UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAP AMERICA, INC. ET AL.
Petitioner

v.

VERSATA DEVELOPMENT GROUP, INC.
Patent Owner

Case CBM2012-00001 (MPT)
Patent 6,553,350

PATENT OWNER VERSATA DEVELOPMENT GROUP, INC.'S
DEMONSTRATIVE EXHIBITS 1 – 49
FOR APRIL 17, 2013 ORAL HEARING

Practical Application of Alleged Abstract Idea

Board:

- "The concept of arranging customer and product data into hierarchies …."

(ID at 30.)

SAP/Siegel:

- "[T]he rearrangement of prior art pricing data into 'completely arbitrary' hierarchies and the calculation of product prices using 'abstracted' numbers.."

(SP at 17; SX 1005, §§ 44-45, 49.)

Versata/Liebich:

- Claims, in addition to including steps/elements for arranging customer and product data into hierarchies and calculating a product price, include separate and distinct steps/elements requiring a particular way of determining product price. The combination of steps/elements required by the claims represents a practical application of the alleged abstract idea.

(VR at 16-26, 32, 36-37, 40, 43-44; VX 2091, ¶¶ 56-63, 80, 85-88, 99, 104-107.)

Claim 17

17. A method for determining a price of a product offered to a purchasing organization comprising:

arranging a hierarchy of organizational groups comprising a plurality of branches such that an organizational group below a higher organizational group in each of the branches is a subset of the higher organizational group;

arranging a hierarchy of product groups comprising a plurality of branches such that a product group below a higher product group in each of the branches in a subset of the higher product group;

storing pricing information in a data source, wherein the pricing information is associated, with (i) a pricing type, (ii) the organizational groups, and (iii) the product groups;

retrieving applicable pricing information corresponding to the product, the purchasing organization, each product group above the product group in each branch of the hierarchy of product groups in which the product is a member, and each organizational group above the purchasing organization in each branch of the hierarchy of organizational groups in which the purchasing organization is a member;

sorting the pricing information according to the pricing types, the product, the purchasing organization, the hierarchy of product groups, and the hierarchy of organizational groups;

eliminating any of the pricing information that is less restrictive; and determining the product price using the sorted pricing information.

Claim 27

27. A computer implemented method for determining a price of a product offered to a purchasing organization comprising:

retrieving from a data source pricing information that is (i) applicable to the purchasing organization and (ii) from one or more identified organizational groups, within a hierarchy of organizational groups, of which the purchasing organization is a member;

retrieving from the data source pricing information that is (i) applicable to the product and (ii) from one or more identified product groups, within a hierarchy of product groups, of which the product is a member; and

receiving the price of the product determined using pricing information applicable to the one or more identified organizational groups and the one or more identified product groups according to the hierarchy of product groups and the hierarchy of organizational groups.

Claims 26 & 28

26. A computer readable storage media comprising: computer instructions to implement the method of claim 17.

28. A computer readable storage media comprising: computer instructions to implement the method of claim 27.

Claim 29

29. An apparatus for determining a price of a product offered to a purchasing organization comprising: a processor; a memory coupled to the processor, wherein the memory includes computer program instructions capable of:

retrieving from a data source pricing information that is (i) applicable to the purchasing organization and (ii) from one or more identified organizational groups, within a hierarchy of organizational groups, of which the purchasing organization is a member;

retrieving from the data source pricing information that is (i) applicable to the product and (ii) from one or more identified product groups, within a hierarchy of product groups, of which the product is a member; and

receiving the price of the product determined using pricing information applicable to the one or more identified organizational groups and the one or more identified product groups according to the hierarchy of product groups and the hierarchy of organizational groups.

Claims 17 & 26-29 Are Patent-Eligible Under § 101

Board should issue judgment that claims 17 and 26-29 of the '350 patent are patent eligible under 35 U.S.C. § 101.

- Evidence shows that each of claims 17, 26, 27, 28, and 29, considered as a whole, is directed to a specific, practical and advantageous way to determine product price using hierarchical groups of customer and products.

(VR at 16-26, 31-37, 39-44.)

- Evidence shows that the "very *specific* way" required by the claims to determine a product price cannot be considered abstract, mere field-of-use limitations, tangential references to technology, insignificant pre- or post-solution activity, ancillary data-gathering steps, or the like.

(VR at 20-22, 45-49.)

Claims 17 & 26-29 Are Patent-Eligible Under § 101

Board should issue judgment that claims 17 and 26-29 of the '350 patent are patent eligible under 35 U.S.C. § 101.

- Evidence shows that the claimed combination and sequence of elements in claims 17 and 26-29 were an unconventional, non-routine and not well-known way of determining the price of a product.

(VR at 22-26, 32, 36-37, 40, 43-44, 49-51.)

- Evidence shows that the claimed combination and sequence of elements in claims 17 and 26-29 represented a significant improvement over prior processes and systems for pricing.

(VR at 22-26, 32, 37, 40, 43-44, 49-51.)

- Evidence shows that claims 17 and 26-29 do not preempt any abstract idea.

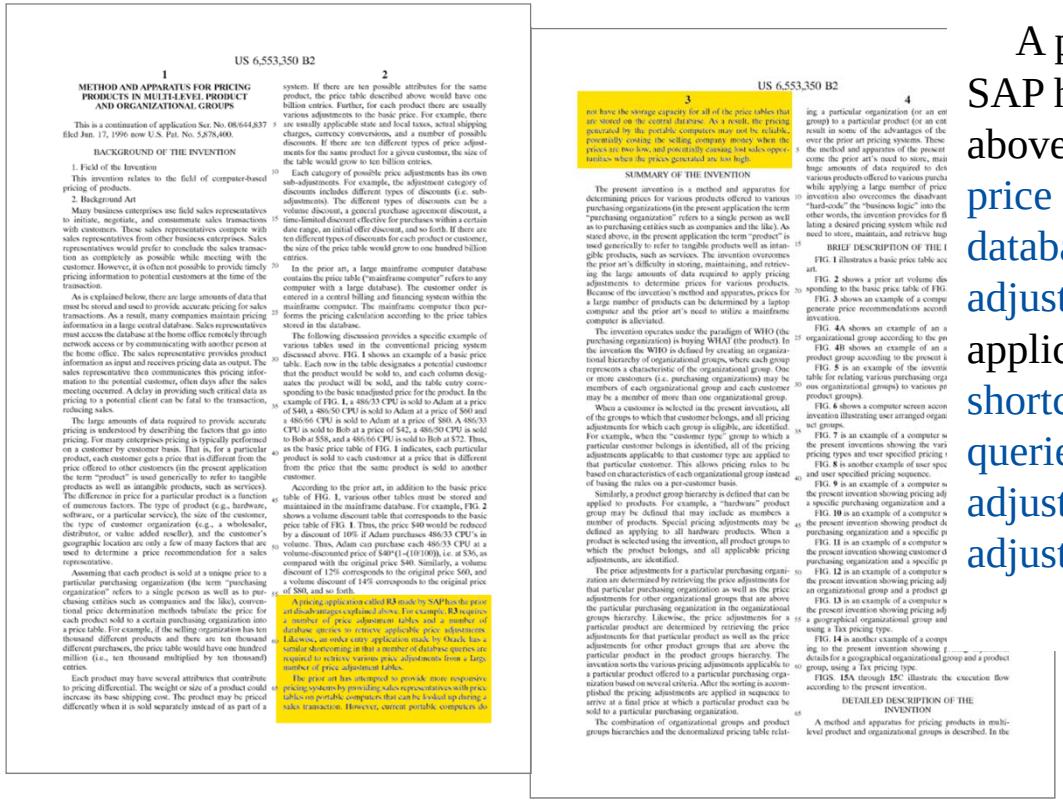
(VR at 26-27, 38, 40, 43.)

- Evidence shows that each of the claims satisfies the machine-or-transformation test.

(VR at 27-34, 38, 40-41, 44-45.)

‘350 Patent – Problem and Claimed Solution

The Problem



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METHOD AND APPARATUS FOR PRICING PRODUCTS IN MULTI-LEVEL PRODUCT AND ORGANIZATIONAL GROUPS

BACKGROUND OF THE INVENTION

SUMMARY OF THE INVENTION

A pricing application called R3 made by SAP has the prior art disadvantages explained above. For example, R3 requires a number of price adjustment tables and a number of database queries to retrieve applicable price adjustments. Likewise, an order entry application made by Oracle has a similar shortcoming in that a number of database queries are required to retrieve various price adjustments from a large number of price adjustment tables.

The prior art has attempted to provide more responsive pricing systems by providing sales representatives with price tables on portable computers that can be loaded up during a sales transaction. However, current portable computers do

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not have the storage capacity for all of the price tables that are stored on the central database. As a result, the pricing generated by the portable computers may not be reliable, potentially costing the selling company money when the prices are too low, and potentially causing lost sales opportunities when the prices generated are too high.

