24	Documentation of non-functional requirements and constraints of the system
	25	Documentation of the relationship among requirements, the link between requirements and stakeholders
	26	Documentation of requirements test cases
	27	Recording the source and requirements rationale
	28	Ensure maintainability of documentation
Requirements Verification & Validation	29	Definition of verification checklists and documentation standard, ensure that the documentation is consistent with the standards
	30	Ensuring that the requirements are correct and precise
	31	Ensuring the completeness of requirements
	32	Ensuring the unambiguity and understandability of the requirements
	33	Ensuring that the requirements are achievable and implementable
	34	Interaction (conflict, inconsistency) identification and resolution among all requirements of the system
	35	Ensuring the domain specific requirements are verified and validated in a rigorous way when applicable
	36	Requirements redundancy identification
	37	Ensuring the stakeholders' satisfaction of the requirements
Requirements Management issues:	38	Identification and documentation of the changed requirements
	39	Analysis of the impact and risk caused by the change of requirements
	40	Managing changes to agreed requirements
	41	Managing the relationships between requirements
	42	Managing dependencies between the requirements document and related documents
RE Process management	43	Identification of major metrics of RE process
	44	Measuring the RE process based on the measurement defined
	45	Monitoring the RE process based on the measurement
	46	Document standard RE processes for discipline (process patterns)
	47	Improvement of RE processes based on the experience and/or standard
Tool Support	48	Identification, selection and usage the proper RE tools to support RE process

### 3.1 Overall Assessment Model

The overall assessment model ignores the boundary of the seven categories. All the activities in the RE process will be assessed with respect to the major COREs using the overall assessment model. The result of the assessment of the RE process using this model can be:

- “Fully addressed”. This indicates the RE process that addresses all the major COREs.

- “Addressed”. This indicates the RE process that addresses most of the major COREs.
- “Partially addressed”. This indicates the RE process that addresses more than half of the major COREs and the improvement of the RE process is definitely needed.
- “Not addressed”. This indicates the RE process that addresses less than half of the major COREs and also indicates that there will be risks as development proceeds.

The general assessment method is illustrated in Table 2.

**Table 2.** Overall Assessment Model

Assumptions	Let
	<p><math>P</math> represents a RE process model  <math>c_i</math> represents a certain concern in the major CORE model  <math>W_i</math> represents the weight for each concern decided by the characteristics of the project  <math>F(a_i, c_i)=1</math> represents the activity <math>a_i</math> that fully addresses the concerns <math>c_i</math>  <math>F(a_i, c_i)=0.5</math> represents the activity <math>a_i</math> that partially addresses the concerns <math>c_i</math>  <math>F(a_i, c_i)=0</math> represents the activity <math>a_i</math> that does not address the concerns <math>c_i</math>  <math>P(c_i)=1</math> represents the concern <math>c_i</math> that is fully addressed in the process  <math>P(c_i)=0.5</math> represents the concern <math>c_i</math> that is partially addressed in the process  <math>P(c_i)=0</math> represents the concern <math>c_i</math> that is not addressed in the process            If <math>c_i</math> has been addressed by different activities, then select the highest value among <math>F(a_i, c_i)</math> as the value of <math>P(c_i)</math>. (For example, <math>F(a_{i1}, c_i)=1</math> and <math>F(a_{i2}, c_i)=0.5</math>, then <math>P(c_i)=1</math>)  <math>M_{max} = \sum_{i=1}^n W_i</math> indicates the maximum value of <math>M_{max} = \sum_{i=1}^n W_i * P(c_i)</math> <math>i=1..48</math></p>
Calculation	$M = \sum_{i=1}^n W_i * P(c_i)$ $i=1..48$
Assessment result	The final assessment result for a given RE process model is one of the following: Fully addressed: if $M = M_{max}$ Partially addressed: if $M \geq 50\% * M_{max}$ and $M < 80\% * M_{max}$ Addressed: if $M \geq 80\% * M_{max}$ Not addressed: if $M < 50\% * M_{max}$

