# CHAPTER 7 TOWARDS A CLASSIFICATION FRAMEWORK FOR ACCOUNTING INFORMATION

## 7.1 Introduction

Previous chapters in this thesis explored various issues regarding the presentation of accounting information in the financial statements of companies. It was argued that stakeholders often find it difficult to utilise the information in the form currently presented in the balance sheet and income statement. Broadly speaking the main reason is that the classification currently in use does not take the needs of users into account fully. A further reason may be because of a lack of direct guidelines as to how accounting information is to be classified. The outcomes of the questionnaire, discussed in Chapter 6, further motivated this observation. Statements in the questionnaire were based on certain problem areas surrounding the current classification of accounting information. It was, therefore, observed that an alternative way of classifying and presenting accounting information may be needed, i.e. an enhanced accounting classification scheme is called for.

### 7.1.1 Goal of this chapter

The main objective of this chapter is to develop a new classification framework for accounting information. Previous work in this area are the framework proposed by Fitzgerald and Schumer (1962), a recent framework put forward by AICPA (1994) and also the current accounting structure used to prepare financial statements. These frameworks are discussed and debated in this chapter. Thereafter a framework for the classification of accounting information portrayed in the balance sheet and income statement is proposed. The proposed framework embraces a 3-valued notion of time, namely, the time of recording a transaction (past), the time of reporting at year end (present) and reporting of events/happenings with a future component. For both the balance sheet and the income statement a normative subframework is defined which incorporates a number of attributes (properties) for a transaction. In the case of the balance sheet a further subframework, called a decision structure is linked to the normative one. The decision structure is discussed further in this chapter and it shows in an algorithmic fashion how information is ultimately imbedded in a static structure. The static framework is inspired by the work

of Yourdon and Constantine (1978) as well as Jackson (1975) in system design. In the case of the income statement an alternative structure is proposed, based on previous criticisms of the income statement as well as improving the cohesion of the arithmetic (additions and subtractions) operations in the income statement.

### 7.1.2 Layout of this chapter

Following this introduction a previous attempt at defining a classification framework for accounting (Fitzgerald and Schumer 1962) is discussed in Section 7.2. Also in Section 7.2, a proposed framework (AICPA 1994) as well as the current accounting structure (Wolk *et al.* 2004; Cilliers *et al.* 2004) are presented. A classification framework for the balance sheet is developed in Section 7.3. This framework is composed of three subframeworks – a normative subframework including a temporal dimension, a decision subframework and finally a static subframework. An example of the utility of these subframeworks for the balance sheet is illustrated for R&D. In Section 7.4 a discussion of future work on a more detailed classification for equity and liabilities is presented. Section 7.5 gives a short, preliminary summary while in Section 7.6 the focus moves to the classification of items in the income statement. A normative subframework as well as a static subframework for the income statement is developed and an alternative structure for the income statement is proposed. The chapter concludes with a summary.

The above layout is represented in Figure 7.1.

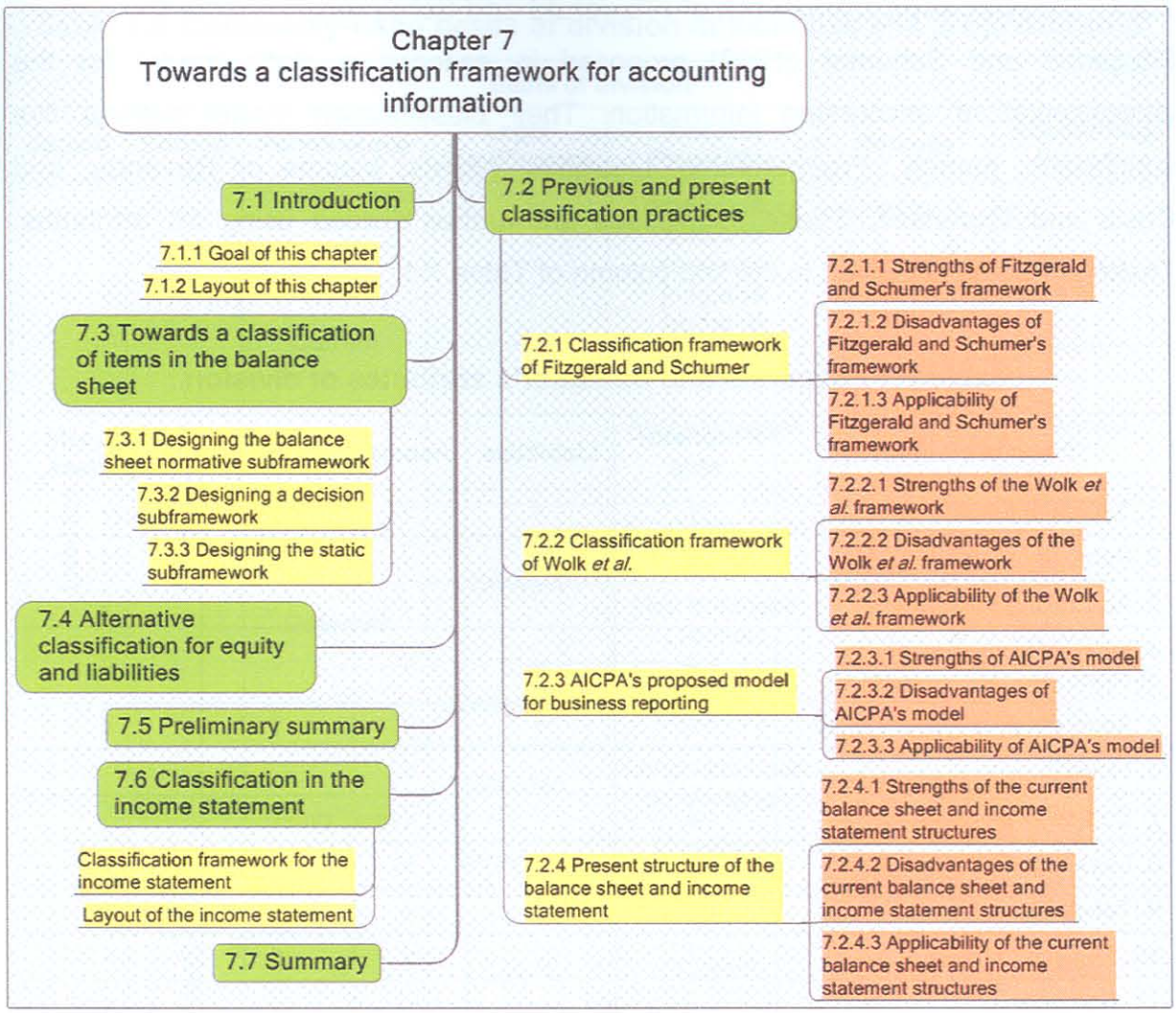


**Figure 7.1 A visual representation of the layout of Chapter 7**

## 7.2 Previous and present classification practices

Classification is a continuous research issue in accounting and has been debated since the early 1900s when the *current/non-current* classification first came into being. This theme was discussed and developed in previous chapters. In the subsections that follow three classification schemes are discussed and their contributions and shortcomings are debated. In Section 7.2.1 the classification framework for accounting information as proposed by Fitzgerald and Schumer (1962) is considered. A structure based on the accounting equation (3.1) by Wolk *et al.* 2004) is discussed in Section 7.2.2 and the model for business reporting proposed by AICPA (1994) is presented in Section 7.2.3. The accounting structure as the final product of classifying accounting information currently used in practice (Cilliers *et al.* 2004) is discussed in Section 7.2.4.

### 7.2.1 Classification framework of Fitzgerald and Schumer

Fitzgerald and Schumer (1962) proposed in essence a static model for the classification of accounting information. Their classification model defines five subclasses, namely, Proprietorship; Liabilities; Assets; Income or Revenue; and Costs and Expenses. These subclasses are further divided using 16 attributes. These attributes are given in the first column of Table 7.1.

**Table 7.1 Fitzgerald and Schumer's attributes of division**

| Basis of division | Proprietor-ship | Liabilities | Assets | Income or Revenue | Costs and Expenses |
|---|---|---|---|---|---|
| 1. Source of funds | √ | √ | √ | √ | √ |
| 2. Purpose or intended use | √ | √ | √ | √ | √ |
| 3. Accounting periods | √ | √ | √ | √ | √ |
| 4. Inherent properties or qualities | √ | √ | √ | √ | √ |
| 5. Administrative responsibility | √ | √ | √ | √ | √ |
| 6. Liquidity | | | √ | | |
| 7. Degree of permanence | √ | √ | √ | | |
| 8. Legal significance | √ | √ | √ | √ | √ |
| 9. Tangibility | | | √ | | |
| 10. Relation to major activities | √ | √ | √ | √ | √ |
| 11. Normality | | | | √ | √ |
| 12. Relation to volume of activity | √ | √ | √ | √ | √ |
| 13. Controllability | | | | | √ |
| 14. Taxability | | | √ | √ | √ |
| 15. Units of activity | | | | √ | √ |
| 16. Persons | √ | √ | √ | √ | √ |

*Source:* Fitzgerald and Schumer (1962:81)

The attributes listed in Table 7.1 constitute only a small number of the attributes that are currently used for the classification of accounting information. Nevertheless, from the divisions in Table 7.1 Fitzgerald and Schumer (1962) built a framework for the classification of relevant subclasses. Their classification structure is presented in the form of a number of multi-level tables, spread horizontally across a page. The first basis for division suggested by Fitzgerald and Schumer is 1) sources of funds and 2) accounting periods. These two (2) divisions apply to equity, liabilities, assets, revenue/income; and costs and expenses. An example of a multi-level table, namely, the one for liabilities and proprietorship is given in Table 7.2.

**Table 7.2 Commonly-used bases of division of liabilities and proprietorship**

| Basis of division | | | | | | |
|---|---|---|---|---|---|---|
| **Source** | **Source** | **Permanence** | **Legal Significance** | **Inherent Properties** | **Persons** | **Accounting Periods** |
| Liabilities | Creditors | Current | – | Trade creditors discount receivable (negative account) | Creditor A<br>" B<br>" C<br>etc. | Period 1 |
| | | | | Accrued wages | Employee A<br>" B<br>" C<br>etc. | Period 2 |
| | | Deferred | Secured | Short-term Loan on Mortgage | Creditor X | Period 3 etc. |
| | | | | Hire Purchase Creditors | Creditor Y<br>" Z | |
| | | | Unsecured | Bank* Overdrafts | Bank L<br>" M | |
| | | Long Term | Secured | Long-term Loan on Mortgage | Creditor N | |
| | | | Unsecured | Unsecured Loan | Creditor A | |
| Proprietorship | Capital | – | Capital | Capital | Owner | Period 1 |
| | Income and other Profits | Merged with capital | Capital | Profit Capitalised | Owner | Period 2 |
| | | Temporarily Retained | Capital | Profit and Loss A/c, items Drawings (negative account) | Owner | Period 3 |

*Source:* Fitzgerald and Schumer (1962:102)

From tables 7.1 and 7.2 it is observed that not all 16 attributes are applicable to each class, for instance creditors who are current have no legal significance while capital has no permanence. According to Fitzgerald and Schumer (1962) bank overdrafts are a good example of an item where all attributes cannot be displayed in a *static* structure as indicated by * in Table 7.2 because these may be secured or unsecured, current, deferred or even long-term depending on the arrangements with the bank. The basis of classifying according to legal significance may supply a more accurate picture if users are aware of whether a liability is secured or unsecured. The

classification according to permanence may also supply more information to users for predictions in the sense that they will be able to distinguish between items that are current, deferred, and even long term.