SUMMARY OF THE INVENTION

The present invention is a method and apparatus for determining prices for various products offered to various purchasing organizations (in the present application the term "purchasing organization" refers to a single person as well as to purchasing entities such as companies and the like). As stated above, in the present application the term "product" is used generically to refer to tangible products well as intangible products, such as services. The invention overcomes the prior art's difficulty in storing, maintaining, and retrieving the large amounts of data required to apply pricing adjustments to determine prices for various products. Because of the invention's method and apparatus, prices for a large number of products can be determined by a laptop computer and the prior art's need to utilize a mainframe computer is alleviated.

The invention operates under the paradigm of WHO (the purchasing organization) is buying WHAT (the product). In the invention the WHO is defined by creating an organizational hierarchy of organizational groups, where each group represents a characteristic of the organizational group. One or more customers (i.e. purchasing organizations) may be members of each organizational group and each customer may be a member of more than one organizational group.

When a customer is selected in the present invention, all of the groups to which that customer belongs, and all pricing adjustments for which each group is eligible, are identified. For example, when the "customer type" group to which a particular customer belongs is identified, all of the pricing adjustments applicable to that customer type are applied to that particular customer. This allows pricing rules to be based on characteristics of each organizational group instead of basing the rules on a per-customer basis.

Similarly, a product group hierarchy is defined that can be applied to products. For example, a "hardware" product group may be defined that may include as members a number of products. Special pricing adjustments may be defined as applying to all hardware products. When a product is selected using the invention, all product groups to which the product belongs, and all applicable pricing adjustments, are identified.

The price adjustments for a particular purchasing organization are determined by retrieving the price adjustments for that particular purchasing organization as well as the price adjustments for other organizational groups that are above the particular purchasing organization in the organizational groups hierarchy. Likewise, the price adjustments for a particular product are determined by retrieving the price adjustments for that particular product as well as the price adjustments for other product groups that are above the particular product in the product groups hierarchy. The invention sorts the various pricing adjustments applicable to a particular product offered to a particular purchasing organization based on several criteria. After the sorting is accomplished the pricing adjustments are applied in sequence to arrive at a final price at which a particular product can be sold to a particular purchasing organization.

The combination of organizational groups and product groups hierarchies and the denormalized pricing table relating a particular organization (or an entire organizational group) to a particular product (or an entire product group) result in some of the advantages of the present invention over the prior art pricing systems. These advantages enable the method and apparatus of the present invention to overcome the prior art's need to store, maintain, and retrieve huge amounts of data required to determine prices for various products offered to various purchasing organizations while applying a large number of price adjustments. The invention also overcomes the disadvantages of having to "hard-code" the "business logic" into the pricing system. In other words, the invention provides for flexibility in formulating a desired pricing system while reducing the prior art need to store, maintain, and retrieve huge amounts of data.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a basic price table according to the prior art.

FIG. 2 shows a prior art volume discount table corresponding to the basic price table of FIG. 1.

FIG. 3 shows an example of a computer system used to generate price recommendations according to the present invention.

FIG. 4A shows an example of an arrangement of an organizational group according to the present invention.

FIG. 4B shows an example of an arrangement of an product group according to the present invention.

FIG. 5 is an example of the invention's denormalized table for relating various purchasing organizations (or various organizational groups) to various products (or various product groups).

FIG. 6 shows a computer screen according to the present invention illustrating user arranged organizational and product groups.

FIG. 7 is an example of a computer screen according to the present inventions showing the various user specified pricing types and user specified pricing sequence.

FIG. 8 is another example of user specified pricing types and user specified pricing sequence.

FIG. 9 is an example of a computer screen according to the present invention showing pricing adjustment details for a specific purchasing organization and a specific product.

FIG. 10 is an example of a computer screen according to the present invention showing product details for a specific purchasing organization and a specific product.

FIG. 11 is an example of a computer screen according to the present invention showing customer details for a specific purchasing organization and a specific product.

FIG. 12 is an example of a computer screen according to the present invention showing pricing adjustment details for an organizational group and a product group.

FIG. 13 is an example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIG. 14 is another example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIGS. 15A through 15C illustrate the execution flow according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

A method and apparatus for pricing products in multi-level product and organizational groups is described. In the

The present invention is a method and apparatus for determining prices for various products offered to various purchasing organizations (in the present application the term "purchasing organization" refers to a single person as well as to purchasing entities such as companies and the like). As stated above, in the present application the term "product" is used generically to refer to tangible products well as intangible products, such as services. The invention overcomes the prior art's difficulty in storing, maintaining, and retrieving the large amounts of data required to apply pricing adjustments to determine prices for various products. Because of the invention's method and apparatus, prices for a large number of products can be determined by a laptop computer and the prior art's need to utilize a mainframe computer is alleviated.

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The Solution

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not have the storage capacity for all of the price tables that are stored on the central database. As a result, the pricing generated by the portable computers may not be reliable, potentially costing the selling company money when the prices are too low, and potentially causing lost sales opportunities when the prices generated are too high.

SUMMARY OF THE INVENTION

The present invention is a method and apparatus for determining prices for various products offered to various purchasing organizations (in the present application the term "purchasing organization" refers to a single person as well as to purchasing entities such as companies and the like). As stated above, in the present application the term "product" is used generically to refer to tangible products well as intangible products, such as services. The invention overcomes the prior art's difficulty in storing, maintaining, and retrieving the large amounts of data required to apply pricing adjustments to determine prices for various products. Because of the invention's method and apparatus, prices for a large number of products can be determined by a laptop computer and the prior art's need to utilize a mainframe computer is alleviated.

The invention operates under the paradigm of WHO (the purchasing organization) is buying WHAT (the product). In the invention the WHO is defined by creating an organizational hierarchy of organizational groups, where each group represents a characteristic of the organizational group. One or more customers (i.e. purchasing organizations) may be members of each organizational group and each customer may be a member of more than one organizational group.

When a customer is selected in the present invention, all of the groups to which that customer belongs, and all pricing adjustments for which each group is eligible, are identified. For example, when the "customer type" group to which a particular customer belongs is identified, all of the pricing adjustments applicable to that customer type are applied to that particular customer. This allows pricing rules to be based on characteristics of each organizational group instead of basing the rules on a per-customer basis.

Similarly, a product group hierarchy is defined that can be applied to products. For example, a "hardware" product group may be defined that may include as members a number of products. Special pricing adjustments may be defined as applying to all hardware products. When a product is selected using the invention, all product groups to which the product belongs, and all applicable pricing adjustments, are identified.

The price adjustments for a particular purchasing organization are determined by retrieving the price adjustments for that particular purchasing organization as well as the price adjustments for other organizational groups that are above the particular purchasing organization in the organizational groups hierarchy. Likewise, the price adjustments for a particular product are determined by retrieving the price adjustments for that particular product as well as the price adjustments for other product groups that are above the particular product in the product groups hierarchy. The invention sorts the various pricing adjustments applicable to a particular product offered to a particular purchasing organization based on several criteria. After the sorting is accomplished the pricing adjustments are applied in sequence to arrive at a final price at which a particular product can be sold to a particular purchasing organization.

The combination of organizational groups and product groups hierarchies and the denormalized pricing table relating a particular organization (or an entire organizational group) to a particular product (or an entire product group) result in some of the advantages of the present invention over the prior art pricing systems. These advantages enable the method and apparatus of the present invention to overcome the prior art's need to store, maintain, and retrieve huge amounts of data required to determine prices for various products offered to various purchasing organizations while applying a large number of price adjustments. The invention also overcomes the disadvantages of having to "hard-code" the "business logic" into the pricing system. In other words, the invention provides for flexibility in formulating a desired pricing system while reducing the prior art need to store, maintain, and retrieve huge amounts of data.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a basic price table according to the prior art.

FIG. **2** shows a prior art volume discount table corresponding to the basic price table of FIG. **1**.

FIG. **3** shows an example of a computer system used to generate price recommendations according to the present invention.

FIG. **4**A shows an example of an arrangement of an organizational group according to the present invention.

FIG. **4**B shows an example of an arrangement of an product group according to the present invention.

FIG. **5** is an example of the invention's denormalized table for relating various purchasing organizations (or various organizational groups) to various products (or various product groups).

FIG. **6** shows a computer screen according to the present invention illustrating user arranged organizational and product groups.

FIG. **7** is an example of a computer screen according to the present inventions showing the various user specified pricing types and user specified pricing sequence.

FIG. **8** is another example of user specified pricing types and user specified pricing sequence.

FIG. **9** is an example of a computer screen according to the present invention showing pricing adjustment details for a specific purchasing organization and a specific product.

FIG. **10** is an example of a computer screen according to the present invention showing product details for a specific purchasing organization and a specific product.