**Table 3.** Category-Based Assessment Method

Assumptions	Let $C_1, \dots, C_7$ represents the seven categories in the major concerns model, $c_{ij}$ represents a number $i$ concern in category $j$ , $a_i$ represents an activity in a RE process model, $P$ represents the RE process model that is to be assessed $W_{i,j}$ means the weight of each concern, decided by the characteristics of a project.
	<p><math>F(a_i, c_{ij})=1</math> represents the activity <math>a_i</math> that fully addresses the concern <math>c_{ij}</math>  <math>F(a_i, c_{ij})=0.5</math> represents the activity <math>a_i</math> that partially addresses the concern <math>c_{ij}</math>  <math>F(a_i, c_{ij})=0</math> represents the activity <math>a_i</math> that does not address concern <math>c_{ij}</math> at all.  <math>P(c_{ij})=1</math> represents the concern <math>c_{ij}</math> that is fully addressed in the process  <math>P(c_{ij})=0.5</math> represents the concern <math>c_{ij}</math> that is partially addressed in the process  <math>P(c_{ij})=0</math> represents the concern <math>c_{ij}</math> that is not addressed in the process at all.            If <math>c_{ij}</math> has been addressed by different activities, then, select the highest value among <math>F(a_{i,j}, c_{ij})</math> as the value of <math>P(c_{ij})</math>. (For example, if <math>F(a_{i1}, c_{ij})=1</math> and <math>F(a_{i2}, c_{ij})=0.5</math>, then <math>P(c_{ij})=1</math>)  <math>M_{max}(C_j) = \sum_{i=1}^n W_{i,j}</math> represents the maximum value of <math>M_{max}(C_j) = \sum_{i=1}^n W_{i,j} * P(c_{i,j})</math>  <math>i=1..7, j=1..n, n</math> is the number of the concerns in the category <math>C_j</math></p>
Calculation	$M(C_j) = \sum_{i=1}^n W_{i,j} * P(c_{i,j})$ $i=1..7, j=1..n, n$ is the number of the concerns in the category $C_j$ .
Assessment result	The assessment result for a RE process model with respect to each category $C_i$ is one of following: Fully addressed: if $M(C_i) = M_{max}(C_i)$ Addressed: if $M(C_i) \geq 80\% * M_{max}(C_i)$ Partially addressed: if $M(C_i) \geq 50\% * M_{max}(C_i)$ and $M(C_i) < 80\% * M_{max}(C_i)$ Not addressed: if $M(C_i) < 50\% * M_{max}(C_i)$

### 3.2 Category-Based Assessment Model

The “Category-Based Assessment” model is used to assess the maturity of a RE process category by category as described in our research framework [7]. The advantages of this model over the “Overall Assessment” model are:

- This model supports the process improvement on a category-by-category basis, i.e. it assesses the maturity of each RE process model or project category by category. It supports process improvement on a project basis.
- It provides more flexibility for process assessment for a given project. Since characteristics of each software

project are different, a more flexible assessment mechanism is needed to assess the appropriateness of the RE process model for a project. Category-based assessment provides such a mechanism.

Category-based assessment is used to assess the completeness of a RE process model with respect to each main category. Each activity in a RE process will be assessed with respect to a major CORE in each category. Category-based assessment encourages RE process improvement category-by-category in an evolutionary manner. The assessment model is shown in Table 3.

## 4. Case Studies

### 4.1 Preview Process Model Assessment

*Preview* (Process and Requirements Engineering Viewpoints) is a requirements elicitation process model proposed by Sommerville and Sawyer with the aim of overcoming some of the problems in existing viewpoint-based RE process models [3]. According to Sommerville and Sawyer, *Preview* is a viewpoints approach for requirements elicitation rather than system modeling. Actually, the model also covers some parts of requirements analysis and negotiation, documentation, and verification & validation process.

We will use a category-based assessment model to assess the maturity of the *Preview* process because *Preview* itself is not a comprehensive RE process model since it only covers the *main elicitation activity* of the RE process.

The assessment of the *Preview* process is based on the activities of *Preview* defined in [3, 4]. Each activity is assessed against major COREs in the Elicitation main activity category according to the category-based assessment method illustrated in Table 3. The activities that do not belong to this category are left out without assessment. A value (0, 0.5 or 1) is given as the result of the assessment of each activity with respect to the major COREs in the Elicitation Category. A simple version of the assessment result of the *Preview* process is given in Table 4. The numbers in the 3<sup>rd</sup> column of the 1<sup>st</sup> row of Table 4 indicate the corresponding row numbers as shown in column two of Table 1. The number in bracket indicates the assessment result of the activity with respect to the concern. For example, the expression 1(1) in the second row of column four in Table 4 states that the activity “*Identification of various stakeholders....*” fully addresses the major CORE in the first row of column two in Table 1.