#### 7.2.1.1 Strengths of Fitzgerald and Schumer's framework

The framework of Fitzgerald and Schumer (1962) follows a new approach in the sense that they identify attributes and take these into account for the development of a classification framework for accounting information. Based on attributes, the framework, therefore, gives more guidelines for the classification of information.

#### 7.2.1.2 Disadvantages of Fitzgerald and Schumer's framework

One of the shortcomings of the proposed framework identified by Fitzgerald and Schumer themselves, is that an item, for instance bank, may have multiple values for a particular attribute, leading to an ambiguous classification in the final structure. For example, bank may be secured or unsecured; or deferred; or current, leading to different classifications in each case. A fixed structure may not be able to accommodate this situation satisfactorily. A further problem with their framework is that it does not take time and the reclassification of information at year-end into account.

#### 7.2.1.3 Applicability of Fitzgerald and Schumer's framework

Applying this framework would yield a more accurate classification than using only the end product (i.e. the outcome of the classification) as a guideline, but as noted above there are some shortcomings which may need to be addressed before this framework may be successfully employed in practice.

From the multi-level table presentation (Table 7.2) of Fitzgerald and Schumer (1962) the author of this thesis synthesised a static structure as presented in Appendix F. In the proposed classification framework presented in this chapter more attributes are added to those in Table 7.1 to facilitate the development of the proposed framework.

### 7.2.2 Classification framework of Wolk *et al.*

An accounting classification system that stems from the work of Pacioli is presented by Wolk *et al.* (2004:318). This system is given in Figure 7.2. It utilises the accounting

equation (3.1) in Section 3.3.1 of Chapter 3, namely, *assets – liabilities = owner's equity* as basis. Owners' equity is further classified as contributed capital, retained earnings and unrealised capital adjustments. Contributed capital is made up of legal and other. They furthermore classify retained earnings into income statement accounts, prior period adjustments and dividends whereafter they split income statement accounts into debits and credits. Debits are classified into expenses and losses while losses in turn may be viewed as ordinary or extraordinary. Credits are divided into revenues and gains whereafter gains are further subdivided into ordinary and extraordinary.

#### 7.2.2.1 Strengths of the Wolk *et al.* framework

This framework has a rather simple structure and is based on a familiar basis, namely, the fundamental accounting equation: assets – liabilities = owner's equity. The framework is also rather dated which may indicate that it has a sound basis, even though it has some disadvantages discussed below.

#### 7.2.2.2 Disadvantages of the Wolk *et al.* framework

The relative simplicity of this classification leads to problems where complex transactions are involved (Wolk *et al.* 2004). Complex transactions cannot always be categorised precisely into one of these classes because a transaction may sometimes have attributes of more than one class. A further problem is that new transactions for new scenarios are developed continuously and these might not easily fit into the structure of Figure 7.2. As noted in Statement 4 in Section 6.3.2.1, Wolk *et al.* (2004:318) make the important point: "It is remarkable that the categoric[al] framework used to classify accounting transactions is virtually unchanged since Pacioli's time". In their work they propose either the addition of information supplementary to financial statements, or the development of an entirely new classification framework. The supplying of additional information may not be the answer to the problem as transactions with different attributes may need to be forced into (incorrect) classes; therefore, the approach of developing a classification framework is taken in this thesis.

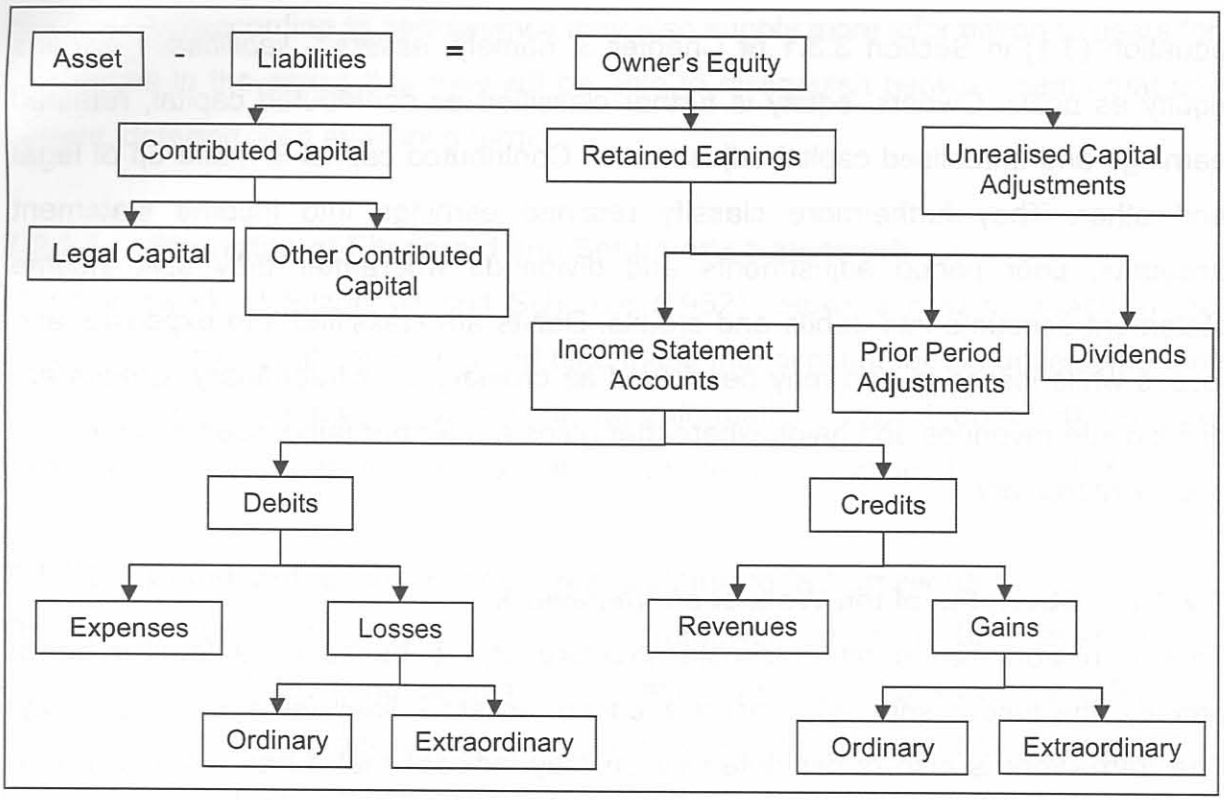


**Figure 7.2 Static accounting classification system (Wolk *et al.* 2004:318)**

Figure 7.2 is furthermore a fixed structure and does not incorporate any feedback; neither does it incorporate the notion of time or relationships. Hence Figure 7.2 may be viewed as a *static* structure. Guidance on how to determine the attributes of a transaction or event for classifying information is lacking in this structure. In other words it may not be clear to an accountant what the sequence of steps would be from analysing a transaction to finally placing its entities into the boxes in Figure 7.2. In this regard the author is of the opinion that both the normative and decision subframeworks proposed in sections 7.3.1, 7.3.2 and 7.6.1 go a long way in assisting an accountant with this task.

#### 7.2.2.3 Applicability of the Wolk *et al.* framework

The classification presented in Figure 7.2 may have a limited applicability since it does not address the issue of attribute identification and does not, starting with a transaction provide guidelines as to where items should be classified. In essence the classification is static, simply showing where items end-up after being classified.

### 7.2.3 AICPA's proposed model for business reporting

In this section a model proposed by a special committee appointed by AICPA (American Institute of Certified Public Accountants) is presented. The purpose of this AICPA committee was to investigate issues surrounding financial reporting (AICPA 1994). The special AICPA committee also paid particular attention to the needs of the users of accounting information. The model they came up with is presented in a variety of notations, namely, natural language and a textual description of the content of some financial statements. Their layout of the balance sheet is given in Appendix G, while the layout of the income statement appears in Appendix H.

The balance sheet and the income statement are two of the main financial statements addressed in the AICPA model. The following are some of their recommendations:

- *A comprehensive model should be developed for business reporting indicating the types and timing of information needed by users.* In this AICPA statement it is noted that mechanisms are needed for giving useful information to users of financial statements. The issue of timing is also addressed – it may be necessary for a company to report more often, rather than just at year end. The development of such a model is, however, beyond the scope of this thesis. Nevertheless, it is plausible that the development of a classification framework may go some way in addressing these two problems mentioned (somewhat implicitly) by AICPA.
- *A distinction is made between core and non-core activities (includes financing activities). Core activities are the usual or recurring activities, transactions and events.* Classifying information as core and non-core activities may present more relevant information about trends in the business. For example, users may need information based on whether the transactions are part of the day-to-day transactions of the company or an exception. Such knowledge may enable users to make predictions of future cash flows more easily.
- *Extraordinary items are classified as non-recurring or debt if related to financing costs.* If an item does not recur regularly in a company, it may be better to classify the item as part of non-recurring as it does not affect the regular business or core activities of the company. Users may need

information for the reclassification and forecasting of information. Extra-ordinary items may not affect the future cash flow of a company whereas financing costs may influence the predictions made by users.

#### 7.2.3.1 Strengths of AICPA's model

A strength of the AICPA framework is that the needs of users are taken into account when information is classified into for instance core and non-core activities. Core activities may be seen as the day-to-day activities of a company. This division may supply users with more useful information and facilitates the reclassification of items to satisfy their own needs. AICPA suggests that additional information may be supplied to users to enable them to make their own forecasts of future cash flows.

#### 7.2.3.2 Disadvantages of AICPA's model

The recommendations of the AICPA committee prescribe static structures for the classification of information but they do not provide classification guidelines on how to use attributes of entities embedded in a transaction to arrive at such static structures. As discussed before a static structure on its own is an end product of classification and does not show how to analyse a transaction or how to subsequently locate the place in the static structure where the item is to be placed.

#### 7.2.3.3 Applicability of AICPA's model

The AICPA model appears to be an improvement on the current structure as well as compliance with users needs. AICPA recommends the division between core and non-core earnings which is welcomed by the users of financial reports (AICPA 1994). The AICPA model, therefore, seems to be more applicable than the others discussed before. However this model also supplies just the end product without clear guidelines to the accountant or compiler of financial statements on how to classify (at the time of recording) and reclassify at year end (at the time of reporting) specific transactions, based on their attributes.

### 7.2.4 Present structure of the balance sheet and income statement

The classification structures currently in use for the balance sheet and income statement are described in Cilliers *et al.* (2004). The current balance sheet structure is given in Appendix I while the structure for the income statement appears in

Appendix J. The current structures combine the requirements of the Companies Act 61 of 1973, GAAP and also the IFRS for the reporting of accounting information in financial statements.