FIG. **11** is an example of a computer screen according to the present invention showing customer details for a specific purchasing organization and a specific product.

FIG. **12** is an example of a computer screen according to the present invention showing pricing adjustment details for an organizational group and a product group.

FIG. **13** is an example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIG. **14** is another example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIGS. **15**A through **15**C illustrate the execution flow according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

A method and apparatus for pricing products in multi-level product and organizational groups is described. In the

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SUMMARY OF THE INVENTION

The present invention is a method and apparatus for determining prices for various products offered to various purchasing organizations (in the present application the term "purchasing organization" refers to a single person as well as to purchasing entities such as companies and the like). As stated above, in the present application the term "product" is used generically to refer to tangible products well as intangible products, such as services. The invention overcomes the prior art's difficulty in storing, maintaining, and retrieving the large amounts of data required to apply pricing adjustments to determine prices for various products. Because of the invention's method and apparatus, prices for a large number of products can be determined by a laptop computer and the prior art's need to utilize a mainframe computer is alleviated.

The invention operates under the paradigm of WHO (the purchasing organization) is buying WHAT (the product). In the invention the WHO is defined by creating an organizational hierarchy of organizational groups, where each group represents a characteristic of the organizational group. One or more customers (i.e. purchasing organizations) may be members of each organizational group and each customer may be a member of more than one organizational group.

When a customer is selected in the present invention, all of the groups to which that customer belongs, and all pricing adjustments for which each group is eligible, are identified. For example, when the "customer type" group to which a particular customer belongs is identified, all of the pricing adjustments applicable to that customer type are applied to that particular customer. This allows pricing rules to be based on characteristics of each organizational group instead of basing the rules on a per-customer basis.

Similarly, a product group hierarchy is defined that can be applied to products. For example, a "hardware" product group may be defined that may include as members a number of products. Special pricing adjustments may be defined as applying to all hardware products. When a product is selected using the invention, all product groups to which the product belongs, and all applicable pricing adjustments, are identified.

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The combination of organizational groups and product groups hierarchies and the denormalized pricing table relating a particular organization (or an entire organizational group) to a particular product (or an entire product group) result in some of the advantages of the present invention over the prior art pricing systems. These advantages enable the method and apparatus of the present invention to overcome the prior art's need to store, maintain, and retrieve huge amounts of data required to determine prices for various products offered to various purchasing organizations while applying a large number of price adjustments. The invention also overcomes the disadvantages of having to "hard-code" the "business logic" into the pricing system. In other words, the invention provides for flexibility in formulating a desired pricing system while reducing the prior art need to store, maintain, and retrieve huge amounts of data.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a basic price table according to the prior art.

FIG. 2 shows a prior art volume discount table corresponding to the basic price table of FIG. 1.

FIG. 3 shows an example of a computer system used to generate price recommendations according to the present invention.

FIG. 4A shows an example of an arrangement of an organizational group according to the present invention.

FIG. 4B shows an example of an arrangement of an product group according to the present invention.

FIG. 5 is an example of the invention's denormalized table for relating various purchasing organizations (or various organizational groups) to various products (or various product groups).

FIG. 6 shows a computer screen according to the present invention illustrating user arranged organizational and product groups.

FIG. 7 is an example of a computer screen according to the present inventions showing the various user specified pricing types and user specified pricing sequence.

FIG. 8 is another example of user specified pricing types and user specified pricing sequence.

FIG. 9 is an example of a computer screen according to the present invention showing pricing adjustment details for a specific purchasing organization and a specific product.

FIG. 10 is an example of a computer screen according to the present invention showing product details for a specific purchasing organization and a specific product.

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FIG. 12 is an example of a computer screen according to the present invention showing pricing adjustment details for an organizational group and a product group.

FIG. 13 is an example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIG. 14 is another example of a computer screen according to the present invention showing pricing adjustment details for a geographical organizational group and a product group, using a Tax pricing type.

FIGS. 15A through 15C illustrate the execution flow according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

A method and apparatus for pricing products in multi-level product and organizational groups is described. In the

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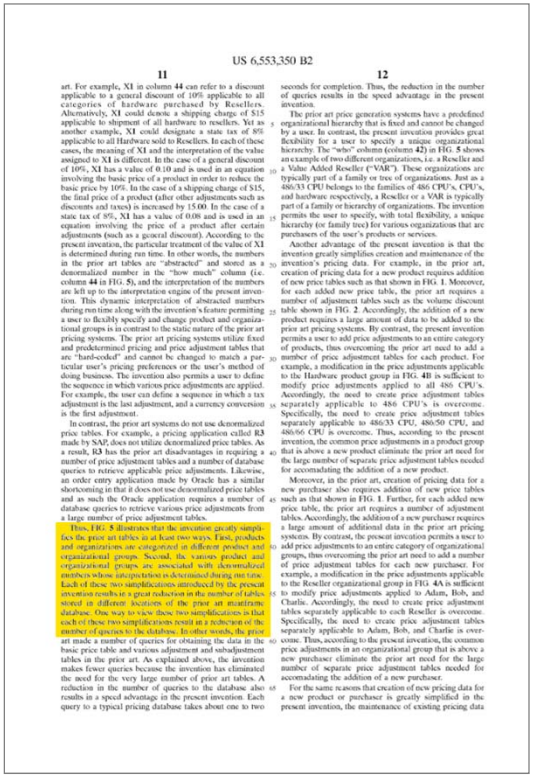
The Solution



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art. For example, X1 in column **44** can refer to a discount applicable to a general discount of 10% applicable to all categories of hardware purchased by Resellers. Alternatively, X1 could denote a shipping charge of $15 applicable to shipment of all hardware to resellers. Yet as another example, X1 could designate a state tax of 8% applicable to all Hardware sold to Resellers. In each of these cases, the meaning of X1 and the interpretation of the value assigned to X1 is different. In the case of a general discount of 10%, X1 has a value of 0.10 and is used in an equation involving the basic price of a product in order to reduce the basic price by 10%. In the case of a shipping charge of $15, the final price of a product (after other adjustments such as discounts and taxes) is increased by 15.00. In the case of a state tax of 8%, X1 has a value of 0.08 and is used in an equation involving the price of a product after certain adjustments (such as a general discount). According to the present invention, the particular treatment of the value of X1 is determined during run time. In other words, the numbers in the prior art tables are "abstracted" and stored as a denormalized number in the "how much" column (i.e. column **44** in FIG. **5**), and the interpretation of the numbers are left up to the interpretation engine of the present invention. This dynamic interpretation of abstracted numbers during run time along with the invention's feature permitting a user to flexibly specify and change product and organizational groups is in contrast to the static nature of the prior art pricing systems. The prior art pricing systems utilize fixed and predetermined pricing and price adjustment tables that are "hard-coded" and cannot be changed to match a particular user's pricing preferences or the user's method of doing business. The invention also permits a user to define the sequence in which various price adjustments are applied. For example, the user can define a sequence in which a tax adjustment is the last adjustment, and a currency conversion is the first adjustment.

In contrast, the prior art systems do not use denormalized price tables. For example, a pricing application called R3 made by SAP, does not utilize denormalized price tables. As a result, R3 has the prior art disadvantages in requiring a number of price adjustment tables and a number of database queries to retrieve applicable price adjustments. Likewise, an order entry application made by Oracle has a similar shortcoming in that it does not use denormalized price tables and as such the Oracle application requires a number of database queries to retrieve various price adjustments from a large number of price adjustment tables.

Thus, FIG. **5** illustrates that the invention greatly simplifies the prior art tables in at least two ways. First, products and organizations are categorized in different product and organizational groups. Second, the various product and organizational groups are associated with denormalized numbers whose interpretation is determined during run time. Each of these two simplifications introduced by the present invention results in a great reduction in the number of tables stored in different locations of the prior art mainframe database. One way to view these two simplifications is that each of these two simplifications result in a reduction of the number of queries to the database. In other words, the prior art made a number of queries for obtaining the data in the basic price table and various adjustment and subadjustment tables in the prior art. As explained above, the invention makes fewer queries because the invention has eliminated the need for the very large number of prior art tables. A reduction in the number of queries to the database also results in a speed advantage in the present invention. Each query to a typical pricing database takes about one to two seconds for completion. Thus, the reduction in the number of queries results in the speed advantage in the present invention.

The prior art price generation systems have a predefined organizational hierarchy that is fixed and cannot be changed by a user. In contrast, the present invention provides great flexibility for a user to specify a unique organizational hierarchy. The "who" column (column **42**) in FIG. **5** shows an example of two different organizations, i.e. a Reseller and a Value Added Reseller ("VAR"). These organizations are typically part of a family or tree of organizations. Just as a 486/33 CPU belongs to the families of 486 CPU's, CPU's, and hardware respectively, a Reseller or a VAR is typically part of a family or hierarchy of organizations. The invention permits the user to specify, with total flexibility, a unique hierarchy (or family tree) for various organizations that are purchasers of the user's products or services.