For simplicity, we assume that the weight for each concern is the same, i.e.  $w_{1,j} = 1$ ,  $j=1..9$ , therefore

$M_{max} = \sum_{j=1}^9 w_{1,j} = 9$ . In Table 4, we can see that the *Preview* process model addresses eight out of nine major COREs of the Elicitation process. Only 1 major CORE (Identification of reusable requirements) is not explicitly addressed in the

*Preview* process. The final marks for the assessment result based on the category-based assessment method is,

$$M = \sum_{j=1}^9 W_{1,j} * P(c_j) = \sum_{j=1}^9 P(c_j) = 8*1 + 1*0 = 8.$$

Since  $M=8$  which is more than 80% of  $M_{max}$ , so we can say that the *Preview* RE process model addresses the major COREs of the Elicitation process. This means that the *Preview* process is a quality requirements elicitation process.

**Table 4.** The *Preview* Process and its Assessment Result

	Preview Requirements Elicitation Process	The addressed COREs
1. Identification of concerns	○ Identification of various stakeholders and acquaintance of the knowledge of the fundamental principles of the application domain and the constraints under which the stakeholders operate are necessary for concern identification.	1(1), 3(1)
	○ Identification of the various stakeholder' concerns. The concerns are the organizational goals and priorities such as safety, availability, functionality and maintainability which are most used business concerns, i.e. Concerns could be functional, Non-functional requirements and system constraints.	5(1), 6(1), 8(1)
2. Elaboration of concerns	Elaboration of concerns as external requirements and questions	
3. Identification of viewpoints	○ Iteratively identify the set of viewpoints to be used	
	○ Identify the foci and sources of the viewpoints.	9(1)
	○ re-examined the viewpoints to assess if new viewpoints are required	
	○ Identify those viewpoints which are redundant	
	○ Judge the viewpoints based on organizational and application domain experience.	8(1)
	○ Using some guidance for initial viewpoint identification.	
4. Requirements discovery	Discovery of the requirements for each viewpoint. It involves the development of outline system models from background material, structured interviews with sources, observations of processes, analyses of data and data processing, etc	2(1), 4(1)
	○ identify those requirements which are inconsistent with concern questions, external requirements, or other viewpoints' requirements.	
5. Requirements analysis	○ functional and non-functional requirements must also be checked against concerns and the domain and organizational requirements.	5(1), 6(1),
	Negotiate with various stakeholder to resolve the conflicts	
6. Requirements negotiation		
7. A well-defined Preview viewpoint template	A Preview viewpoint template includes the following information: (1). <i>The viewpoint name.</i> (2). <i>The viewpoint focus.</i> (3). <i>The viewpoint concerns.</i> (4). <i>The viewpoint sources.</i> (5). <i>The viewpoint requirements.</i> (6). <i>The viewpoint history.</i>	9(1)

### 4.2 Volere Process Model Assessment

The Volere RE Process Model is a comprehensive RE process model with step-by-step guide to gather the requirements of the system. The process model provides a rigorous guide to identify and refine requirements, both functional and non-functional [5].

In this case study, the overall assessment model illustrated in Table 2 is used in the Volere RE process assessment because the Volere RE process is a comprehensive RE process model that covers almost all the RE process issues [5]. The assessment of the Volere process is based on the activities defined in [5]. Each activity is assessed against each major CORE and a value (0, 0.5 or 1) is given as the result of the assessment. The assessment result of the Volere RE process assessment is given in Table 5. The numbers in column three of Table 5 indicate the corresponding row numbers as shown in column two of Table 1. The number in bracket indicates the assessment result of the activity with respect to the concern. For example, the expression 1(1) in the second row of column three in Table 5 represents the activity “Plan physical arrangements” that fully addresses the

major CORE in the first row of column two in Table 1. The assessment result for the activity with respect to the first concern is 1. Additionally, this activity fully addresses the second major concern; and the assessment result with respect to the second concern is also 1.

For simplicity, we assume that the weight for each concern is the same, i.e.  $w_i = 1, i=1..48$ ,  $M_{max} = \sum_{i=1}^{48} w_i = 48$ .

