# EXHIBIT A

26 March 2010

# Expert Report of
# Donald J. Reifer

Oracle USA, Inc., et al. v. SAP AG, et al.

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those produced by the current release, COCOMO II.2000. His use of the wrong version of the COCOMO II model led him into drawing incorrect conclusions. The University of Southern California (USC) website and the textbook used to describe COCOMO II [BOE01], of which I am an author, both support the selection and use of the current COCOMO II.2000 version of the model.

- **Reasonableness** – Many of his results do not seem reasonable. For example, to price the resulting estimates, Mr. Pinto develops a labor rate based on a labor mix that assumes sixty percent management and support personnel to forty percent technical workers. Besides biasing his labor rates high, this mix leaves in question whether the software work contemplated could have feasibly been completed in a reasonable time period with such a high management overhead.

- **Soundness** – The manner in which Mr. Pinto used the methodologies, COCOMO II and FPA, can also be questioned. For example, he emphasizes the need to use two different approaches to develop independent estimates primarily so one can be used to cross-check the results of the other. However, he then elects to build both of his estimates on the same size basis, source lines of code. By doing this, any claims of independence evaporate. He also builds his cost estimates on the case that time is of the essence and that the software to be developed must be completed in two years. However, his own cost model runs show that the development could not be completed in two years and that the most feasible schedule possible with his settings for the model is on the order of five to eight years. If he had used the COCOMO II properly, he would have determined that his proposed two-year schedule is unachievable.

For the purpose of assessing the accuracy, correctness, currency, reasonableness, and soundness of Mr. Pinto's conclusions, I performed a COCOMO II analysis to size various suites of products that Mr. Pinto analyzed. I ran the COCOMO II.2000 version instead of the outdated COCOMO II.1997 version, increased (corrected) the staff hours assumed per staff month of effort from 144 to a more-appropriate 152, used the more-appropriate labor rates that I developed that assumed personnel costs for staff working in India were lower, updated (corrected) the code count estimates, and set the scale and cost drivers properly. The range of the costs that I developed after these corrections were made – as a check on his analysis and conclusions – was

Management (CRM)" system similar to that provided in the PeopleSoft suite. This logic should be applied to the other suites of products in question based on facts developed about what was maintained by TN and what was not.

## VII.    RESULTS

### a.  <u>COCOMO II Estimates for JD Edwards EnterpriseOne</u>

I first analyzed Mr. Pinto's estimates for the JD Edwards EnterpriseOne suite of products to determine whether they were accurate, correct, reasonable and sound. As noted, the computations that he presented in his report had a number of mathematical errors which were surprising to me because this is not the norm when dealing with estimates of this type.

I next corrected the estimate using Mr. Pinto's settings for the cost model drivers using the COCOMO II.2000 version of the model and the assumption of 152 hours/staff-month of effort under which it was developed. Both of these changes are important. First, the version of the model that Mr. Pinto selected was an interim version developed with only 83 data points that is no longer supported by the USC staff. This 1997 version of the COCOMO model also has unacceptable inaccuracy. The assumption of 152 hours/staff-month of effort is also important because this was the expansion ratio used by the USC staff to calibrate the model. Please note that this corrected ratio results in more labor hours than Mr. Pinto assumed.

I then ran the model with what I believed were reasonable and correct settings for the model parameters. I did this to correct the many novice mistakes that Mr. Pinto made when he tried to use the COCOMO model. For example, I teach users to develop an estimate without setting the SCED parameter. This parameter is used to constrain the schedule should the initial duration estimate come out higher or lower than desired. Mr. Pinto set this parameter "High (H)" which means that the schedule needed to be extended not compressed from its estimated value of about seven years. If one compresses the schedule, effort is added until it is no longer feasible. This is the shortest schedule feasible based on the settings for the parameter. For example, one could compress the schedule in the Pinto Report to about three years by adding more staff. Because Mr. Pinto stated that the development needed to be completed in two years (which is unachievable), he should have made this adjustment in the SCED parameter. However, Mr. Pinto failed to make this adjustment, once again demonstrating his lack of experience when using the model.