Another advantage of the present invention is that the invention greatly simplifies creation and maintenance of the invention's pricing data. For example, in the prior art, creation of pricing data for a new product requires addition of new price tables such as that shown in FIG. **1**. Moreover, for each added new price table, the prior art requires a number of adjustment tables such as the volume discount table shown in FIG. **2**. Accordingly, the addition of a new product requires a large amount of data to be added to the prior art pricing systems. By contrast, the present invention permits a user to add price adjustments to an entire category of products, thus overcoming the prior art need to add a number of price adjustment tables for each product. For example, a modification in the price adjustments applicable to the Hardware product group in FIG. **4B** is sufficient to modify price adjustments applied to all 486 CPU's. Accordingly, the need to create price adjustment tables separately applicable to 486 CPU's is overcome. Specifically, the need to create price adjustment tables separately applicable to 486/33 CPU, 486/50 CPU, and 486/66 CPU is overcome. Thus, according to the present invention, the common price adjustments in a product group that is above a new product eliminate the prior art need for the large number of separate price adjustment tables needed for accomodating the addition of a new product.

Moreover, in the prior art, creation of pricing data for a new purchaser also requires addition of new price tables such as that shown in FIG. **1**. Further, for each added new price table, the prior art requires a number of adjustment tables. Accordingly, the addition of a new purchaser requires a large amount of additional data in the prior art pricing systems. By contrast, the present invention permits a user to add price adjustments to an entire category of organizational groups, thus overcoming the prior art need to add a number of price adjustment tables for each new purchaser. For example, a modification in the price adjustments applicable to the Reseller organizational group in FIG. **4A** is sufficient to modify price adjustments applied to Adam, Bob, and Charlie. Accordingly, the need to create price adjustment tables separately applicable to each Reseller is overcome. Specifically, the need to create price adjustment tables separately applicable to Adam, Bob, and Charlie is overcome. Thus, according to the present invention, the common price adjustments in an organizational group that is above a new purchaser eliminate the prior art need for the large number of separate price adjustment tables needed for accomodating the addition of a new purchaser.

For the same reasons that creation of new pricing data for a new product or purchaser is greatly simplified in the present invention, the maintenance of existing pricing data

Thus, FIG. **5** illustrates that the invention greatly simplifies the prior art tables in at least two ways. First, products and organizations are categorized in different product and organizational groups. Second, the various product and organizational groups are associated with denormalized numbers whose interpretation is determined during run time. Each of these two simplifications introduced by the present invention results in a great reduction in the number of tables stored in different locations of the prior art mainframe database. One way to view these two simplifications is that each of these two simplifications result in a reduction of the number of queries to the database.

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The Solution

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art. For example, X1 in column **44** can refer to a discount applicable to a general discount of 10% applicable to all categories of hardware purchased by Resellers. Alternatively, X1 could denote a shipping charge of $15 applicable to shipment of all hardware to resellers. Yet as another example, X1 could designate a state tax of 8% applicable to all Hardware sold to Resellers. In each of these cases, the meaning of X1 and the interpretation of the value assigned to X1 is different. In the case of a general discount of 10%, X1 has a value of 0.10 and is used in an equation involving the basic price of a product in order to reduce the basic price by 10%. In the case of a shipping charge of $15, the final price of a product (after other adjustments such as discounts and taxes) is increased by 15.00. In the case of a state tax of 8%, X1 has a value of 0.08 and is used in an equation involving the price of a product after certain adjustments (such as a general discount). According to the present invention, the particular treatment of the value of X1 is determined during run time. In other words, the numbers in the prior art tables are "abstracted" and stored as a denormalized number in the "how much" column (i.e. column **44** in FIG. **5**), and the interpretation of the numbers are left up to the interpretation engine of the present invention. This dynamic interpretation of abstracted numbers during run time along with the invention's feature permitting a user to flexibly specify and change product and organizational groups is in contrast to the static nature of the prior art pricing systems. The prior art pricing systems utilize fixed and predetermined pricing and price adjustment tables that are "hard-coded" and cannot be changed to match a particular user's pricing preferences or the user's method of doing business. The invention also permits a user to define the sequence in which various price adjustments are applied. For example, the user can define a sequence in which a tax adjustment is the last adjustment, and a currency conversion is the first adjustment.

In contrast, the prior art systems do not use denormalized price tables. For example, a pricing application called R3 made by SAP, does not utilize denormalized price tables. As a result, R3 has the prior art disadvantages in requiring a number of price adjustment tables and a number of database queries to retrieve applicable price adjustments. Likewise, an order entry application made by Oracle has a similar shortcoming in that it does not use denormalized price tables and as such the Oracle application requires a number of database queries to retrieve various price adjustments from a large number of price adjustment tables.

Thus, FIG. **5** illustrates that the invention greatly simplifies the prior art tables in at least two ways. First, products and organizations are categorized in different product and organizational groups. Second, the various product and organizational groups are associated with denormalized numbers whose interpretation is determined during run time. Each of these two simplifications introduced by the present invention results in a great reduction in the number of tables stored in different locations of the prior art mainframe database. One way to view these two simplifications is that each of these two simplifications result in a reduction of the number of queries to the database. In other words, the prior art made a number of queries for obtaining the data in the basic price table and various adjustment and subadjustment tables in the prior art. As explained above, the invention makes fewer queries because the invention has eliminated the need for the very large number of prior art tables. A reduction in the number of queries to the database also results in a speed advantage in the present invention. Each query to a typical pricing database takes about one to two seconds for completion. Thus, the reduction in the number of queries results in the speed advantage in the present invention.

The prior art price generation systems have a predefined organizational hierarchy that is fixed and cannot be changed by a user. In contrast, the present invention provides great flexibility for a user to specify a unique organizational hierarchy. The "who" column (column **42**) in FIG. **5** shows an example of two different organizations, i.e. a Reseller and a Value Added Reseller ("VAR"). These organizations are typically part of a family or tree of organizations. Just as a 486/33 CPU belongs to the families of 486 CPU's, CPU's, and hardware respectively, a Reseller or a VAR is typically part of a family or hierarchy of organizations. The invention permits the user to specify, with total flexibility, a unique hierarchy (or family tree) for various organizations that are purchasers of the user's products or services.

Another advantage of the present invention is that the invention greatly simplifies creation and maintenance of the invention's pricing data. For example, in the prior art, creation of pricing data for a new product requires addition of new price tables such as that shown in FIG. **1**. Moreover, for each added new price table, the prior art requires a number of adjustment tables such as the volume discount table shown in FIG. **2**. Accordingly, the addition of a new product requires a large amount of data to be added to the prior art pricing systems. By contrast, the present invention permits a user to add price adjustments to an entire category of products, thus overcoming the prior art need to add a number of price adjustment tables for each product. For example, a modification in the price adjustments applicable to the Hardware product group in FIG. **4B** is sufficient to modify price adjustments applied to all 486 CPU's. Accordingly, the need to create price adjustment tables separately applicable to 486 CPU's is overcome. Specifically, the need to create price adjustment tables separately applicable to 486/33 CPU, 486/50 CPU, and 486/66 CPU is overcome. Thus, according to the present invention, the common price adjustments in a product group that is above a new product eliminate the prior art need for the large number of separate price adjustment tables needed for accomodating the addition of a new product.

Moreover, in the prior art, creation of pricing data for a new purchaser also requires addition of new price tables such as that shown in FIG. **1**. Further, for each added new price table, the prior art requires a number of adjustment tables. Accordingly, the addition of a new purchaser requires a large amount of additional data in the prior art pricing systems. By contrast, the present invention permits a user to add price adjustments to an entire category of organizational groups, thus overcoming the prior art need to add a number of price adjustment tables for each new purchaser. For example, a modification in the price adjustments applicable to the Reseller organizational group in FIG. **4A** is sufficient to modify price adjustments applied to Adam, Bob, and Charlie. Accordingly, the need to create price adjustment tables separately applicable to each Reseller is overcome. Specifically, the need to create price adjustment tables separately applicable to Adam, Bob, and Charlie is overcome. Thus, according to the present invention, the common price adjustments in an organizational group that is above a new purchaser eliminate the prior art need for the large number of separate price adjustment tables needed for accomodating the addition of a new purchaser.

For the same reasons that creation of new pricing data for a new product or purchaser is greatly simplified in the present invention, the maintenance of existing pricing data

In other words, the prior art made a number of queries for obtaining the data in the basic price table and various adjustment and subadjustment tables in the prior art. As explained above, the invention makes fewer queries because the invention has eliminated the need for the very large number of prior art tables. A reduction in the number of queries to the database also results in a speed advantage in the present invention. Each query to a typical pricing database takes about one to two seconds for completion. Thus, the reduction in the number of queries results in the speed advantage in the present invention.

