**Roundsheet (simplified version) Outline Specification**

What is it? Roundsheet lets you think about things as a whole and as parts. Start off with the big picture then explore the parts; [and then make your big picture part of a larger world – to b e provided]. [Expand your thinking across time or other dimensions – to be explored]. Ideas or numbers - Roundsheet works for both. For numbers and dates, Roundsheet builds in the concept of Planned Values and Actual Values.

**Components and their representation**

A. Basic Elements and their Graphics
B. Key Relationships
C. Names and Values
D. Actions

E. Graphic Transformations

**A. Basic Elements and their Graphics**

A1. **The Round**: A circle, possibly portrayed as a thin 3D cylinder slightly tilted. For example, a Round could represent the budget for a year, or the tasks in a project.

A2. **The Slice**: A subset of a Round as defined by two lines drawn from the centre of the round out to its circumference. A Slice could be portrayed as a wedge moved a little way out of the Round. For example, a Slice could represent the main categories of expenditure in a budget, or the main activities in a project.

A3. **The Sub-Slice (multiple levels):** A subset of a Slice as defined by one or two lines drawn from the apex of a Slice to its outer edge. A Sub-Slice can also be a subset of another Sub-Slice. Sub-Slices can be subdivided down into any number of levels. This could be portrayed as a magnified version of the Sub-Slice underneath the Slice or Sub-Slice it belongs to with dotted lines going from the Slice or Sub-Slice above to the expanded Sub-Slice below to make it clear that the latter is being magnified. Alternatively, when working a Sub-Slice it could be represented as a Round below the Slice or Sub-Slice it belongs to. Then when it is no longer being worked it would transform to looking like a Sub-Slice again. This would make it easier to insert dividing lines in a Sub-Slice, and it would build on the User’s Conceptual Model of the Roundsheet as being the subdivision of circles. For example, a Sub-Slice could represent the sub-categories of expenditure in a budget, or sub-categories of activities in a project.

A4. **The Roll**: A collection of Rounds all piled on top of each other to form a longer cylinder. This could be portrayed as a 3D cylinder at an angle with the separate Rounds contained with its length. For example, a Roll with a Round at the top representing a budget by category for the next year, might have four further rounds representing the same budget for each of four subsequent years.

A5. **The Roundsheet**: A file containing at least one Round and any associated Slices, Sub-Slices, other Rounds and Roll.

**B. Key Relationships**

B1. One Round can have any number of Slices or no slices at all

B2. One Slice can have any number of sub-Slices or no Sub-Slices at all

B3. One Sub-Slice can be broken down into any number of further levels of Sub-Slice

B4. One Roll can have any number of Rounds

B5. In summary, a Roll can possess any number of Rounds, and a Round can be broken into any number of Slices, each of which can be further subdivided into any number of lower levels of Sub-Slices.

**C. Names and Values (these would be better represented in a truth table)**

C1. All Roundsheet elements – Rounds, Slices, Sub-Slices and Roll – must have a name.

C2. Rounds, Slices and Sub-Slices can have a Value comprising a particular type of data.

C3. Roundsheet data can be either Numerical, Date, Formulaic, Text or a File, subject to the following rules:

a) Rolls cannot have any data associated with them other than a name

b) Rounds, Slices and Sub-Slices can have either Numerical, Date, Formulaic, Text or File values.

C4. Formulaic values are the system-calculated product of a formula pre-specified by the user and which can incorporate the values of other Rounds, Slices and Sub-Slices.

C5. Rounds, Slices and Sub-Slices that have Numerical or Date values can have just a Value, or a Planned Value and an Actual Value. The value calculations specified in C6 – C8 below apply to both Planned Values and Actual Values, though there is no relationship between Planned and Actual Values.

C6. A Slice has a numerical value if:

1. the Round it is part of has a numerical value
2. any of its fellow Slices in a Round already have a numerical value

C7. A Sub-Slice has a numerical value if:

1. the Slice it is part of has a numerical value
2. any of its fellow Sub-Slices at the same level already have a numerical value

C8. A Round has a numerical value if:

1. any of the Slices it contains have numerical values
2. any of the Sub-Slices of the Slices it contains have numerical values

C9. The same applies to C6-C8 for Date values.

**D. Actions**

D1. Create new Roundsheet: a) Open a window showing an empty Round with an empty field for its Name and another empty field for its Value (this should include a checklist for selecting the type of data as well as a space for specifying the actual value. If a Numerical or Date Data Type is selected, the user must also be asked to specify whether it is a Planned or an Actual value).