#### 7.2.4.1 Strengths of the current balance sheet and income statement structures

The current structures have the advantage that they explicitly separate out information to be classified in the balance sheet and the income statement while the previous two frameworks did not. They also have the advantage of being current, i.e. they embody the way accounting information is currently classified and presented. The balance sheet effectively partitions assets and liabilities into the subclasses *current* and *non-current*.

#### 7.2.4.2 Disadvantages of the current balance sheet and income statement structures

As was the case with the previous two classification structures, the present classification structures are also not models of how to classify but rather the end-product of the classification of accounting information. Although the balance sheet effectively partitions assets and liabilities into *current* and *non-current*, both the balance sheet and the income statement have a number of shortcomings that were discussed in chapters 3 and 4. Among these shortcomings were: 1) the *current/non-current* classification, 2) the classification of research and development, 3) the classification of deferred assets, and 4) classification for window dressing.

The notion of time is also largely absent in these structures. The results of the questionnaire discussed in Chapter 6 also indicate a general dissatisfaction with the classification model. For example, in the questionnaire the respondents mostly agreed (60%) that an accountant's classification system may preclude others from much needed information. Through the questionnaire it was also established that relationships play an important part in the classification of accounting information.

#### 7.2.4.3 Applicability of the current balance sheet and income statement structures

The current structures may be applicable to some users but the information may not be what users need in general. These structures have some shortcomings (refer to Section 7.2.3.2) that need to be addressed when a classification framework for accounting information is proposed to make such structures more applicable.

In the sections that follow the classification framework for accounting information proposed by the author of this thesis is developed. The proposed framework is developed for items in the balance sheet and income statement. It incorporates the notion of time and is made up of three subframeworks that are combined into a larger, comprehensive framework. The three subframeworks are a *normative* subframework, a *decision* subframework and a *static* subframework, all developed below. The classification of items in the balance sheet is addressed first.

## 7.3 Towards a classification of items in the balance sheet

In this section a proposed classification framework for the balance sheet is developed following Mitroff's (1974) 4-*phase* model for problem-solving. The Mitroff, model, introduced in Chapter 1, prescribes four phases of development and these are described next in the context of the frameworks to be developed.

**Phase I** stipulates the identification of a reality problem situation. In this thesis the problem situation may be contextualised as follows:

- Various *criticisms* of the balance sheet were put forward in Chapter 4, following a *literature survey* of this topic. Of the main criticisms were the issue of *current/non-current* classification; the classification of R&D in the sense that possible future benefits are not easily measured and problems with the classification of inventory being current.
- Outcomes of the *questionnaire* in Chapter 6 reveal that the classification of accounting information currently in use may not yield the necessary outcome as needed by the users of accounting information. Based on these findings, a classification framework may be called for in accounting, especially when it comes to the balance sheet.

- The *analysis* of the financial statements in Chapter 6 revealed that the same item is called many different names by accountants over various companies. A further problem is that the current structures are closely followed, leading to the classification problems discussed before, e.g. *current/non-current* classification, the classification of R&D and so forth.

**Phase II** of Mitroff *et al.* (1974) is the development of a conceptual model of the problem. This defines the problem to be solved in broad terms and specifies any field variables that will be used to define the nature of the problem. Problems with current accounting models were discussed in chapters 4 and 6. The field variables identified in these chapters concern mainly the following items and their current classifications:

- *Accountability* versus *decision usefulness.* Currently financial statements are drawn up for the purpose of accountability. In this thesis criticisms have been put forward, making out a case for decision usefulness as well;
- Diverse *needs of users.* Related to the needs that users have is the problem that users may be misled by the way information is currently reported on at year end;
- *Ratios* may be suspect as a result of the way information is grouped together, i.e. classified;
- *Assets* and *liabilities*, in particular the partition between being *current and non-current*, the liquidity measure and the solvency inadequacy;
- *Advertising* being viewed as an expense or an investment. Currently advertising is viewed as an expense, which in certain circumstances may be an incorrect classification;
- *Inventory* problems, e.g. valuations, the place of where to classify it in an accounting system;
- *Contingencies*, in particular uncertainties attached to these using a probability;
- *Deferred taxation*: The question arises whether a portion of deferred taxation ought to be classified as equity instead of classifying all of it as an asset or a liability;
- *Bank overdrafts* – should be classified according to their behaviour;
- *Temporal items*: How should past, present and future items be classified?

- *Current structures* may not be able to handle new kinds of transactions.

**Phase III** of Mitroff *et al.* (1974) is the building of a scientific model of the problem. For the problem at hand it is the definition of an abstract model of the balance sheet framework proposed in this thesis. The recording of a transaction may be considered as the starting point of the proposed classification framework. A transaction takes place in the past, relative to reporting at year end which may be viewed as the present. The first event to occur after a transaction has taken place is the taking of an initial measurement to identify the attributes of the transaction (refer to Corollary 3.2). However, the values of some attributes of a transaction may not yet be available when the transaction is first recorded. For example, at the time an R&D expense is recorded, it is not known whether the R&D project will yield no benefit, an actual (i.e. present) benefit or a future benefit. The attributes of the transaction may, therefore, need to be reviewed on reporting at year end. At the time of both recording and reporting, the attributes of a transaction determine whether an *asset,* a *liability, equity*, a *cost,* an *expense,* a *profit* or a *loss* and *revenue* are involved. The first three items listed (i.e. asset, liability and equity) concern the balance sheet while the rest are to do with the income statement.

Below is an example of a transaction and its attributes.

**Example 7.1**

Consider the following transaction for a hypothetical manufacturing company:

> Buy raw materials from supplier Raw Materials Incorporated to manufacture a product named Adjustable monkey wrench.

Suppose also that the product Adjustable monkey wrench has a high turnover. Through inspection and analysis of the transaction, an accountant determines that the transaction has the attributes: *core*, *current*, *regular*, *entry*, *benefit* and *immediate*.

**End of Example 7.1**

IASB (2004:33) claim that "the definitions of an asset and a liability identify their essential features but do not attempt to specify the criteria that need to be met before they are recognised in the balance sheet". Therefore, for both the time of recording (past) and the time of subsequent reporting (present and future), a normative subframework indicating the attributes of items (i.e. the *criteria* mentioned by IASB (2004) above) addressed in the transaction under consideration is to be defined. Such criteria or attributes in turn determine the kind of object (*asset*, *liability*, etc.) the accountant is dealing with, leading to the consultation of a decision subframework for that object. The decision subframework thereafter guides the accountant as to how and where in a static subframework the entity embedded in the original transaction is to be classified.

**Phase IV** gives an implemented solution, i.e. the proposed framework of the scientific model (**Phase III**) abstracted above in natural language. For the balance sheet the following three classification subframeworks, already mentioned in the discussion of **Phase III**, are proposed:

1. *A normative* subframework, built around attributes of a transaction known at the time of recording (past) and again at reporting (present and future). Using these attributes, the normative subframework identifies an entity (e.g. an *asset*). Such entity identifies which part of a decision subframework (see point 2 below) is to be used to make next-level decisions regarding the transaction and the ultimate classification of its entities (e.g. the asset is classified as a *fixed asset*).
2. *A decision* subframework which considers various additional properties of each entity identified in point 1 above. The decision structure ultimately determines where in the static structure (see point 3 below) each entity will be classified.
3. *A static* subframework which explicitly shows the ultimate classification performed in points 1 and 2 above.

The above three sub classification frameworks make up a larger, comprehensive framework which is the framework proposed in this thesis. Looking ahead, a meta-level view of the sub classification frameworks combined into the comprehensive framework is given further on in Figure 7.7, Section 7.3.3.

An example of how the comprehensive framework is used to classify a transaction will also be given in Section 7.3.3, but first the development of a normative subframework for the balance sheet is presented.

### 7.3.1 Designing the balance sheet normative subframework

Different transactions have different sets of attributes and in Table 7.3 a comprehensive set of attributes with possible opposites for each attribute is listed (a * next to an entry identifies such entry in the discussion that follows Table 7.3).

**Table 7.3 General accounting concepts and opposites**

| | Property | Opposite of property |
|---|---|---|
| 1 | Allocated | Unallocated |
| 2 | Benefit | Sacrifice |
| 3 | Cash | Non-cash |
| 4 | Convertible | Non-convertible |
| 5 | Core activity | Non-core activity |
| 6 | *Current asset/liability* | *Non-current asset/liability* |
| 7* | Debit | Credit |
| 8 | Direct cost | Indirect cost |
| 9 | Discretionary funds | Non-discretionary funds |
| 10 | Distributable funds | Non-distributable funds |
| 11* | Entry | Book-entry |
| 12 | Financing activities | Non-financing activities |
| 13 | Fixed cost | Variable cost |
| 14 | Immediate | Deferred |
| 15 | Impaired | Not impaired |
| 16 | Monetary | Non-monetary |
| 17 | Moveable asset | Non-moveable asset |
| 18 | Normal item | Abnormal item |
| 19 | Ordinary item | Extra-ordinary item |
| 20 | Predictable | Unpredictable |
| 21* | Provision | Reserve |
| 28 | Realised | Unrealised |
| 23 | Recurring item | Non-recurring item |
| 24 | Regular activity | Non-regular activity |
| 25 | Restricted cash | Unrestricted cash |
| 26 | Short-term | Long-term |

| | Property | Opposite of property |
|---|---|---|
| 27 | Tangible asset | Intangible asset |
| 28 | Temporary | Permanent |

The use of debit and credit (7*) as opposites is in line with the double-entry bookkeeping. Entry 11* is a real transaction taking place and being recorded. It is opposed to a book-entry which usually refers to an artificial transaction, e.g. depreciation provision (van der Poll 2003). When a provision (21*) is made it is based on the matching of a cost over time whereas a reserve may be seen as funds earmarked for future benefit.

Next the normative subframework is developed in line with Mitroff *et al.* (1974). Recall that the problem situation (i.e. a classification framework for accounting information) was presented in **Phase I** above. Classification takes place from the moment a transaction is recorded, and thereafter reclassification may take place at reporting (year-end). When a transaction is first recorded (past), all the attributes may not be known and therefore a reclassification, based on more attributes known than before, may take place at the time of reporting (present and future).

First a definition is stated to facilitate the discussion that follows:

**Definition 7.1**

An attribute is said to be *enabled* for an entity if and only if such attribute applies to the entity. An attribute is *disabled* for an entity if and only if it is not enabled for the entity in question.

**Example 7.2**

In Example 7.1 above, the attributes *core*, *current*, *regular*, *entry*, *benefit* and *immediate* are all enabled for the given transaction while the attribute (say) *non-regular* is disabled for the transaction. Note that in terms of Table 7.3, an attribute is disabled whenever its opposite is enabled. It is also possible that neither an attribute, nor its opposite is applicable to a transaction, in which case both the attribute and its opposite are disabled for the transaction.

**End of Example 7.2**

From the list of properties and their opposites in Table 7.3, a normative subframework is constructed by following the three steps in Algorithm 7.1 below:

**Algorithm 7.1:** Design a normative subframework

**Input:** Table 7.3 of attributes and opposites

**Begin**

*Step 1*: Consider exhaustively various valid combinations of the attributes in Table 7.3.