SX 1001, 11:59-12:3

‘350 Patent – Problem and Claimed Solution

Evidence shows that the claimed invention solved the identified problems with the prior art systems.

- The storing, retrieving, sorting, eliminating, and determining steps are advantageous because they enable the reduction of the number of tables, and thus the number of queries, needed to determine a product price when using hierarchies. *See* VX 2091, ¶¶ 55-71. This in turn enables a significant performance advantage for computers running software embodying the invention of the ‘350 patent and provides a technological improvement over prior software systems. *Id*

(VR at 19-20.)

- SAP does not dispute that practicing the claimed steps enables the reduction of the number of tables and queries, and that this, in turn, enables a significant performance advantage.

(SR at 5-6.)

- The fact that the claims do not require a number of tables or queries, as SAP notes, is not relevant since practicing the claimed steps enables the undisputed advantageous, technological improvement.

(SR at 5-6.)

‘350 Patent – Problem and Claimed Solution

Evidence shows that the claimed invention solved the identified problems with the prior art systems.

- SAP documents show that the invention claimed in the ‘350 patent constitutes a specific and concrete improvement to technologies in the marketplace and involves activities that were in no way routine or conventional at the time of the invention. VX 2091, ¶¶ 113-118 (explaining SAP documents VX 2079, 2080, 2082, 2083, 2084, and 2089).

(VR at 49-51.)

- SAP documents show that companies had significant problems with the conventional pricing technology utilized by SAP before it adopted the technology claimed in the ‘350 patent in its R/3 Release 4.5 product pricing software (found to infringe the ‘350 claims). VX 2091, ¶ 120.

(VR at 49-51.)

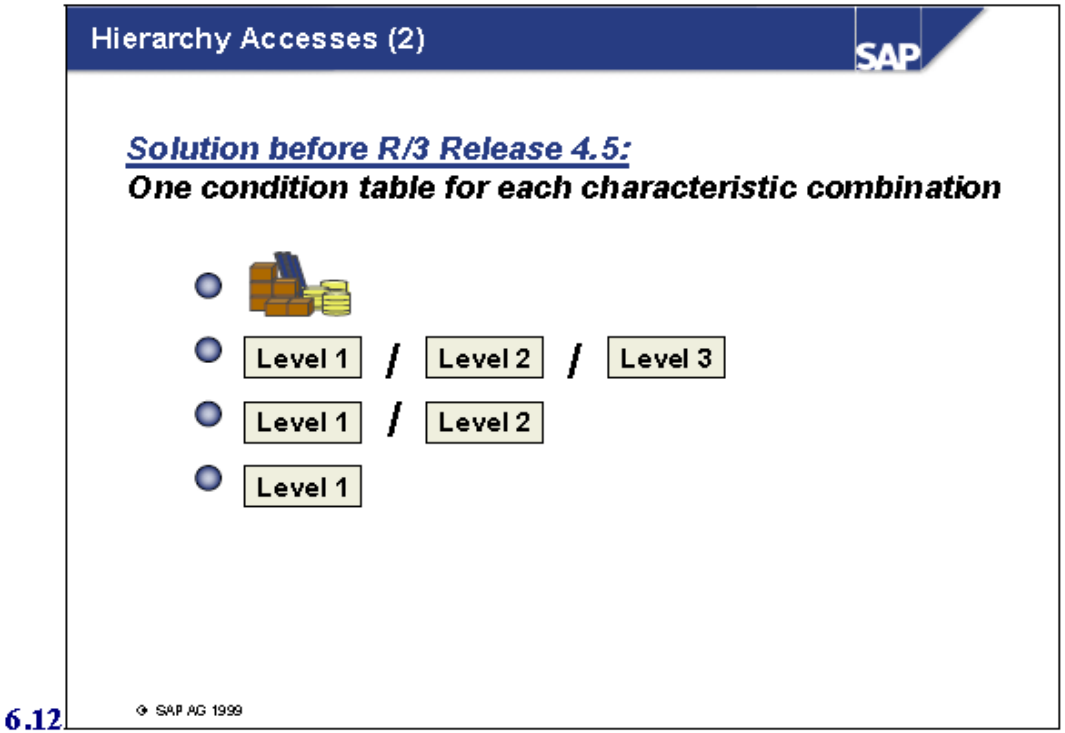
- SAP documents demonstrate that the invention of claims 17 and 26-29 was not routine, conventional or well-known as of June 1996 (the time of the invention) and, further, that the claimed invention provided a real-world practical solution to the acknowledged performance issues that SAP, and it’s customers, were experiencing with the SAP R/3 system in use at that time.

(VR at 49-51.)

‘350 Patent – Problem and Claimed Solution

Evidence shows that the claimed invention solved the identified problems with the prior art systems.

(VX 2091, ¶¶ 113-115; VX 2089 at p. 6-12; VX 2082 at p. 6-14.)

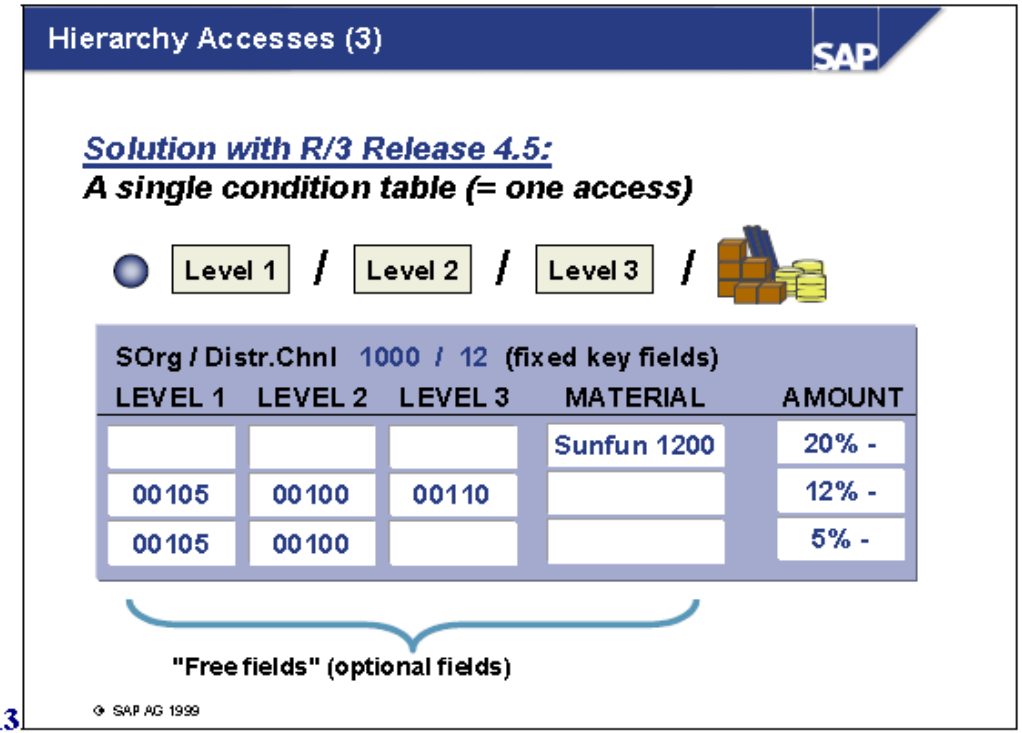


- To define the condition table key for hierarchies like this, you might have to include partial quantities for a pre-defined quantity of characteristics.
- Without hierarchy accesses, you would need to create a condition table for each combination and assign all the accesses to these tables in an access sequence.
- This requires a lot of maintenance and will reduce system performance. The sequence of the accesses will also be fixed.
- This is particularly disadvantageous for hierarchy data such as product or customer hierarchies.

‘350 Patent – Problem and Claimed Solution

Evidence shows that the claimed invention solved the identified problems with the prior art systems.

(VX 2091, ¶¶ 116-117; VX 2089 at p. 6-13; VX 2082 at p. 6-15.)



6.13

- The functions in hierarchy accesses enable you to solve these problems by using a single access to a condition table.
- In condition record maintenance, when you create the access sequence for using this condition table at field level, you have to define whether each field is a fixed component of the key or whether it is an optional field.
- Priorities are assigned to the optional fields.
- During pricing, the system sorts the records found with this access according to priority and displays the record with the highest priority.
- Hierarchy accesses also provide clearer and easier master data maintenance because the different condition records for a condition type are created together in the quick entry screen for maintaining conditions.

Claim 17 is Not Directed to an Abstract Idea

Claim 17 must be considered as a whole.