The final assessment result shows that there are 41 concerns that are fully addressed, 6 major COREs are partially addressed, and one major CORE is not addressed in Volere process. The final marks for the final assessment result based on the overall assessment method is,

$$M = \sum_{i=1}^{48} w_i * P(c_i) = \sum_{i=1}^{48} P(c_i) = 41*1 + 6*0.5 + 1*0 = 44.$$

Since  $M=44$  is more than 80% of  $M_{max}$ , we can say that the Volere RE process model addresses the major COREs and therefore is a high-quality RE process.

## 5. The Conclusion and Future Work

The initial concept of CORE and initial list of major COREs provides a good mechanism for RE process assessment. It allows the process designer to look at the RE process from a higher level of abstraction. Case studies carried out so far have shown promising results. Nevertheless, several problems and limitations have been identified and are part of our future work. Some of these limitations are listed below:

- The concept of CORE itself is still subject to further refinement. The classification of major COREs according to the problem domain as well as making the concept fit well into our framework demands more work.
- The nature of software process assessment is a human activity, so RE process assessment using major COREs is inevitably limited. Nevertheless, we argue that the major COREs provide direction during RE process development and guidelines for its assessment.

## References

[1] I. Sommerville and P. Sawyer, *RE: a good practice guide* (New York: Wiley, 1997)

[2] L. Jiang, A. Eberlein and B. H. Far, Evaluating the RE Process Using Major Concerns, proceeding of the IASTED International Conference on Software Engineering, Feb. 17-19, 2004, Innsbruck, Austria

[3] Sommerville, I., Sawyer, P. Viewpoints: principles, problems and a practical approach to requirements engineering, *Annals of software engineering*, 3(1997), pp.101-130

[4] P. Sawyer, I. Sommerville and S. Viller, PREview: Tackling the Real Concerns of Requirements Engineering, Cooperative Systems Engineering Group, Technical Reports 1996

[5] S. Robertson and J. Robertson, *Mastering the Requirements Process* (Addison-Wesley, 1999).

[6] L. Jiang, A. Eberlein and B. H. Far, Evaluating the RE Process Using Major Concerns, *Technical Reports*, <http://www.enel.ucalgary.ca/~jiangl/research/indexOfResearch.htm>, Aug. 30, 2003, Dept. of Electrical and Engineering, University of Calgary.

[7] L. Jiang, A. Eberlein and B. H. Far, A Methodology for RE Process Development, proc of ECBS 11th IEEE Int'l Conf. & Workshop, Brno, Czech Republic, May 24-26, 2003. (accepted)