*Step 2*: Decide for each valid combination of attributes in *Step 1*, which *main entity* (e.g. assets) is being described by this particular combination of enabled and disabled attributes.

*Step 3*: Partition each main entity identified in *Step 2* into sub entities – one sub entity for each unique combination of attributes that are enabled and disabled for the main entity.

**End**

Algorithm 7.1 was used by the author to generate Table 7.4 which is the normative subframework for the balance sheet proposed in this thesis. As prescribed by Algorithm 7.1, this subframework is the result of repeatedly considering combinations of enabled and disabled attributes, and for each combination (i.e. row in the table) a main entity group (assets, liabilities or equity) is identified, and for each main entity a number of sub entities are identified (e.g. cash and cash equivalents, etc.).

A particular set of enabled and disabled attributes may conveniently be represented as a row in the table. A *Y* in Table 7.4 denotes yes (the attribute is enabled) while an *N* stands for no (the attribute is disabled). Hence, given a particular row, when an *N* is indicated in the column for an attribute, it means that the opposite of the attribute (see Table 7.3 for a list of opposites) in Table 7.4 is true for the transaction under consideration. A dash ("-") in an attribute column in the table means that neither the attribute nor its opposite applies to the entity. In this thesis Table 7.4 is called a *normative subframework* for the balance sheet.

## Table 7.4 Normative subframework

| NORMATIVE FRAMEWORK - Balance sheet | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Core/Normal/Ordinary | Realised | Restricted | Tangible | Current | Moveable | Distributable | Impaired | Convertible | Predictable | Regular | Financing | Reserve | Short-term | Entry | Benefit | Immediate | Permanent | Recurring | Sub Entity | Entity |
| Y | – | – | Y | N | Y | – | Y | – | – | – | – | – | – | Y | Y | Y | – | – | Fixed assets | ASSETS |
| N | – | – | Y | N | Y | – | Y | – | – | – | – | – | – | Y | Y | Y | – | – | Fixed assets | |
| Y | – | – | Y | N | N | – | Y | – | – | – | – | – | – | Y | Y | Y | – | – | Fixed assets | |
| N | – | – | Y | N | N | – | Y | – | – | – | – | – | – | Y | Y | Y | – | – | Fixed assets | |
| Y | – | – | N | N | – | – | – | – | – | – | – | – | – | Y | Y | Y | – | – | Deferred assets | |
| Y | – | – | N | N | – | – | – | – | – | – | – | – | – | Y | Y | N | – | Y | Deferred assets | |
| Y | – | – | – | N | – | – | – | Y | – | – | – | – | – | Y | Y | Y | – | – | Other financial assets | |
| Y | – | – | – | N | – | – | – | – | – | Y | – | – | – | Y | Y | Y | – | – | Loans & security to directors and employees | |
| Y | – | – | – | N | Y | – | – | – | – | – | – | – | – | Y | Y | N | – | – | Slow moving inventory and minmum inv level | |
| N | – | – | – | N | – | – | – | – | – | – | – | – | – | Y | Y | N | – | N | Past due trade and other receivables | |
| Y | – | – | – | N | – | – | – | – | – | – | – | – | – | N | N | Y | – | Y | Deferred taxation - debit balances | |
| Y | Y | – | – | Y | Y | – | – | – | – | – | – | – | – | Y | Y | Y | – | – | Inventory | |
| N | – | – | – | Y | – | – | – | – | – | – | – | – | – | Y | Y | Y | – | N | Due trade and other receivables | |
| Y | – | – | – | N | – | – | – | – | – | – | – | – | – | Y | Y | N | – | Y | Other current assets | |
| Y | – | Y | – | Y | – | – | – | – | – | – | – | – | – | Y | Y | N | – | – | Cash and cash equivalents | |
| Y | – | N | – | Y | – | – | – | – | – | – | – | – | – | Y | Y | Y | – | – | Cash and cash equivalents | |
| Y | – | – | – | N | – | – | – | – | – | Y | Y | – | – | Y | Y | N | – | – | Investments | |
| Y | – | – | N | N | – | – | – | – | – | – | – | – | – | Y | Y | Y | – | – | Deferred assets | |
| Y | – | – | N | N | – | – | – | – | – | – | – | – | – | Y | Y | N | – | Y | Deferred assets | |
| Y | – | – | – | Y | – | – | – | – | – | – | – | – | – | Y | Y | Y | – | N | Non-recurring receivables | |
| Y | – | – | – | N | – | – | – | – | – | N | – | – | N | Y | Y | N | – | – | Deferred liabilities | LIABILITIES |
| Y | – | – | – | N | – | – | – | Y | – | Y | Y | – | N | Y | N | Y | – | – | Debentures and redeemable instruments | |
| N | – | – | – | N | – | – | – | Y | – | N | Y | – | N | Y | N | Y | – | – | Debentures and redeemable instruments | |
| Y | – | – | – | N | – | – | – | – | – | Y | Y | – | N | Y | N | Y | – | – | Long-term borrowings | |
| N | – | – | – | N | – | – | – | – | – | N | Y | – | N | Y | N | Y | – | – | Long-term borrowings | |
| Y | – | – | – | N | – | – | – | – | – | – | – | – | – | N | N | Y | – | Y | Deferred taxation - credit balances | |
| Y | – | – | – | N | – | – | – | – | – | Y | – | N | N | N | N | Y | – | – | Long-term provisions | |
| N | – | – | – | N | – | – | – | – | – | N | – | N | N | N | N | Y | – | – | Long-term provisions | |
| Y | – | – | – | N | – | – | – | – | – | Y | – | – | – | Y | N | Y | – | – | Indebtedness to subsidiaries | |
| N | – | – | – | N | – | – | – | – | – | N | – | – | – | Y | N | Y | – | – | Indebtedness to subsidiaries | |
| Y | – | – | – | N | – | – | – | – | – | Y | Y | – | Y | Y | N | N | – | – | Current borrowings | |
| N | – | – | – | N | – | – | – | – | – | N | Y | – | Y | Y | N | N | – | – | Current borrowings | |
| Y | – | – | – | Y | – | – | – | – | – | Y | – | – | – | N | N | Y | – | – | Current income tax liabilities | |
| Y | – | – | – | Y | – | – | – | – | – | Y | Y | – | Y | N | N | Y | – | – | Current portion of interest bearing borrowings | |
| N | – | – | – | Y | – | – | – | – | – | N | Y | – | Y | N | N | Y | – | – | Current portion of interest bearing borrowings | |
| Y | – | – | – | Y | – | – | – | – | – | Y | – | – | – | N | N | Y | – | – | Dividends recommended | |
| Y | – | Y | – | Y | – | – | – | – | – | Y | – | – | Y | Y | N | Y | – | – | Short-term bank overdraft | |
| Y | – | N | – | Y | – | – | – | – | – | Y | – | – | Y | Y | N | Y | – | – | Short-term bank overdraft | |
| N | – | – | – | N | – | – | – | – | – | N | Y | – | – | Y | Y | Y | – | – | Mortgage non-core investment property | |
| N | – | – | – | Y | – | – | – | – | N | N | – | – | – | N | N | N | – | – | Contingent liability | |
| Y | – | Y | – | N | – | – | – | – | – | Y | – | – | N | Y | N | N | – | – | Non-recurring payables | |
| – | – | – | – | – | – | – | – | – | – | Y | – | – | – | Y | Y | Y | – | – | Share capital | EQUITY |
| – | – | – | – | – | – | – | – | – | – | Y | – | – | – | Y | Y | Y | – | – | Share premium | |
| – | – | – | – | – | – | Y | – | – | – | Y | – | N | – | N | Y | N | N | – | Reserves | |
| – | – | – | – | – | – | N | – | – | – | Y | – | N | – | N | Y | N | – | – | Reserves | |
| – | – | Y | – | – | – | – | – | – | – | Y | – | – | – | N | Y | Y | – | – | Retained earnings | |
| – | – | N | – | – | – | – | – | – | – | Y | – | – | – | N | N | Y | – | – | Retained earnings | |
| – | – | – | – | – | – | – | – | – | – | Y | – | – | – | Y | Y | Y | – | – | Minority interest | |

The sub entities in the normative subframework (Table 7.4) are based on the structure and content of the financial statements as discussed in International Accounting Standard 1 (IAS 1: para 42-126) – Presentation of Financial Statements (IFRS 2004).

Next, an example on how to use Table 7.4 follows.

**Example 7.3**

Suppose an accountant identified the following combination of attributes enabled ('Y' - yes) and disabled ('N' - no) for a particular transaction:

| Core | Restricted | Current | Entry | Benefit | Immediate |
|---|---|---|---|---|---|
| Y | Y | Y | Y | Y | N |

Suppose further that the other attributes and opposites in Table 7.3 are not applicable to the transaction under consideration (i.e. these are all disabled for the transaction). A comparison of the Y/N row in the above table with a corresponding row in Table 7.4 reveals that the entity described by the above combination of attributes enabled (Y) and disabled (N) is an *asset* and the particular sub entity is *cash and cash equivalents*.

**End of Example 7.3**

When classifiers use the normative subframework, they first decide which attributes are applicable and enabled or disabled for the relevant transaction (refer to Example 7.1). This is done through an initial measurement (Riahi-Belkaoui 2004) as prescribed by Corollary 3.2 in Section 3.9.1 of Chapter 3. Thereafter the set of enabled and disabled attributes may be matched with a row in Table 7.4. The matching row will determine the entity (ASSETS, LIABILITIES or EQUITY) as well as the sub entity embedded in the transaction (as in Example 7.3).

Next the *decision* subframework for the balance sheet is designed. The decision subframework is the next step after the normative subframework has been consulted. The purpose of the decision subframework is to further determine the position in a static structure where an item will be placed.

### 7.3.2 Designing the decision subframework

Once the relevant entity and its sub entity grouping have been identified through the use of the normative subframework discussed in Section 7.3.1, a classifier may then use the decision subframework developed in the current section.

The decision subframework is built around the entities defined in the last column of Table 7.4 above. A decision subframework takes the form of a *flowchart structure* (Hollander, Denna and Cherrington 2000) which further classifies entities and sub entities of a transaction to show how such items find their way into a static subframework. This is the last part of the comprehensive framework proposed in this thesis. A decision subframework is defined for each balance sheet entity. In line with the fundamental accounting equation (3.1) in Section 3.3.1 in Chapter 3, these entities are Assets, Equity and Liabilities.

The decision subframeworks for the above entities are rather involved and are given in full in Appendix K. As an example, a fragment of the decision subframework for Assets is given in Figure 7.3 and explained below.

As soon as a combination of enabled and disabled attributes according to the normative subframework indicates that the transaction should be classified as an asset (say), the classifier is referred to the decision subframework for assets for guidance as to where the item may be classified. Referring to Figure 7.3, if the item is a *core asset* (first test indicated by the diamond-shaped box) then the next attribute to consider is whether it is *current* or *non-current*. If the *non-current* attribute is enabled (say), the next test is whether it is a *fixed asset* (again a diamond-shaped box). If the answer is No (say), a test for the next sub entity, namely, *deferred assets* is performed. Suppose the enablement and disablement of its attributes define it to be a *deferred asset*, the next question is which deferred asset is the relevant one. If it turns out to be *R&D* then this is where the transaction will be classified in the static structure (Appendix L), having taken the relevant attributes into consideration.