- § 101 requires evaluating each separate and distinct step of the claimed method and the particular ways that each of the storing, retrieving, sorting, eliminating and determining steps must be performed.

(VR at 16-18.)

- Neither SAP nor Dr. Siegel considered claim 17 as a whole and thus failed to perform this analysis.

(VR at 16-18.)

SAP Failed To Evaluate All Elements Of The Claims

- Patent eligibility must be evaluated based on what the claims recite, not on a characterization or summary of the ideas upon which they are premised. *Diehr,* 450 U.S. at 188. A proper determination of whether claim 17 is directed to patent eligible subject matter under § 101 requires an analysis of *all* of the elements or steps in the claimed process. *Id. See also Aro Mfg. Co.*, 365 U.S. at 345.

(VR at 14-15.)

- SAP and Dr. Siegel erroneously evaluated "[t]he concept of arranging customer and product data into hierarchies" and "the calculation of product prices using 'abstracted' numbers," instead of the specific elements of claim 17. *See* Petition, p. 17; SX 1005, §§ 44-45, 49.

(VR at 16-18)

- The requirements for patent eligibility under § 101 must be evaluated considering each of the claim elements in combination and the express language of each of the claimed steps, which SAP and Dr. Siegel failed to do.

SAP Failed To Evaluate All Elements Of The Claims

- Claim 17, in addition to including steps for arranging customer and product data into hierarchies and calculating a product price, includes separate and distinct steps requiring a particular way of determining product price.

(VR at 16-18.)

- SAP and Dr. Siegel failed to address the storing, retrieving, sorting, eliminating and determining steps required by claim 17 and their interrelation with one another and with the arranging steps.

(VR at 16-18.)

- SAP's new position that, when SAP and Dr. Siegel referred to "calculating" they actually meant the "storing, retrieving, sorting, eliminating, and determining steps," is a clear recognition of the defective § 101 evaluation set forth in SAP's Petition and Dr. Siegel's testimony.

(SR at 3-5.)

SAP's New "Calculating" Argument

- SAP rewrites its statement of the alleged abstract ideas in claim 17 so that this time it refers to the claim steps *(SR at 3):*

> *infra* pp. 4-5, claim 17 recites two abstract ideas using a series of steps: (1) arranging customer and product data into hierarchies (SX1001 21:1-9 (arranging steps)) and (2) calculating a product price (*id.* at 21:10-29 (storing, retrieving, sorting, eliminating, and determining steps)). Claim 27 likewise recites two

- SAP's new "calculating" argument is simply an attempt to try to fix SAP's and Dr. Siegel's defective § 101 analysis by improperly introducing a new argument that could have been, but was not, made in SAP's Petition or Dr. Siegel's testimony.
- Mischaracterizing the claimed storing, retrieving, sorting, eliminating, and determining steps as nothing more than "calculating" does not render the claims unpatentable under § 101, as SAP now contends.

(SR at 3-5.)

"Calculating" ≠ Claimed Storing, Retrieving, Sorting, And Eliminating Steps

SAP's Improper Rewrite of the Claims	*Actual Claim Language*
"calculating a product price"	"… storing pricing information in a data source, wherein the pricing information is associated, with (i) a pricing type, (ii) the organizational groups, and (iii) the product groups …"
"calculating a product price"	"… retrieving applicable pricing information corresponding to the product, the purchasing organization, each product group above the product group in each branch of the hierarchy of product groups in which the product is a member, and each organizational group above the purchasing organization in each branch of the hierarchy of organizational groups in which the purchasing organization is a member …"

“Calculating” ≠ Claimed Storing, Retrieving, Sorting, And Eliminating Steps

SAP’s Improper Rewrite of the Claims	*Actual Claim Language*
“calculating a product price”	“… sorting the pricing information according to the pricing types, the product, the purchasing organization, the hierarchy of product groups, and the hierarchy of organizational groups …”
“calculating a product price”	“… eliminating any of the pricing information that is less restrictive …”

"Calculating" ≠ Claimed Storing, Retrieving, Sorting, And Eliminating Steps

- SAP's rewrite of the storing, retrieving, sorting, eliminating, and determining steps as "calculating a product price" and arguing that the rewritten claim is abstract is improper and pointless.

(SR at 3-5.)

- SAP's mischaracterization of the claimed steps as "calculating a product price" is inconsistent with the actual claim language.
  - The claimed "pricing information" and the claimed "storing," "retrieving," "sorting," and "eliminating" of the pricing information are not simply numbers and are not a calculation.
  - The claimed "pricing information" and the claimed "storing," "retrieving," "sorting," and "eliminating" of the pricing information requires information on products *(e.g.,* Apple iPhone, Samsung Galaxy, Blackberry Z10), purchasing organizations *(e.g.*, AT&T Wireless, Best Buy, Costco), product groups *(e.g.,* smartphone, w/keyboard, Android OS) and organizational groups (*e.g.,* carrier, retailer, wholesaler), in addition to prices.
  - The claimed storing, retrieving, sorting, and eliminating of the pricing information is not simply "calculating a product price" and is not abstract. The combination of steps required by claim 17 represents a practical application of the alleged abstract idea.

(VR at 16-26, 32, 36-37, 40, 43-44; VX 2091, ¶¶ 56-63, 80, 85-88, 99, 104-107.)

Specific, Practical And Advantageous Way

The storing, retrieving, sorting, eliminating, and determining steps of claim 17 define a specific, practical and advantageous way to determine a product price using hierarchical groups of customers and products. VX 2091, ¶ 57.

(VR at 18-26.)

- Requirements for performing the claimed "storing" step.
- Requirements for performing the claimed "retrieving" step.
- Requirements for performing the claimed "sorting" step.
- Requirements for performing the claimed "eliminating" step.
- Requirements for performing the claimed "determining" step.

Specific, Practical And Advantageous Way

Evidence shows that the storing, retrieving, sorting, eliminating, and determining steps are meaningful and advantageous.

(VR at 19-23.)

- The claimed steps provide for functionality that enables the reduction of the number of tables and, thus, the number of queries needed to determine a product price when using hierarchies. *See* VX 2091, ¶¶ 57, 60.
- This in turn enables a significant performance advantage for computers running software embodying the invention of the '350 patent and provides a technological improvement over prior software systems. *See* VX 2091, ¶¶ 57, 60.
- The claimed combination of storing, retrieving, sorting, eliminating, and determining steps involves substantially different processing than simply "arranging and collecting data" and cannot be considered simply "data-gathering" steps or insignificant "post-solution" activity.

(VR at 20-22.)

Specific, Practical And Advantageous Way

SAP continues to ignore claim language and the evidence that the required storing, retrieving, sorting, eliminating, and determining steps of claim 17 define a specific, practical and advantageous way to determine a product price.

Storing step:

- SAP's response for the storing step, that "there is nothing special about the data source," ignores the specific and practical requirement of the storing step that the pricing information stored is "associated, with (i) a pricing type, (ii) the organizational groups, and (iii) the product groups."

(SR at 6.)

- SAP's sole focus on the data source, without considering the specifics of the claimed storing step, is meaningless in assessing whether the claim is or is not abstract.

(SR at 6.)

Specific, Practical And Advantageous Way

SAP continues to ignore claim language and the evidence that the required storing, retrieving, sorting, eliminating, and determining steps of claim 17 define a specific, practical and advantageous way to determine a product price.

Retrieving and sorting steps:

- Notwithstanding SAP's new "calculating" argument, SAP says that "these steps merely describe the abstract idea of customer ('organizational') and product hierarchies" and "amount to mere field-of-use or data gathering limitations."

(SR at 6.)

- SAP fails to provide any explanation as to how or why the retrieving and sorting steps allegedly describe customer ('organizational') and product hierarchies.
- SAP fails to provide any explanation as to how or why the retrieving and sorting steps allegedly amount to mere field-of-use.
- SAP fails to provide any explanation as to how or why the sorting step allegedly amounts to data gathering.

Specific, Practical And Advantageous Way

SAP continues to ignore claim language and the evidence that the required storing, retrieving, sorting, eliminating, and determining steps of claim 17 define a specific, practical and advantageous way to determine a product price.

Retrieving and sorting steps:

- Evidence shows that these steps provide meaningful functionality that cannot be characterized as mere field-of-use or ancillary data-gathering.

(VR at 21-22; VX 2091, ¶¶ 56-63.)

Eliminating step:

- SAP fails to address the claimed eliminating step.

(SR at 5-7.)

Determining step:

- SAP fails to address the claimed determining step.

(SR at 5-7.)

Specific, Practical And Advantageous Way

SAP continues to ignore claim language and the evidence that the required storing, retrieving, sorting, eliminating, and determining steps of claim 17 define a specific, practical and advantageous way to determine a product price.

Advantageous, technological improvement:

- SAP does not dispute that practicing the claimed steps enables the reduction of the number of tables and queries needed to determine a product price when using hierarchies.