D2. Create new Round: a) If the existing Round does not have a Name, request the user to specify a Name; b) display a new Round with the same contents (i.e the same Slices and Sub-Slices) possessed by the existing Rounds; c) request the user to specify a Name; d) provide an empty field for the Value of the new Round (this should include a checklist for selecting the type of data as well as a space for specifying the actual value. If a Numerical or Date Data Type is selected, the user must also be asked to specify whether it is a Planned or an Actual value).

D3. Create new Slice (only available when a Round is selected): a) Insert Slice lines together with the proportionate numerical value of the Slice if a numerical value for the Round has been provide; b) ask the user to adjust the new Slice lines to their desired positions; c) Request the user to specify a name for the new Slice.

D4. Create new Sub-Slice (only available when a Slice or Sub-Slice is selected: a) Insert Sub-Slice lines together with the proportionate numerical value of the Sub-Slice if a numerical value for the associated Slice or Sub-Slice has been provide; b) ask the user to adjust the new Sub-Slice lines to their desired positions; c) Request the user to specify a name for the new Sub-Slice.

D5. View whole Roundsheet: Display a Roll standing vertically with all Rounds showing with their names and Values displayed; and, where Slices and Sub-Slices exist, display the names and values of each Slice and Sub-Slice (some compromises may have to be made when a great many Sub-Slices exist).

D6. Collapse the Roundsheet: display the Roll and its constituent Rounds, with their Names and Values

D7. Specify or change a Name: User performs by inserting the cursor in a Name field.

D8. Specify or change a Value: a) User performs by inserting cursor in a Value field; b) ensure that a Data Type is specified before a Value is inserted (NB. If a Numerical or Date Data Type is selected, the user must also be asked to specify whether it is a Planned or an Actual value); c) check that the value is viable and if so permit it and if not indicate why it is not permissible.

**E. Graphic Transformations (all to be reversible as appropriate)**

E1. Collapsed Roll to full display of all Rounds, Slices and Sub-Slices

E2. Round in Roll to Round out of Roll: Round to appear to slide out the Roll and then to come to open it's face to a degree so that you can see it's Slices.

E3. Partial to full Round: partially open faced Round is moved to the vertical to display a full circle Round in which the Segment lines can be adjusted.

E4. Round to Sub-Slice:

E5. Sub-Slice to lower level Sub-Slice:

**Uses**

F. Example of Annual Budget

G. Example of a Plan to build a patio

H. Example of a filing index

**F. Example of an Annual Budget**

F1. Roll named Budget.

F2. Twelve Rounds each named one of the months of the year starting with January and ending with December.

F3. The January Round has a numerical Planned Value of 100,000 and an Actual Value of 102,317.

F4. Each Round has the same 17 Slices that every other Round has. Each of the 17 Slices has the name of a type of expenditure, a Planned Value and an Actual Value. The combined total of the Planned Values in all the Slices in a Round comes to the Planned value of that Round; and the combined total of the Actual Values in all the Slices comes to the Actual Value of that Round.

F5. Some of the Slices in all the Rounds have Sub-Slices that have the names of component parts of that particular type of expenditure, and a Planned Value and an Actual Value. The total of the Planned and Actual Values of these Sub-Slices come to the Planned and Actual Values of the Slice they belong to. All of the Rounds have the same Sub-Slice structure.

F6. The January, February and March Rounds have Planned and Actual Values for all the Slices. The Slices in the other Rounds only have Planned Values.

**G. Example of a Plan to build a patio**

G1. Roll named Build Patio.

G2. Four Rounds named respectively Design Patio, Obtain Materials, Prepare Ground, and Lay Patio; and each with a Planned Date – 4th April, 18th April, 18th April, 25th April – and an Actual Date though only the first two Actual Dates are populated - 4th April and 27th April.

G3. The Design Patio Round contains two Slices named respectively Define Ground Area, and Select Materials. The Obtain Materials Slice has Four Sub-Slices named respectively Slabs, Hardcore, Sand, Cement. These Slices and Sub-Slices all have Planned and Actual Dates.

G4.The Prepare Ground Round has 3 Slices named respectively Mark out area, Dig out soil, Dispose of soil. All three have Planned Dates but no Actual Dates as yet.

G5. The Lay Patio Round has four Slices named respectively Spread hardcore, Compact hardcore, Lay Slabs, Fill in between slabs. All four have Planned Dates but no Actual Dates as yet.

**H. Example of a filing index**

H1. Roll named House Files Index.

H2. 98 Rounds named respectively House-001, House-002, House-003 and going up to House-098.

H3. Every Round has the same structure – 6 Slices named respectively Title, Facet, Keywords, Publication Date, Date of record creation, Files. All the Slices are populated with text or date values, apart from the final Slice (Files) which, in some of the Rounds, contains links to files.

H4. To add another document, a new Round is created and the values for its Slices filled in.

**Paul Wilson, 05Nov2016**

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