The *error* boxes in Figure 7.3 indicate that one or more earlier decisions taken in the decision framework (or even the normative framework during the initial

measurement) were incorrect; hence the classifier has to backtrack on some earlier decisions.

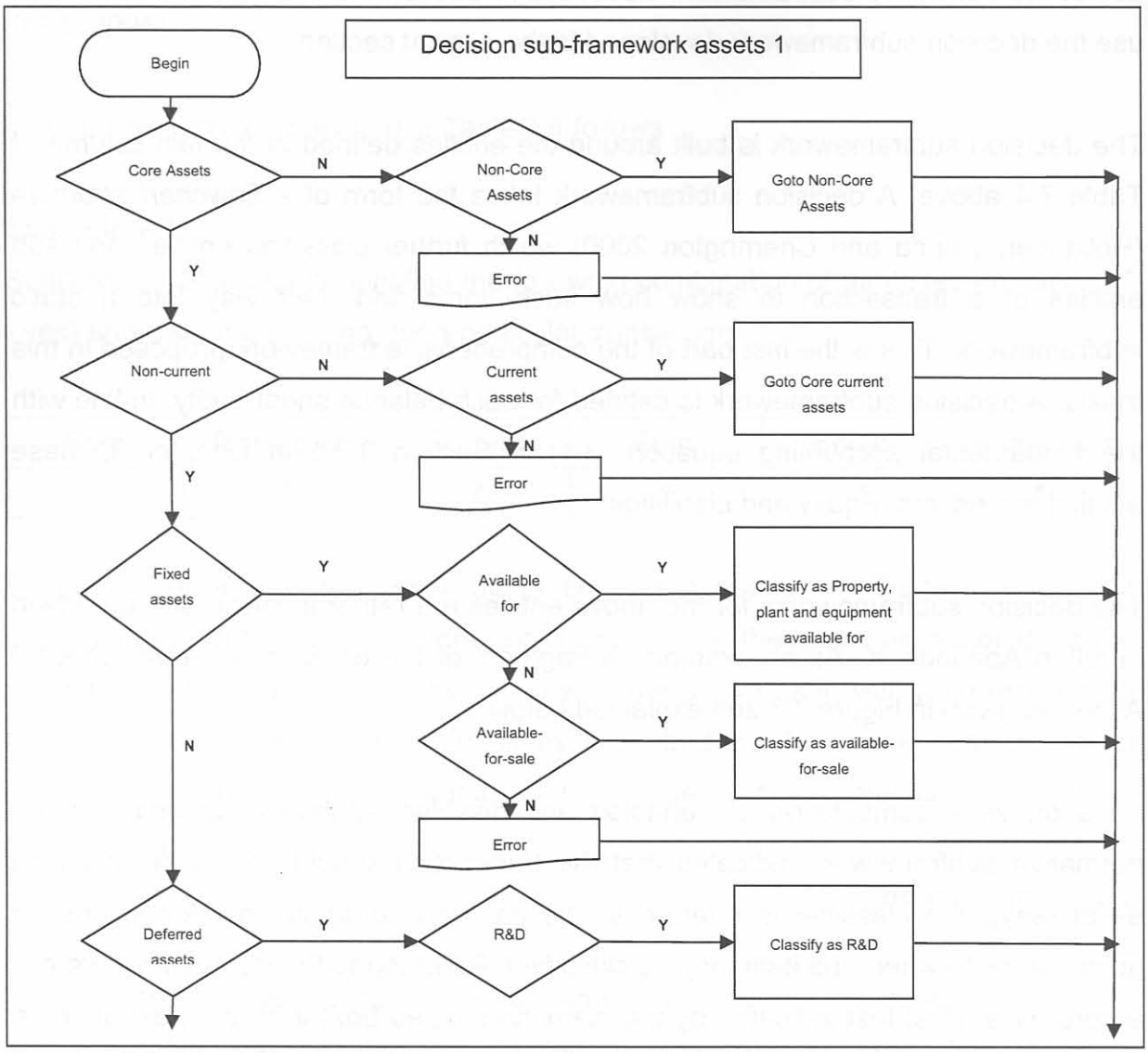


**Figure 7.3 Fragment of decision subframework of assets (Appendix K)**

In Figure 7.4 some of the symbols used in the decision frameworks in this thesis are explained.

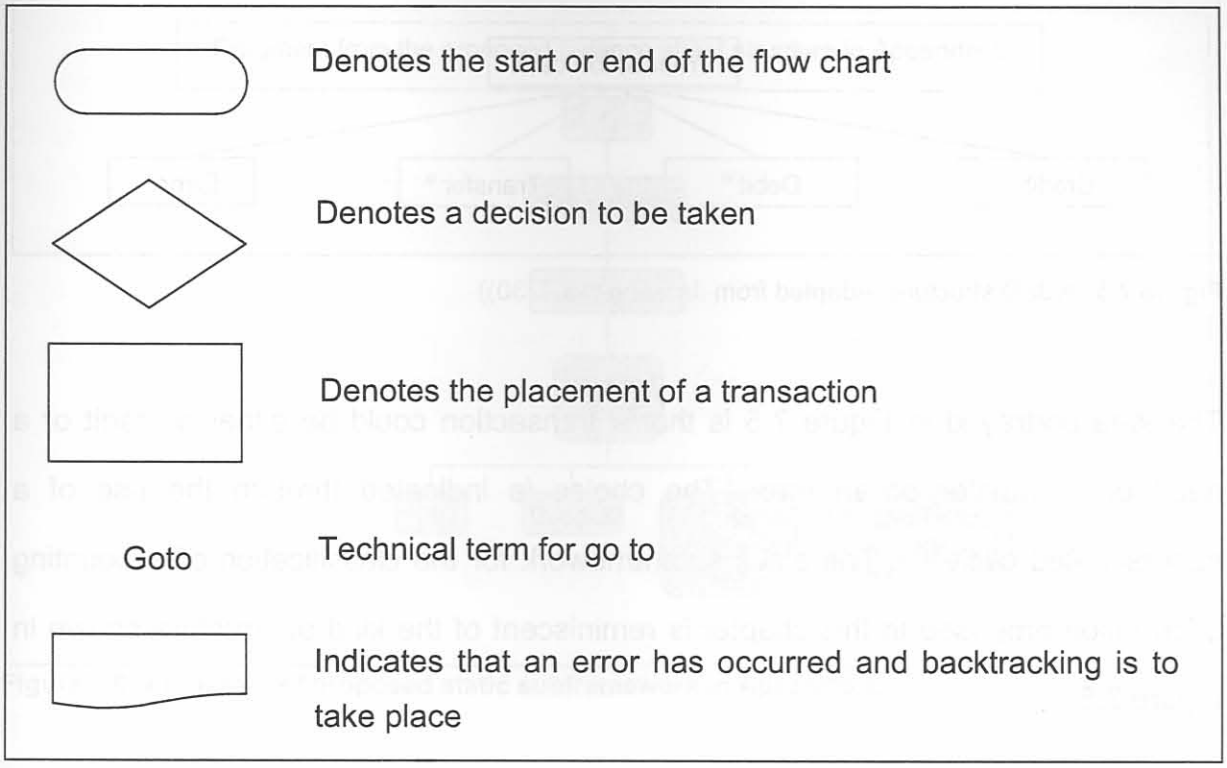


**Figure 7.4 Explanation of symbols used in decision frameworks**

Example 7.4 further on in Section 7.3.3 shows how (amongst other things) the decision subframework in Figure 7.3 is used to classify a transaction as belonging to the subclass R&D.

In the next section the *static component* of the proposed framework is developed.

### 7.3.3 Designing the static subframework

In this section a static subframework is developed. It should be noted that most of the classification proposals put forward in the literature were in essence static structures. Examples of static frameworks are those currently in use and described by Cilliers *et al.* (2004) and Wolk *et al.* (2004). These static structures as well as the proposed static framework in the current section are reminiscent of the work done in the area of software system design. Examples of such design structures appear in Jackson's (1975) JSD (Jackson Systems Development) methodology as well as the work done by Yourdon and Constantine (1978). An example of a small JSD structure is given in Figure 7.5 below:

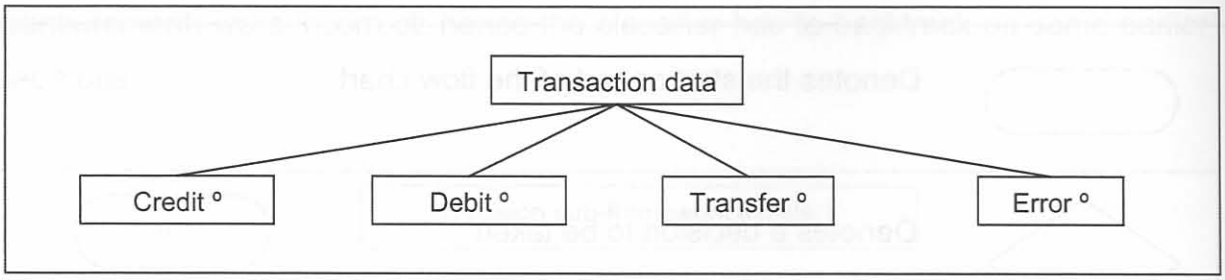


**Figure 7.5** A JSD structure (Adapted from Jackson (1975:30))

The idea portrayed in Figure 7.5 is that a transaction could be either a credit or a debit or a transfer or an error. The choice is indicated through the use of a superscripted circle (°). The static subframework for the classification of accounting information proposed in this chapter is reminiscent of the kind of structure shown in Figure 7.5.

The full static subframework proposed by the author of this thesis is rather comprehensive, hence in the current section just a fragment of the static subframework is presented in Figure 7.6. The full static subframework proposed in this thesis is given in Appendix L. The decision subframework discussed in the previous section (and given in full in Appendix K), specifies where in the static structure each entity will ultimately be classified. Figure 7.6 will be used in Example 7.4 below when the utility of the proposed classification framework defined thus far is illustrated.