(SR at 5-6.)

- SAP does not dispute that this, in turn, enables a significant performance advantage for computers running software embodying the invention of the '350 patent.

(SR at 5-6.)

- The fact that the claims do not require a number of tables or queries, as SAP notes, is not relevant since practicing the claimed steps enables the undisputed advantageous, technological improvement.

(SR at 5-6.)

Not Routine, Conventional or Well-Known

The way in which the claimed combination of storing, retrieving, sorting, eliminating, and determining steps use customer and product data arranged into hierarchies was not routine, conventional or well-known at the time of the invention.

(VR at 24-26; VX 2091, ¶ 62.)

- SAP R/3 pricing technology available at that time (i.e., 1996) did not practice the claimed combination of steps. VX 2091, ¶ 62. For example, the SAP product did not sort pricing information according to pricing types, the product, the purchasing organization, and the product and organization group hierarchies, which is why the SAP pricing condition technique was recognized as needing significant performance improvement.

(VR at 24-25; VX 2091, ¶ 62.)

- No evidence or analysis of claim elements by SAP or Dr. Siegel to support allegation that claims include routine, conventional, and well-known activities added to abstract ideas.

(VR at 24; SP at 18; SX 1005, ¶¶ 44-49.)

Not Routine, Conventional or Well-Known

The way in which the claimed combination of storing, retrieving, sorting, eliminating, and determining steps use customer and product data arranged into hierarchies was not routine, conventional or well-known at the time of the invention.

(VR at 24-26; VX 2091, ¶ 62.)

- Mr. Liebich, who, unlike Dr. Siegel, was actually working in the field of computerized business systems and software, focusing on pricing functionality, testified that he was not aware of any pricing technology in the marketplace at that time that performed the combination of storing, retrieving, sorting, eliminating, and determining steps set forth in claim 17.

(VR at 24-25; VX 2091, ¶ 62.)

- Mr. Liebich's testimony is supported by evidence. The commercial facts regarding what actually happened in the marketplace at the time back up his testimony.

(VR at 25-26.)

No Preemption

Claims 17 and 26-29 do not preempt any abstract idea. (VR at 26-27, 38.)

- There are many ways to practice the concept of arranging customer and product data into hierarchies that fall outside the scope of claims 17 and 26-29.

  (VR at 26-27, 38; VX 2091, ¶¶ 63-66, 89, 108.)

- There are ways to determine a product price using the concept of arranging customer and product data into hierarchies without practicing claims 17 and 26-29.

  (VR at 26-27, 38; VX 2091, ¶¶ 63-66, 89, 108.)

- Dr. Siegel acknowledged that there are different ways to perform the alleged abstract idea of rearranging pricing data into hierarchies than the specific steps or claim elements that are in Claim 17.

  (VR at 27; VX 2090, p. 103, l. 23 – p. 104, l. 16.)

Claims Satisfy Machine-Or-Transformation Test

Claim 17 satisfies the machine-or-transformation test. Claimed invention is tied to a particular machine – i.e., a programmed computer.

- Claim requires the pricing information to be stored in a "data source," which a person of ordinary skill in this field would understand to mean a conventional or unconventional computer database.
- Consistent with how the data source is discussed in the '350 patent specification. SX 1001, col. 10; 55-61.
- Method requiring data to be stored in a computer database requires a computer. Since a computer is needed to store (and retrieve) data from a computer database, use of a computer is integral to the claimed method.

(VR at 27-31; VX 2091, ¶¶ 67-70.)

Claims Satisfy Machine-Or-Transformation Test

Claim 17 satisfies the machine-or-transformation test. Claimed invention is tied to a particular machine – i.e., a programmed computer.

- Method cannot be performed using pencil and paper or mentally, without the use of a computer.
- Specification of the '350 patent, which clearly and consistently describes the claimed method as being implemented on a computer, further supports that the invention of claim 17 is tied to a particular machine and cannot be performed manually or mentally. *See, e.g.*, SX 1001, col. 1, ll 10-12; col. 3, ll. 16-23; col. 5, ll. 8-11, 55-58; col. 8, ll. 64-67; col. 10, ll. 55-61; col. 11, ll. 17-25; col. 18, ll. 53-55; col. 19, ll. 7-17. *See also* VX 2077.
- SAP and Dr. Siegel's statements to the contrary are not credible in view the disclosure of the '350 patent and Dr. Siegel's subsequent testimony.
- Claimed invention has use and benefit only when implemented on a computer. From a practical standpoint, the invention would have no purpose if it were performed mentally or with pen and paper (even if it could be, which Versata denies). There would be no performance advantage outside of the context of a computer.

(VR at 27-31; VX 2091, ¶¶ 67-70.)

Claims Satisfy Machine-Or-Transformation Test

Claims 27 and 29 satisfy the machine-or-transformation test. Claimed invention is tied to a particular machine – i.e., a programmed computer.

- Claimed invention tied to a particular machine for the same reasons as claim 17.
- Claim 27 also requires computer implementation which further supports position that recited steps cannot be performed without a computer programmed to perform those steps.
- Claim 29 is an "apparatus" claim and requires a "processor," "memory coupled to the processor," and "computer program instructions." Claim 29 is not a "method" claim.
- Apparatus of claim 29, including its processor, memory and computer program instructions in that memory, is not a "general purpose" computer or machine. Rather, it is a special purpose machine when programmed, by the computer program instructions in memory, to perform the recited retrieving, retrieving and receiving steps to determine the product price.
- These claims cannot be performed manually or mentally.

(VR at 38, 44-45; VX 2091, ¶¶ 90, 109.)

Claims Satisfy Machine-Or-Transformation Test

Claims 26 and 28 satisfy the machine-or-transformation test. Claimed invention is tied to a particular machine – i.e., a programmed computer.

- Claimed invention is tied to a particular machine for the same reasons as claims 17 and 27.
- Claims 26 and 28 also require "a computer readable storage media" and "computer instructions." These additional limitations further support position that the claimed invention is tied to a particular machine.
- Additional limitations tie the invention to a computer with computer readable storage media comprising computer instructions (i.e., a programmed computer) and a data source storing pricing information, which is a requirement of claims 17 and 27. VX 2091, ¶ 81.
- These claims require more than a general purpose computer because the computer instructions, or programs, expressly recited in the claims, create a new machine that in effect becomes a special purpose computer to perform the particular functions pursuant to the computer instructions.
- These claims cannot be performed manually or mentally.

(VR at 32-34, 40-42; VX 2091, ¶¶ 80-81, 99-100.)

Claims Satisfy Machine-Or-Transformation Test

All required steps/elements of claims 17 and 26-29 cannot be performed entirely in the human mind or by a human using a pen and paper.

- All required claim steps/elements cannot be performed without use of a computer.

(VR at 27-31, 33, 38, 40-41, 44-45; VX 2091, ¶¶ 67-70, 81, 90, 100, 109.)

  - Claims require the pricing information to be stored in a "data source," which a person of ordinary skill in this field would understand to mean a conventional or unconventional computer database.

(VR at 27-31; VX 2091, ¶¶ 67-70.)

  - This interpretation is consistent with how the data source is discussed in the '350 patent specification. Any interpretation that is broader would not be reasonable in light of the specification.

> The invention's denormalized price table overcomes a prior art disadvantage since the invention is not limited in speed or in storage space by the prior art's requirement of retrieving several tables from the database (it is noted that although the invention is discussed in terms of a "database," the invention can be implemented using any data source that may be different from a conventional database). The entries

(SX 1001, col. 10:55-61.)

Claims Satisfy Machine-Or-Transformation Test

All required steps/elements of claims 17 and 26-29 cannot be performed entirely in the human mind or by a human using a pen and paper.

- All required claim steps/elements cannot be performed without use of a computer.

(VR at 27-31, 33, 38, 40-41, 44-45; VX 2091, ¶¶ 67-70, 81, 90, 100, 109.)

  - Specification of the '350 patent clearly and consistently describes the claimed method as being implemented on a computer.

(VR at 28; VX 2077.)

  - Claims requiring data to be stored in a computer database require a computer to store (and retrieve) data from the database.

(VR at 28; VX 2091, ¶ 67.)

  - Claim 27 also requires computer implementation, and claim 29 is directed to an "apparatus" that includes a "processor," "memory coupled to the processor," and "computer program instructions."

(VR at 38; VX 2091, ¶ 90.)

  - Claims 26 and 28 also require "a computer readable storage media" and "computer instructions."

(VR at 31, 39; VX 2091, ¶¶ 74, 94.)

Claims Satisfy Machine-Or-Transformation Test

All required steps/elements of claims 17 and 26-29 cannot be performed entirely in the human mind or by a human using a pen and paper.