**Table 5.** Assessment results for Volere process

Major-activities in the Volere process	Sub-activities in Volere process	The concerns that addressed by the activities and the assessment results
1 Project blastoff	1.1.1 Define Blastoff objectives	
	1.1.2 Plan physical arrangements	1(1), 2(1)
	1.1.3 Communicate with participants	1(1), 2(1), 4(1)
1.2 Run blastoff meeting	1.2.1 Determine product purpose	3(1), 5(1)
	1.2.2 Determine the work context	3(1), 5(1)
	1.2.3 Do first-cut risk analysis	1(1), 7(1)
	1.2.4 Identify the stakeholders	1(1)
	1.2.5 Partition the work	3(1), 14(1)
	1.2.6 Consider Non-events	2(1), 14(1)
	1.2.7 Determine system terminology	21(1)
	1.2.8 Define project constraints	6(1)
	1.2.9 Identify domain interest	18(1)
1.3 Finalize blastoff	1.3.1 write blastoff report	23(1), 24(1)
	1.3.2 Review blastoff results	20(1), 29(1)
	1.3.3 Hold follow-up blastoff	13(0.5)
	1.3.4 make initial estimate(estimate the effort required to build the product.)	10(1)
2 Trawl for knowledge	2.1 Learn the work	
	2.1.1 Review current situation	3(1), 8(1)
	2.1.2 Apprentice with the user	5(1), 6(1)
	2.1.3 Determine essential requirements	9(0.5), 11(1), 15(0.5)
	2.1.4 Brainstorm the requirements.	2(1), 4(1), 5(1), 6(1)
	2.1.5 Interview the users	2(1), 4(1), 5(1), 6(1)
	2.1.6 Do document archaeology	5(1), 6(1)
	2.1.7 Make requirements video	5(1), 6(1)
	2.1.8 Run use case workshop	2(1), 4(1), 5(1), 14(1)
	2.1.9 Build event models	14(1)
2.2 Determine product scope	2.2.1 Study the adjacent systems	14(0.5)
	2.2.2 Define use case boundary	3(0.5), 14(0.5)
2.3 Do event reconnaissance	2.3.1 Gather Business Event Knowledge	3(0.5), 5(1), 6(1)
	2.3.2 Choose appropriate trawling techniques	2(1), 3(1), 4(1), 5(1), 6(1), 8(1)
2.4 Ask clarification questions	2.4 Ask clarification questions	11(1)
3 Write the requirements	3.1 Identify potential requirements	5(1), 6(1)
	3.2 Identify functional requirements	5(1), 9(1)
	3.3 identify composite requirements	5(1), 6(1)
	3.4 Formalize requirements	21(1), 22(1), 23(1), 24(1), 27(1), 28(1)
	3.5 Formalize system constraints	24(1)
	3.6 Identify Non-functional requirements	6(1)
	3.7 Write function fit criteria	19(1), 26(1)
	3.8 Write Non-functional fit criteria	19(1), 26(1)
	3.9 Define customer value	11(0.5), 12(0.5), 37(1)
	3.10 Identify dependencies and conflicts	13(0.5), 16(1), 34(1)
4 Quality Gateway	4.1 Review requirements fit criteria	30(1), 32(1), 35(1)
	4.2 Review requirements relevance	30(1), 32(1), 36(1)
	4.3 Review requirement viability	33(1), 34(0.5)
	4.4 Identify Gold plated requirements	36(1)
	4.5 Review requirements completeness	31(1)
5. Prototype the requirements	5.1 Plan the prototype	14(1)
5.2 Build prototype	5.2.1 Build low fidelity prototype	14(1), 19(0.5)
	5.2.2 Build high fidelity prototype	14(1), 19(0.5)
5.3 Evaluate the prototype	5.3.1 High Fidelity Prototype with users	14(1), 19(0.5), 37(1)
	5.3.2 Test Low Fidelity Prototype with users	37(1)
	5.3.3 Identify New And Changed Requirements	38(1)
	5.3.4 Evaluate Prototyping Effort	43(1), 44(1), 45(1)
6. Do requirements post mortem	6.1.1 Conduct private individual reviews	47(1)
	6.1.2 Conduct separate meetings with Group	47(1)
	6.1.3 Facilitator reviews facts	47(1)
6.2 Do post mortem	6.2.1 Hold Post Mortem Review Meeting	47(1)
	6.2.2 Produce Post Mortem Report	47(1)
6.3 Build a requirements filter	6.3.1 Identify Filtration Criteria	43(1), 44(1), 45(1)
	6.3.2 Select Relevant Requirement Types	N/A
	6.3.3 Add new filtration Criteria	29(1), 40(0.5), 39(0.5)
7 Taking stock of the specification	7.1 Review Specification	
	7.1.1 Identify missing requirements	43(1), 44(1), 45(1)
	7.1.2 Identify customer value ratings	37(1)
	7.1.3 Identify requirement interaction	34(1)
	7.1.4 Identify prototyping opportunity	N/A
7.2 Evaluate Requirements Risk	7.1.5 Find missing custodial requirements	28(1)
	7.2.1 Look for likely risks	17(1)
7.3 Estimate effort	7.2.2 Quantify each risk	17(1), 43(1)
	7.3.1 Identify Estimation input	43(1)
	7.3.2 Estimate effort for events	43(1), 44(1), 45(1)
	7.3.3 Estimate requirements effort	43(1), 44(1), 45(1)
7.4 Publish reviewed specification	7.4.1 Design Form of Specification	21(1), 22(0.5), 23(1), 24(1), 25(1), 26(1), 27(1)
	7.4.2 Assemble the specification	N/A
8. Domain analysis	8. Domain analysis	9(1)
9. Reusing requirements	9. Reusing requirements	7(1)
Other issues addressed in the process model	Tool identification and use	48(1)
	Use the RE process template and requirements process pattern	46(0.5)
	Requirements trace management	41(1), 39(0.5)