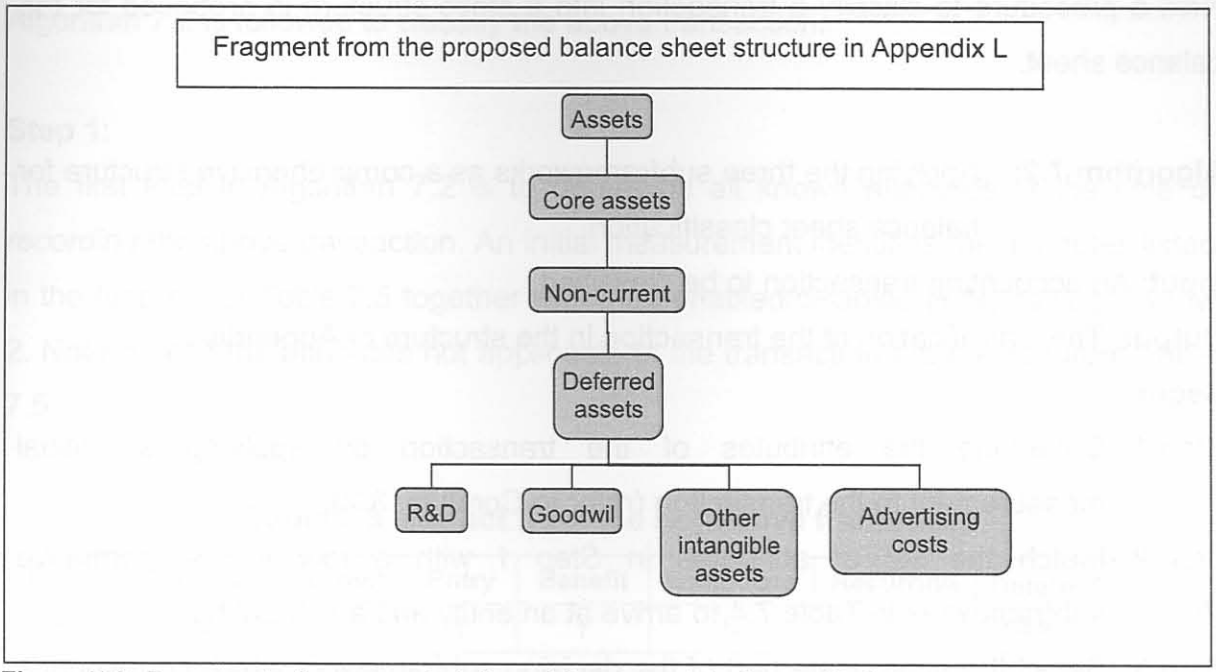


**Figure 7.6 Fragment of proposed static subframework in Appendix L**

Finally, then, the three subframeworks, namely, *normative*, *decision* and *static* are combined into a comprehensive framework for the classification of accounting information. This framework is presented in Figure 7.7 and a procedure on their use for the balance sheet is given in Algorithm 7.2 below.

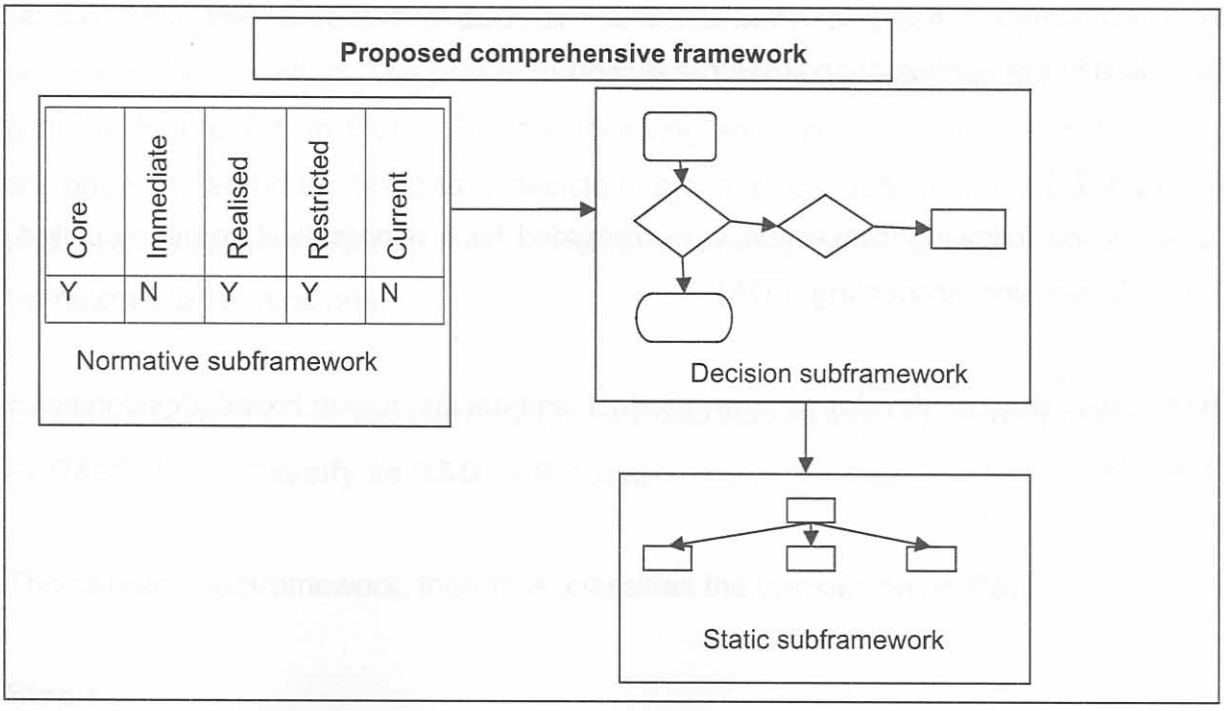


**Figure 7.7 Meta-level view of the comprehensive framework**

Next a procedure to classify a transaction into a static structure is proposed for the balance sheet.

**Algorithm 7.2**: Applying the three subframeworks as a comprehensive structure for balance sheet classification.

**Input**: An accounting transaction to be classified.

**Output**: The classification of the transaction in the structure of Appendix L.

**Begin**

*Step 1*: Determine the attributes of the transaction by applying an initial measurement to the transaction (refer to Corollary 3.2).

*Step 2*: Match the set of attributes in *Step 1* with a row in the normative subframework in Table 7.4 to arrive at an entity and a sub entity.

*Step 3*: Select the appropriate part of the decision subframework which corresponds to the entity identified in *Step 2*. Follow the sequence of tests and decisions in the appropriate subframework.

*Step 4*: Classify the transaction into the static subframework as determined by the outcome of *Step 3*.

**End**

Next the utility of the proposed framework in conjunction with Algorithm 7.2 is illustrated in the context of an R&D transaction.

**Example 7.4**

Consider the following transaction to be recorded for a hypothetical company called Fourth Dimension Accounting (FDA):

FDA undertakes to develop a new product and incurs research and development expenses.

Algorithm 7.2 is followed to classify the above transaction:

**Step 1**:

The first step in Algorithm 7.2 is to determine all known attributes at the time of *recording* the above transaction. An initial measurement identifies the attributes listed in the first row of Table 7.5 together with their enabled/disabled (Y/N) settings in row 2. Note that all the attributes not applicable to the transaction are omitted from Table 7.5.

**Table 7.5 Extract from the normative framework**

| Core | Tangible | Current | Entry | Benefit | Immediate | Recurring | Deferred Assets | Assets |
|---|---|---|---|---|---|---|---|---|
| Y | N | N | Y | Y | N | Y | | |

**Step 2**:

Through inspection it is observed that the second row of Table 7.5 matches one of the rows in Table 7.4, and the accountant determines that the entity is that of *Assets* while the sub entity is *Deferred Assets*.

**Step 3**:

The accountant consults the decision subframework for *Assets* and follows the actions in the flow chart. The part of the decision structure relevant to this example is given in Figure 7.3. In Figure 7.3, the following sequence of actions and decisions are encountered (in the text below decisions are in *italics*; actions are in **bold**; Begin and Return are in a different font; → indicates a move from one step in the decision framework to the next one):

Begin → *Core*? (Y) → *Non-current*? (Y) → *Fixed Assets* (N) → *Deferred assets*? (Y) → *R&D*? (Y) → **Classify as R&D** → Return.

The decision subframework, therefore, classifies the transaction as *R&D*.

**Step 4**:

Classify the transaction *R&D* in the static subframework of Figure 7.6.

In this example, when the R&D transaction took place in the past (time of recording), it was classified as an expense based on the attributes that could be identified at that particular time. As time passes by more attributes are revealed and the transaction gets reclassified at the time of reporting (present). In this example the classification was done at the time of reporting and it was assumed that future benefits would be realised based on the feasibility of the project, hence the transaction was considered to be a *deferred asset* as confirmed by the proposed comprehensive framework.

At year end when reporting (present time) takes place, the company may reclassify the transaction as one of two other options, depending on the known attributes at the time of reporting. These two possibilities are portrayed in Figure 7.8: 1) if no benefits are realised at the time of reporting and there is no likelihood that the project is feasible, then the FDA transaction would have been viewed as incurring a *loss* (if the benefit is less than the expense incurred) to the company (see Figure 7.8), and 2) if the transaction yielded a current benefit (if the sacrifice (expense) rendered an equal amount of income) but it is indicated that the project would not be feasible, it would have been looked upon as a *cost* (refer to Figure 7.8).

**End of Example 7.4**

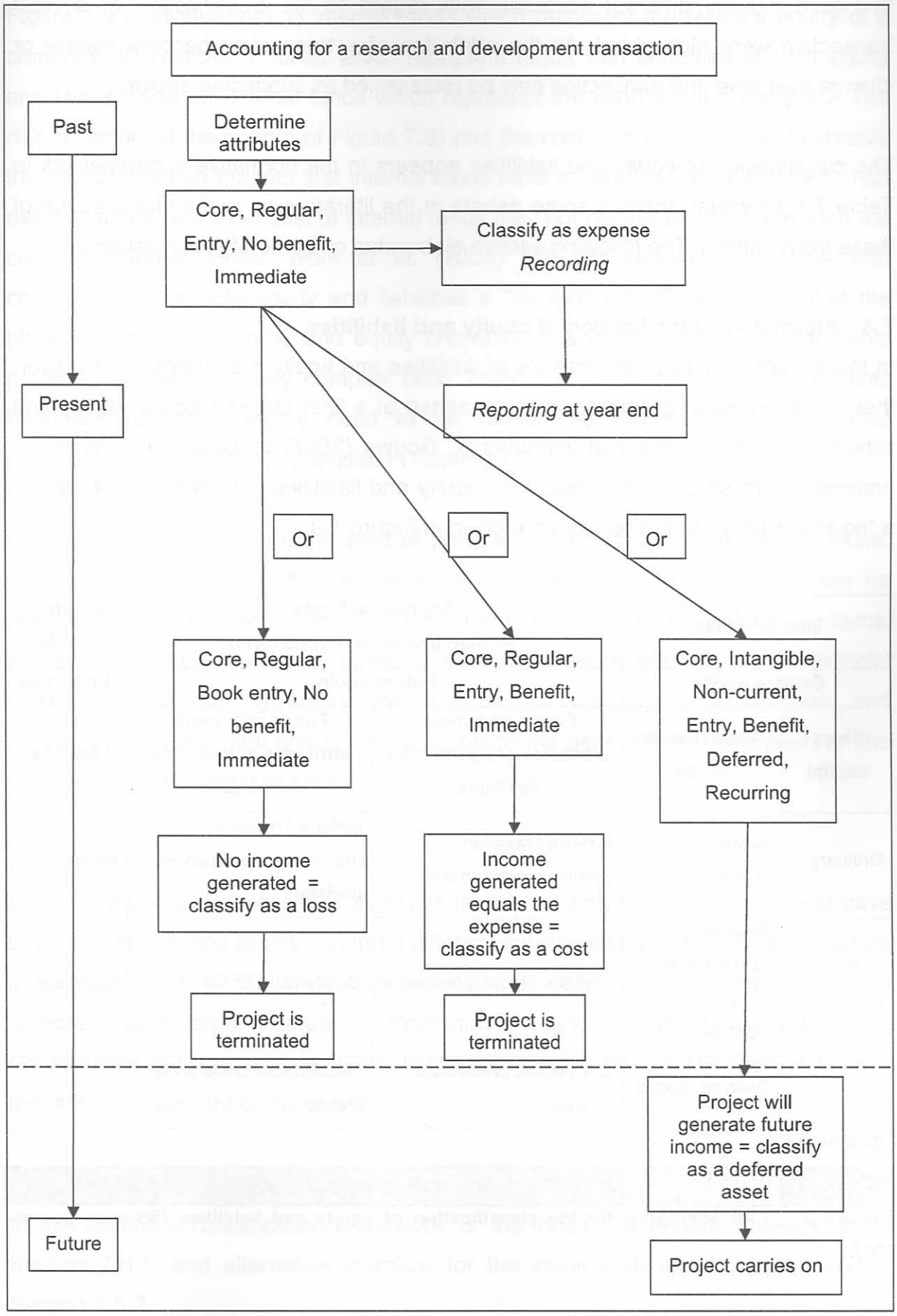


**Figure 7.8 Example of the application of the normative framework**

In Figure 7.8 the different attributes with regard to the classification of a R&D transaction were highlighted. As the attributes of a transaction become clearer or change over time, the transaction may be reclassified as suggested above.

