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CALDIVO DATA: Brief description and merits

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April 15, 2014

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1 Brief description of CALDIVO DATA

CALDIVO DATA is a software that permits to create regulatory cost models with manageable effort.

Key characteristics at a glance

- CALDIVO DATA can be tailored to all sorts of regulatory costing exercises.
- Subsequent changes of a cost model can be implemented relatively easily.
- CALDIVO DATA can administer amounts of data for which spreadsheet based modelling would be no reasonable alternative.
- The data model is transparent to CALDIVO DATA users.

1.1 Principal design of a CALDIVO DATA model

A CALDIVO DATA application stores data in data objects. A data object is a structure defined by dimensions. Once defined, different data objects can be linked with mathematical operations. Dimensions, data objects and mathematical linkages between data objects constitute the data model.

1.2 Definition of dimensions

The definition of data objects is subject to the prior definition of dimensions. A dimension is a qualitative characteristic of data with a limited number of potential values. The following dimensions might be defined as part of a cost model of a communications network:

- Dimension ‘cables and pipes’ with the values ‘fibre optic cable’, ‘copper cable’ and ‘trenches’.
- Dimension ‘expenditure’ with the values ‘OPEX’ and ‘CAPEX’.
- Dimension ‘increment’ with the values ‘increment access network’, ‘increment core network’ and ‘common to access and core network’.

1.3 Definition of data objects

Once defined, dimensions are the basis for the definition of data objects. The following data objects might be defined as part of a cost model of a communications network:

- Data object ‘ducts and pipes – direct costs’ for storing directly attributable costs.
- Data object ‘ducts and pipes – maintenance costs’ for storing the portion of maintenance costs attributed to ducts and pipes.
- Data object ‘ducts and pipes – corporate overheads’ for storing the costs associated with centralized in-house functions such as accounting, legal and HR.

There is no principal limitation of the number dimensions drawn on the definition of a distinct data object. For instance, the data object ‘ducts and pipes – direct costs’ might have the dimensions ‘cables and pipes’, ‘coincidence of costs and expenses’ and ‘increment’. As dimensions can have a multitude of values while data objects might be defined by a multitude of dimensions, hundreds of data values might be stored in a single data object.

1.4 Mathematical links between data objects

A data object can store either inputs made by the user or data that has been calculated from other data objects. The mathematical links between data objects are part of the definition of the data model. To set up a cost model for a communications network, for instance, the mathematical link ‘addition’ might be established between the input data object ‘ducts and pipes – direct costs’, the input data object ‘ducts and pipes – maintenance costs’ and the input data object ‘ducts and pipes – corporate overheads’ on the one hand and the output data object ‘ducts and pipes – total costs’ on the other hand. Figure 1 illustrates this. Naturally ‘addition’ is a very simple example for a mathematical link. CALDIVO DATA provides an extensive choice of mathematical links.

1.5 Presentation of data objects

CALDIVO DATA presents data objects in a comprehensive manner. It is possible to show any interim result of calculations to the user. Figure 2 provides a screenshot of a CALDIVO DATA application.

2 Transparency of the CALDIVO DATA model

A CALDIVO DATA application will be configured according to the client’s requirements. This means that Ewers Consult will clarify with the client’s staff which data objects shall be administered by the model and which mathematical links shall be established between these data objects. The client will know how the model works, and accordingly the client will also know how the data model