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| Siebel (With Model Parameters and Rates Changed) | | | |
|---|---|---|---|
| | Optimistic | Most Likely | Pessimistic |
| Estimated Effort (Staff-Months)[1] | 2,695.7 | 3,369.6 | 4,212.0 |
| Estimated Duration | 40.9 | 43.8 | 46.9 |
| Person Hours[2] | 409,746 | 512,179 | 640,224 |
| Average Blended Rate | $103.15 | $103.15 | $103.15 |
| Estimated Cost | $42,265,300 | $52,831,264 | $66,039,106 |

**Table 52A: Siebel Estimate with Optimal Schedule**

**Notes**
[1] Using the COCOMO II.2000 model instead of the COCOMO II.1997 assumed by Mr. Pinto.
[2] Using 152 hours/staff-month instead of the 144 hours/staff-month assumed by Mr. Pinto.
[3] Rounded

The "most likely" estimated results for this new case are $ 204,474,876 less than Mr. Pinto developed for his "most likely" case. This, too, is a considerable difference in the estimates. Needless to say, these results, too, confirm that Mr. Pinto's results are not accurate, correct, reasonable, or sound.

## VIII.  RESULTS

Based on my experience in the field of parametric cost estimation and the use of the COCOMO II.2000 cost estimation model, and after reviewing the materials noted in this case, including those contained in the Pinto Report and the materials provided with it, and developing independent estimates, my conclusions are as follows:

### a.  Summary of Analysis

I am highly confident that the software development costs associated with the JD Edwards EnterpriseOne Version 8.12 suite of products should be considerably less than that valued by Mr. Pinto. My independent estimate, as described in this report, would be in the range of between $80.4 and $125.6 million based on my assumptions, corrections, updated size estimates, and labor rate calculations. The most likely cost would be $100.5 million. Moreover, when the schedule is not artificially compressed (as proposed by Mr. Pinto), the most likely cost for this suite of products would be $70.3 million.

I am highly confident that the software development costs associated the PeopleSoft Version 8.X suite of products should be considerably less than that valued by Mr. Pinto. My independent

estimate, as described in this report, would be in the range of between $125.9 and $195.1 million based on my assumptions, corrections, and labor rate calculations. The most likely cost would be $157.4 million. Moreover, when the schedule is not artificially compressed (as proposed by Mr. Pinto), the most likely cost for this suite of products would be $110.0 million.

I am highly confident that the software development costs associated the JD Edwards World suite of products should be considerably less than that valued by Mr. Pinto. My independent estimate, as described in this report, would be in the range of between $36.1 and $56.5 million based on my assumptions, corrections, and labor rate calculations. The most likely cost would be $45.2 million. Moreover, when the schedule is not artificially compressed (as proposed by Mr. Pinto), the most likely cost for this suite of products would be $31.6 million.

I am highly confident that the software development costs associated with the Siebel suite of products should be considerably less than that valued by Mr. Pinto. My independent estimate, as described in this report, would be in the range of between $60.4 and $94.4 million based on my assumptions, corrections, and labor rate calculations. The most likely cost would be $75.5 million. Moreover, when the schedule is not artificially compressed (as proposed by Mr. Pinto), the most likely cost for this suite of products would be $52.8 million.

In total, I am highly confident that the software development costs associated with the four suites of products cited, as described in this report, based on my assumptions and corrected labor rate and size calculations could be accomplished in about three years for between $302.8 and $471.6 million with a with a most likely cost of $378.6 million. The most likely cost when the schedule is not artificially compressed (as proposed by Mr. Pinto) is $264.7 million.

The estimates developed during my analysis are summarized in the Table below.

Based on COCOMO II.2000 model runs using Mr. Pinto's numbers, I have further concluded that his cost estimates are high and that the 24 month schedule he assumed is infeasible. The quickest possible delivery schedule is 35.4 month assuming the most optimistic assumptions possible with the COCOMO II.2000 model. The quickest and most optimistic possible schedule (without undue compression, as proposed by Mr. Pinto) is 47.2 months.