The classification of equity and liabilities appears in the normative subframework in Table 7.4. However, there is some debate in the literature as to the classification of these main entities. The following section elaborates on some of these issues.

## 7.4 Alternative classification of equity and liabilities

In this section some reclassifications of liabilities and equity are proposed. However, there is much need for further research aimed at a finer classification of equity and liabilities, especially financial instruments. Gouws (2007) proposes an alternative, preliminary classification framework for equity and liabilities that involves the idea of a "no-man's land". Some pointers are given in Figure 7.9:

| **Internal funds** | | **Sources of funds "no man's land" or Hybrid funds** | | **External funds** |
|---|---|---|---|---|
| **Owners equity** | | **Future equity** | | **Liabilities** |
| **Share capital** | **Maintenance funds** | **Funds with more attributes of equity than liabilities** | **Funds with more attributes of liabilities than equity** | **Liabilities** |
| Ordinary | Retained income | Deferred taxation (during growth phase) | Deferred taxation (during no growth or decline) | Core |
| Share premium | Reserves: Distributable Non-distributable | Accumulated depreciation | Outstanding ESOs | Non-core |
| | Over-provisions | Convertible preference shares | Redeemable preference shares | |

**Risk indicator**

| Low | | Medium | | High |
|---|---|---|---|---|

**Figure 7.9 An alternative for the classification of equity and liabilities (Source: Gouws 2007.)**

Figure 7.9 is divided into 1) internal funds which represent the owner's equity of a company, 2) sources of funds which represent funds with attributes of both equity and liability, and 3) external funds which represent the liabilities of a company. The risk indicator (at the bottom of Figure 7.9) and the cost involved are used to classify the items based on the fact that internal funds have a lower risk for a company than external funds, while the cost of internal funds may not necessarily be lower than the cost of external funds. Wolk *et al.* (2004) call the category for items with characteristics of both equity and liabilities a "no man's land", and claim that the identification of the liability and equity characteristics of, for instance, redeemable preferred shares is a very complex task. Therefore, as pointed out before, items belonging to this category need to be researched further. A more detailed classification of liabilities is provided in Appendix L.

The above classification is the start of providing more useful information to users. The problem of items with characteristics of more than one class may also be alleviated when new definitions, through further research of the attributes of items, are developed. Challenges in terms of this classification are: 1) current financial models and accounting theory are built on the stereotype classification, and 2) financial management and ratios, for instance the gearing ratio, are based on the current accounting classification.

## 7.5 Preliminary summary

So far in this chapter classification issues largely relating to the balance sheet have been addressed, and to this end three different subframeworks, namely, a normative, a decision and a static subframework were defined and combined into a comprehensive, larger framework. Algorithms 7.1 and 7.2 are instrumental in the classification of balance sheet items. In the next section the classification of items in the income statement is discussed.

## 7.6 Classification in the income statement

In this section a classification framework for the income statement is developed in Section 7.6.1, and alternative structure for the income statement is proposed in Section 7.6.2.

### 7.6.1 Classification framework for the income statement

To a large extent the classification of items in the income statement follows a similar route to those in the balance sheet. A normative subframework is defined, and to this end Algorithm 7.1 may be used to draw up the normative structure for the income statement. Table 7.6 is the result of applying this algorithm to the income statement.

**Table 7.6 Normative subframework for the income statement**

| NORMATIVE FRAMEWORK - Income statement | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Core | Realised | Predictable | Regular | Financing | Entry | Benefit | Immediate | Distributable | Fixed | Direct | Permanent | Allocated | Recurring | Sub entity | Entity |
| Y | N | – | Y | – | Y | Y | N | N | – | – | – | – | Y | Revenue | REVENUE/ INCOME |
| N | N | – | N | – | Y | Y | N | N | – | – | – | – | N | Revenue | |
| Y | Y | – | Y | – | Y | Y | Y | Y | – | – | – | – | Y | Revenue | |
| N | Y | – | N | – | Y | Y | Y | Y | – | – | – | – | N | Revenue | |
| N | N | – | N | – | Y | Y | N | – | – | – | – | – | N | Income from subisdiaries | |
| Y | N | – | Y | – | Y | Y | N | – | – | – | – | – | Y | Income from subisdiaries | |
| Y | Y | – | Y | – | Y | Y | Y | – | – | – | – | – | Y | Income from subisdiaries | |
| N | Y | – | N | – | Y | Y | Y | – | – | – | – | – | N | Income from subisdiaries | |
| N | N | – | Y | – | Y | Y | N | N | – | – | – | – | Y | Other income | |
| N | Y | – | Y | – | Y | Y | Y | Y | – | – | – | – | Y | Other income | |
| N | – | – | Y | Y | Y | Y | Y | Y | – | – | – | – | Y | Income from other financial assets | |
| N | – | N | N | – | Y | Y | Y | Y | – | – | – | – | N | Exceptional income | |
| Y | – | – | Y | – | Y | Y | Y | – | Y | Y | – | Y | Y | Cost of sales | COSTS |
| Y | – | – | Y | – | Y | Y | Y | – | N | Y | – | – | Y | Cost of sales | |
| Y | – | – | Y | – | Y | Y | Y | – | Y | Y | – | – | Y | Distribution costs | |
| Y | – | – | Y | – | Y | Y | Y | – | N | N | – | – | Y | Distribution costs | |
| N | – | – | Y | Y | Y | Y | Y | – | – | – | – | – | Y | Finance costs | |
| N | – | – | N | Y | Y | Y | Y | – | – | – | – | – | N | Finance costs | |
| Y | – | – | Y | – | Y | Y | Y | – | – | – | – | – | – | R&D costs | |
| Y | N | – | Y | – | Y | Y | N | Y | – | – | – | – | Y | Share of profit of associates | PROFIT/ LOSS |
| Y | Y | – | Y | – | Y | Y | Y | Y | – | – | – | – | Y | Share of profit of associates | |
| Y | – | – | Y | – | N | N | Y | – | – | – | – | – | – | R&D costs (Loss) | |
| N | – | – | N | – | N | – | Y | – | – | – | – | – | N | Loss from discontinuing operations | |
| Y | – | – | Y | – | Y | – | Y | – | – | – | – | – | Y | Selling expenses | EXPENSES |
| Y | – | – | Y | – | Y | – | Y | – | – | – | – | – | Y | Selling expenses | |
| Y | – | – | Y | – | Y | – | Y | – | – | – | – | – | Y | General & administrative expenses | |
| Y | – | – | Y | – | Y | – | Y | – | – | – | – | – | Y | General & administrative expenses | |
| Y | – | – | Y | – | N | – | Y | – | – | – | – | – | Y | Depreciation expense | |
| Y | – | – | Y | – | N | – | Y | – | – | – | – | – | Y | Amortisation | |
| N | – | – | Y | – | Y | – | Y | – | – | – | – | – | Y | Other expenses | |
| N | – | N | N | – | Y | – | Y | – | – | – | – | – | N | Exceptional expenses | |
| Y | – | – | Y | – | Y | N | Y | – | – | – | – | – | – | R&D Expenses | |
| Y | – | – | Y | – | N | N | N | – | – | – | N | – | Y | Taxation | |
| Y | – | – | Y | – | N | N | Y | – | – | – | Y | – | Y | Taxation | |

The income statement is less complex than the balance sheet and for this reason a decision subframework has not been defined for it. Instead it is possible to move from the normative subframework in Table 7.6 directly to the static structure given in Table 7.9. Note that the main income statement entities in Table 7.6 are: Revenue/Income, Costs, Profit/Loss, and Expenses.

The sequence of steps to determine the position of an income statement item in the static subframework is somewhat similar to that of balance sheet items and is defined by Algorithm 7.3:

**Algorithm 7.3**: Applying the comprehensive framework to classify an income statement item.

**Input**: An accounting transaction to be classified.

**Output**: The classification of the transaction in the structure of Table 7.9.

**Begin**

*Step 1*: Determine the attributes of the transaction by applying an initial measurement to the transaction.

*Step 2*: Match the set of attributes in *Step 1* with a row in the normative subframework (Table 7.6) to arrive at an entity and sub entity.

*Step 3*: Classify the transaction into the static subframework as determined by the outcome of *Step 2*.

**End**

Next an example that classifies items in the income statement is presented.

**Example 7.5**

Consider a transaction to be captured for the hypothetical company called Vehicle Transportation (VT):

VT is a company that transports new vehicles from Cape Town to Johannesburg as their core business. The transaction that occurs is the filling up of the truck with diesel.

Algorithm 7.3 is followed to classify the above transaction:

**Step 1**:

Determine all known attributes at the time of *recording* the above transaction. An initial measurement identifies the attributes listed in the first row of Table 7.7 together with their enabled/disabled (i.e. Y/N) settings in row 2. Attributes that do not apply to the above transaction have been omitted from Table 7.7.

**Table 7.7 Attributes enabled/disabled for the transaction**

| Core | Regular | Entry | Benefit | Immediate | Fixed | Direct | Recurring | Cost of sales | Costs |
|---|---|---|---|---|---|---|---|---|---|
| Y | Y | Y | Y | Y | N | Y | Y | | |

**Step 2**:

The second row of Table 7.7 is matched with a corresponding row in Table 7.6 to determine the matching entity (Revenue/Income, Costs, Profit/Loss, or Expenses). Through inspection, the classifier determines that the entity is *Costs* while the sub entity is *Cost of sales*.

**Step 3**:

Classify the transaction as *Cost of sales* in the static subframework in Table 7.9.

When the Cost of sales transaction took place in the past (time of recording) it was classified as a cost based on the known attributes at that particular time. At year end when reporting (present time) takes place, the company does not reclassify the transaction as the attributes stayed the same as at recording. When the income statement is drawn up at the end of the month, quarter, or year, this item will be placed in the revised format of the income statement as described in this section.