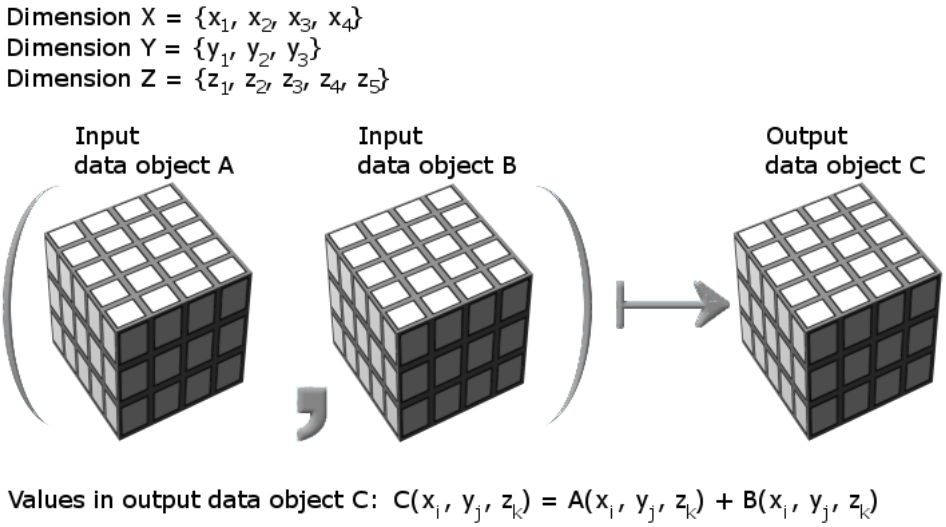

Figure 1: Mathematical link ‘addition’ with three-dimensional data objects

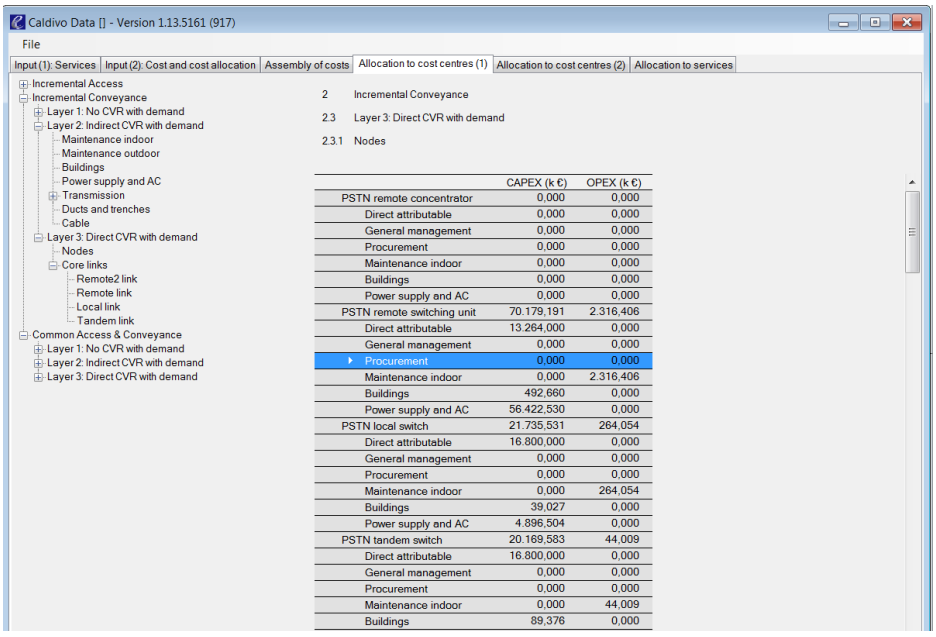

Figure 2: Screenshot of an application configured with CALDIVO DATA

would have to be adjusted to deal with further requirements that might emerge in the future.

3 Superiority over spreadsheet-based models

CALDIVO DATA is by far better suited to implement complex and extensive cost models than a spreadsheet program.

3.1 Capacity

CALDIVO DATA can administer multi-dimensional data objects. A spreadsheet-based model can only deal with two dimensions, namely the row dimension and column dimension of the very table presented on the screen.

A simple numeric example illustrates the significance of that difference. In a CALDIVO DATA application, a data object with four dimensions and five values per dimension will store 5^4 = 625 data values. A spreadsheet-based model would need 25 tables with 25 values per table to store the same amount of data. In a real-life application, dimensions such as 'retail and wholesale service portfolio' or 'Ethernet network components' might have dozens of values. A spreadsheet model is clearly at disadvantage in that respect.

3.2 Efficiency

The configuration of a CALDIVO DATA cost model is based on the definition of dimensions. This implies: If the definition of a dimension is changed, the definition of all data objects that refer to that dimension will automatically change, too. The advantage for the client: A CALDIVO DATA model can be realised at manageable effort and the model is future-proof. Changes of existing models might become necessary when the service portfolio of the regulated firm changes or when it commissions new components.

The quoted example of a data object with four dimensions and five values per dimension illustrates the difference between CALDIVO DATA and a spreadsheet-based model. With CALDIVO DATA, the amendment of a dimension with an extra value requires just one change of the data model, while a spreadsheet-based model would require changes in at least 25 rows of tables. The more extensive a model gets, the more significant will be the difference between the effort needed to adjust a spreadsheet-based model and a CALDIVO DATA model.

Another source of CALDIVO DATA's efficiency is the separation between data objects, mathematical links and the presentation of data on the screen. A spreadsheet-based model would not separate between the calculation of data and its presentation on the screen: In each cell with a calculated value the mathematical algorithm has to be included in the very cell itself. Suppose you want to add the values from two three-dimensional data objects with five values per dimension. CALDIVO DATA just needs one operation to establish that mathematical link. In a spreadsheet-based model, the mathematical operation would have to be defined in 5^3 = 125 cells.

Conclusion: The larger the amount of data that will have to be handled by a model, the more CALDIVO DATA outclasses a spreadsheet-based solution. Less intervention in the model in case of change request means less expenditure of time and less error-proneness.

3.3 Comprehensive presentation

A spreadsheet-based model does not separate the calculation of data from its presentation on the screen. Accordingly any calculated data will have to be shown on the screen, too. That concerns even the interim results of calculations. In contrast to a spreadsheet-based model, CALDIVO DATA only depicts any subset of a data object that has been selected as defined in the model configuration. CALDIVO DATA's navigation gets the user quickly to the data he finds relevant.