- Contrary to SAP's allegations, there is no evidence establishing that all of the steps/elements of the claims can be performed entirely using pencil and paper or mentally.

(VR at 27-31; VX 2091, ¶¶ 67-70.)

  - There is no disclosure or suggestion in '350 patent that the claimed invention can be performed mentally or using pencil and paper.

(SX 1001.)

  - When Dr. Siegel was questioned about the claimed invention requiring use of a computer, he referred to the '350 patent specification disclosing that the claimed invention could be performed using pencil and paper. He did not identify any evidence to support his position and the '350 patent has no such disclosure.

(VX 2090, p. 105, ll. 4-15; p. 137, l. 14 - p. 139, l. 13.)

  - Mr. Liebich testified that the claimed method could not be performed using pencil and paper or mentally, and SAP's reliance on his testimony as allegedly showing that it can be is misleading.

(VX 2091, ¶¶ 67-70; SR at 11.)

Claimed Subject Matter is Not Abstract

Analysis/Factors	*SAP/Dr. Siegel*
Consider claim as a whole, evaluating all elements	Did not address claim as a whole. Did not address specific steps/elements of claims. Did rewrite of claims and addressed that instead.
Abstract ideas	Did not identify specific steps/elements of claims alleged to be the abstract ideas.
Practical application	Did not address whether specific steps/elements of claims constitute practical application of alleged abstract idea, are meaningful, advantageous, or a technological improvement. Did not evaluate whether claimed method/computer readable storage media/apparatus had been put into practical use.

Claimed Subject Matter is Not Abstract

Analysis/Factors	*SAP/Dr. Siegel*
Routine, conventional, well-known	Did not identify any specific steps/elements of claims as routine, conventional or well-known.
Mere field-of-use limitations	Did not identify any specific steps/elements of claims.
Tangential references to technology	Did not identify any specific steps/elements of claims.
Insignificant pre- or post-solution activity	Did not identify any specific steps/elements of claims.
Ancillary data-gathering steps	Did not identify any specific steps/elements of claims.
Preemption	Did not address preemption.

Claimed Subject Matter is Not Abstract

Analysis/Factors	*Versata/Mr. Liebich*
Consider claim as a whole	VR at 16-19, 32, 36, 40, 43. VX 2019, ¶¶ 56-57, 80, 86, 99, 106.
Abstract ideas	VR at 15-26, 31-44. VX 2019, ¶¶ 54-62, 72-81, 83-88, 92-100, 102-107.
Practical application	VR at 18-24, 32, 36-37, 40, 43-44. VX 2019, ¶¶ 56-57, 60, 80, 87-88, 99, 106-107.
Not Routine, conventional, well-known	VR at 22-26, 32, 36-37, 40, 43. VX 2019, ¶¶ 60, 62, 80, 86, 88, 99, 106-107, 111-120.

Claimed Subject Matter is Not Abstract

Analysis/Factors	*Versata/Mr. Liebich*
Not mere field-of-use limitations	VR at 20-21, 45-49. VX 2019, ¶¶ 56-63, 80, 86, 99, 106.
Not tangential references to technology	VR at 20-21, 45-49. VX 2019, ¶¶ 56-63, 80, 86, 99, 106.
Not insignificant pre- or post-solution activity	VR at 20-21, 45-49. VX 2019, ¶¶ 56-63, 80, 86, 99, 106.
Not ancillary data-gathering steps	VR at 20-21, 45-49. VX 2019, ¶¶ 56-63, 80, 86, 99, 106.
No preemption	VR at 26-27, 32, 38, 40, 43-44. VX 2019, ¶¶ 63-66, 80, 89, 99, 108.

Evidence Establishes That Mr. Liebich Is Qualified

The Evidence Establishes that Mr. Liebich is Qualified to Testify as to the Understanding of One Skilled in the Art.

- The Board determined that "[t]he field of invention is computerized financial systems" and that a person of ordinary skill in the art would have "at least a bachelor's degree in computer science and experience developing computerized financial systems."

(ID at 8, n. 4.)

- Versata and Mr. Liebich referred to the field of invention as "computerized business systems and software, including its pricing functionality."

(VR at 24, 32, 39; VX 2091, ¶ 14, 67, 77, 83, 97, 102.)

- Evidence establishes that Mr. Liebich has more than 20 years of experience in the field of computerized business systems and software, including its pricing functionality, and many years of practical experience designing, configuring and programming computerized pricing systems.

(VX 2091, ¶¶ 2-7, 14, 68 and Appendix A; SX 1033, p. 166, l. 8 – p. 167, l. 16.)

Evidence Establishes That Mr. Liebich Is Qualified

The Evidence Establishes that Mr. Liebich is Qualified to Testify as to the Understanding of One Skilled in the Art.

- The qualifications, background, and experience of Mr. Liebich detailed in his testimony and his CV are more than sufficient to qualify him as a person of ordinary skill in the art and to testify as to the understanding of one skilled in the art.

(VX 2091, ¶¶ 2-7, 14, 68 and Appendix A.)

- "I have also taken into account my own knowledge of pricing, in general, and the pricing functionality of SAP's SD module in particular, gained from over 20 years of experience in the field of computerized business systems and software, including its pricing functionality."

(VX 2091, ¶ 14.)

- "My opinion is further supported by my many years of practical experience programming, troubleshooting and using pricing systems - - the size and complexity of which require the use of a programmed computer."

(VX 2091, ¶ 68.)

Evidence Establishes That Mr. Liebich Is Qualified

The Evidence Establishes that Mr. Liebich is Qualified to Testify as to the Understanding of One Skilled in the Art.

- "Q. ... And you indicate at the end of that sentence you have over 20 years of experience in the field of computerized business systems and software, including its pricing functionality, is that right? A. That is correct. .... When you look at my CV, you will see that 20 years of experience at different client sites with the specific tasks that I accomplished at these companies."

(SX 1033, p. 166, ll. 8-21.)

- "Q. ... if you could, explain for the Board, as part of your work, have you done anything regarding designing or programming? A. Yes. THE WITNESS: When I started with SAP, I was sent to SAP for multiple programming courses. In the three years working in Germany, I was mainly programming different reports, transactions, online screens. The same happened when I moved to the United States. My first client, I was the leader of a development team. So I was -- I am very familiar with the programming language of SAP. And looking at the different customers that I've been at, I was always the pricing lead, basically designing their pricing functionality in the SAP R/3 system."

(SX 1033, p. 166, ll. 22 – p. 167, l. 16.)

Board Should Give Weight to Mr. Liebich's Testimony

- Mr. Liebich's 20 years of experience designing, configuring, and programming computerized pricing systems (i.e., computerized "financial" systems, using the Board's terminology) places Mr. Liebich at least on par with and, in fact, he has expertise beyond, a person having "at least a bachelor's degree in computer science and experience developing computerized financial systems."

(VX 2091, ¶¶ 2-7, 14, 68 and Appendix A; SX 1033, p. 166, l. 8 – p. 167, l. 16.)

- In arguing that Mr. Liebich's testimony should be given no weight, SAP relies on *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F. 3d 1356, 1363 (Fed. Cir. 2008). In *Sundance,* the Federal Circuit held that a district court abused its discretion when it admitted the testimony of a patent law expert "[d]espite the absence of *any suggestion of relevant technical expertise*." *Sundance,* 550 F. 3d at 1361-62 (emphasis added).

(SR at 21-22.)

- This is not the situation here. Evidence establishes that Mr. Liebich has "sufficient relevant technical expertise" such that there is an "adequate relationship between his experience and the claimed invention." *See SEB S.A. v. Montgomery Ward & Co., Inc.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010). Like the situation in SEB, "this case comes nowhere close to the unusual situation in [Sundance]" where the alleged expert did not have "any ... relevant technical expertise." *Id*.

Dr. Siegel's Testimony Should Be Given No Weight

Expert Testimony Should Be Afforded Little To No Weight Where The Expert Does Not Provide A Sufficient Factual Basis For His Or Her Opinions

(VR at 67-68, citing 37 C.F.R. §§ 42.65(a) and 41.158(a), and Federal Circuit and Board decisions)

- Dr. Siegel failed to disclose underlying facts or data upon which his § 101 opinions are based.

(VR at 67-70.)

- Dr. Siegel did not analyze the claims as a whole and, admittedly, did not address the separate steps required by claim 17 in his § 101 analysis.

(VR at 68-70; VX 2090, p. 90, ll. 9-24.)

- Dr. Siegel admitted that he did not do any analysis to understand the system described in the '350 patent, and that he does not know what the system is.

(VR at 70; VX 2090, p. 104, l. 20 – p. 136, l. 8.)

- Dr. Siegel did not analyze each claim limitation or provide any factual basis to support his assertions regarding alleged conventional and well-known activities being in the claims.

(VR at 68-69; SX 1005, ¶¶ 44-49.)