**End of Example 7.5**

Next, the functional cohesion of the current format of the income statement is debated.

### 7.6.2 Layout of the income statement

The current layout (Cilliers *et al.* 2004) of the income statement is presented in Appendix J. In this section this structure is analysed and discussed. It is argued that the current structure of the income statement may have to be changed. On the strength of the arguments proposed, an alternative way of presenting the information in the income statement is proposed.

In previous chapters some criticism of the income statement was put forward. Among these were 1) the classification of items in such a way that users may not be able to distinguish between core and non-core activities which may influence their opinion of future cash flows, and 2) creative income statement classifications e.g. earnings management. Humans also have a natural trait of wanting to put (i.e. classify) similar items or even actions together in groups. Example 7.6 is a simple illustration of this phenomenon.

**Example 7.6**

Suppose one has to calculate the sum of the following list of numbers:

23, -189.56, 78.25, 67, -113.67, -945.2, 435.46

If one were to do this with a calculator, then despite the fact that the specification is to calculate a *sum*, one may be inclined to add and subtract the numbers in the order given above, i.e. 23 - 189.56 + 78.25 + 67 - 113.67 - 945.2 + 435.46 = -644.72.

Alternatively, if the list becomes large, one may be inclined to apply a more cohesive approach and first group and add all the positives together (say group1 = 23 + 78.25 + 67 + 435.46 = 603.71), and then group and add all the negatives together (group2 = 189.56 + 113.67 + 945.2 = 1248.43). Then the second group is subtracted from the first, i.e. 603.71 – 1248.43 = -644.72 which is (again) the final answer.

In this section it is argued that a similar procedure as described in this example may be followed for the income statement.

**End of Example 7.6**

Items in the income statement have various attributes, as defined in Table 7.6. As is the case with the balance sheet above, in the case of the income statement, attributes in this table are used to determine whether a given transaction is to be classified as a profit or loss, cost, expense, revenue or income.

If one looks at the current format of the income statement at face value, it is presented as a sequential document in which a number of items are added together and/or subtracted from subtotals. At a conceptual level, however, income and expense items are matched in an organised manner. The current layout of the income statement displaying both these formats (i.e. a sequential document and matched items) in one structure is given in Appendix J.

Looking at the income statement as a sequential document, the *additions* and *subtractions* are not cohesively grouped together, rather they tend to be somewhat mixed. At various points in the income statement, intermediate totals are calculated through alternating additions and subtractions, a concept which the human mind may not be as comfortable with as pure additions or pure subtractions. A possibly more cohesive way of performing such calculations in the income statement may be to first accumulate all items to be added together in an implicit subtotal, then accumulate all items to be subtracted into another implicit subtotal, and thereafter perform a single subtraction instead of performing a sequence of alternating additions and subtractions (Norman 1998). In this way one further step is taken in grouping (i.e. classifying) like with like, only this time it is in terms of operations rather than items. Example 7.6 discussed this process for a simple list of numeric values.

Figure 7.10 represents the arithmetic operation that is performed in the income statement to finally arrive at the profit for the period, further attributed as equity holders of the parent and minority interest (:= indicates an assignment of calculated values to a field variable, i.e. it is a mathematical calculation, while ≡ indicates an equivalence, i.e. no actual assignment is performed):

**Income Statement (by function)**

Gross Profit := Revenue – Cost of Sales;

Profit before Tax :=

Gross Profit + Other Income – Distribution Cost – Administrative Expenses – Other Expenses – Finance Costs + Income from Subsidiaries + Share of Profit of Associates + Income from Other Financial Assets;

Profit for Period from Continuing Operations := Profit before Tax – Taxation;

Profit for the Period :=

Profit for the Period from Continuing Operations – Loss for the Period from Discontinuing Operations

Also, Profit for the period is shown in the income statement as (≡ denotes an equivalence rather than assignment as above):

Profit for the period Attributable ≡ Equity Holders of the Parent + Minority Interest.

**Figure 7.10 Current layout of the income statement (Cilliers *et al.* 2004)**

Note that the consistent use of the term 'profit' above (and indeed throughout this thesis) implies that it could also be a 'loss' instead.

If the operations in Figure 7.10 are unfolded into just the additions and subtractions, and all intermediate denotations (e.g. Profit before Tax) are removed, then the following basic formula results:

Profit for the period :=

(Revenue – Cost of Sales) + Other Income – Distribution Cost – Administrative Expenses – Other Expenses – Finance Costs + Income from Subsidiaries + Share of Profit of Associates + Income from Other Financial Assets – Taxation – Loss from Discontinuing Operations

The above definition of *Profit for the period* shows how additions and subtractions *alternate* as opposed to keeping additions together in a group and subtractions together in another group.

Consider the current structure of the income statement. Such structure may be amended through the following changes:

1. Partition continuing operations between core and non-core activities. This partition has the following effects:
   a. Finance cost, Other income, Other expenses and Income from other financial assets are all shown later in the income statement.
   b. Exceptional income, Exceptional expenses and other unique transactions are shown as non-core activities.
2. Show Selling expenses separately.
3. Rename Administrative expenses to General and Administrative expenses.
4. Show Depreciation expense separately.
5. Show Amortisation expense separately.
6. Show R&D cost separately.
7. Group more of the additions and more of the subtractions together, thereby increasing the functional cohesion of the income statement.

Point 7 above prescribes the grouping of similar operations. According to **Phase II** of the Mitroff model (refer to Section 7.3) the field variables are represented by a possible renaming of the descriptive items in the income statement to facilitate a subsequent manipulation of such items. The purpose of such renaming is just to simplify the working with such variables during the derivation of new formulae. For example, the constants $a$, $b$, $c$ and the variable $x$ in the quadratic equation $ax^2 + bx + c = 0$, *for* $a \neq 0$ could easily have been given longer and more descriptive names, but that would make the manipulation of such a formula very tedious.

Similarly, in developing an alternative format for the income statement, some temporary field variable substitutions (i.e. renaming of variables) are made, simply by giving the long and descriptive names shorter names to ease their manipulation.

Once the new format has been arrived at, the longer names will be substituted back into the result.

The substitutions are indicated in Table 7.8. For every row, the column on the left contains the long name while the short name (alias) appears next to it on the right.

**Table 7.8 Field variable substitutions**

| **Original name** | **Alias** |
|---|---|
| Revenue | C1 |
| Cost of Sales | C2 |
| Gross Profit | C3 |
| Income from Subsidiaries | Ci1 |
| Share of Profit of Associates | Ci2 |
| Distribution Costs | Cc1 |
| R&D Costs | Cc2 |
| Selling Expenses | Ce1 |
| General and Administrative Expenses | Ce2 |
| Depreciation Expense | Ce3 |
| Amortisation Expense | Ce4 |
| Profit before Non-Core and Financing Activities | C4 [C4 is a new field variable] |
| Other Income | Nci1 |
| Income from Other Financial Assets | Nci2 |
| Exceptional Income | Nci3 |
| Other Expenses | Nce1 |
| Exceptional Expenses | Nce2 |
| Finance Costs | Ncc1 |
| Unique Transactions | Ncu1 |
| Profit before Taxation | C5 |
| Taxation | T |
| Profit for the Period from Continuing Operations | C6 |
| Loss from Discontinuing Operations | Ldo |
| Profit for the Period | C7 |
| Equity Holders of the Parent | Eh |
| Minority Interest | Mi |

Next, following Mitroff **Phase III** the original names in Table 7.8 are substituted and the new shortened formulae manipulated, aimed at ultimately increasing the functional cohesion in the income statement, in line with **Phase IV** of Mitroff.

The new proposed format for the income statement is:

C3 := C1 – C2;

[Calculate Gross Profit]

C4 := (C3 + Ci1 + Ci2) – (Cc1 + Cc2) – (Ce1 + Ce2 + Ce3 + Ce4);

[Calculate Profit before non-core and financing activities]

C5 := (C4 + Nci1 + Nci2 + Nci3) – (Nce1 + Nce2) – Ncc1 – Ncu1;

[Calculate Profit before Taxation]

C6 := C5 – T;

[Calculate Profit for the period from continuing operations]

C7 := C6 – Ldo; Also, C7 ≡ Eh + Mi

[Calculate Profit for the period and attribute between two shareholders]

The new proposed format (after the calculation of Gross Profit ≡ C3) groups all core income items (Ci1 and Ci2) together, all the core costs (Cc1 and Cc2) together and all the core expenses (Ce1, Ce2, Ce3 and Ce4) together, and arrives at Profit before non-core and financing activities (C4). Then all non-core items are grouped together as follows: all non-core incomes (Nci1, Nci2 and Nci3), all the non-core expenses (Nce1 and Nce2), all the non-core costs (Ncc1) and all the non-core unique transactions (Ncu1), to arrive at Profit before taxation (C5). Thereafter, the profit for the period from continuing operations (C6) is calculated as the difference between C5 and Tax (T). At the end, Profit for the period (C7) equals C6 minus Loss from Discontinuing Operations.

Finally, the last part of the solution to an alternative format for the income statement is to substitute back for the above short variable names, the names of the well-known items in the income statement. The result is shown in Table 7.9, which is the proposed static subframework for an income statement in this thesis.

**Table 7.9 The proposed static subframework for an income statement**

| | **Core activities** |
|---|---|
| | Revenue |
| - | Cost of sales |
| = | **Gross profit** |
| + | Income from subsidiaries |
| + | Share of profit from associates |
| - | Distribution costs |
| - | Selling expenses |
| - | General and administrative expenses |
| - | Depreciation expense |
| - | Amortisation |
| - | R & D loss/cost |
| = | **Profit before Non-Core and Financing Activities** |
| + | Other income |
| + | Income from other financial assets |
| + | Exceptional income |
| - | Other expenses |
| - | Exceptional expenses |
| - | Finance costs |
| +/- | Other unique transactions |
| = | **Profit before taxation** |
| - | Taxation |
| = | **Profit for the Period from Continuing Operations** |
| - | Loss from Discontinuing Operations |
| = | **Profit for the period** |
| | Attributable to: |
| | Equity holders of the parent |
| | Minority interest |

## 7.7 Summary

In this chapter a comprehensive framework for both the balance sheet and the income statement is proposed. The proposed framework consists of three subframeworks, namely, a normative subframework, a decision subframework and a

static subframework. The decision subframework is applicable to the balance sheet only. The notion of time is imbedded in the comprehensive framework in the sense that the recording of a transaction takes place in the past, reporting takes place in the present (i.e. at year end), and transactions with a future component are reported and valued at year end. For the balance sheet, attributes defined in the normative subframework determine whether a transaction will be classified as an asset, or a liability or equity. A subsequent decision subframework thereafter places a transaction into a static subframework, which is the third subframework.

For the income statement a similar normative subframework, to classify a transaction as revenue/income, profit/loss, cost or expense, was developed. The transaction is thereafter classified into a static subframework. In addition, a new structure for the income statement was suggested. These suggestions take into account various criticisms of the income statement mentioned before as well as an attempt to increase the functional cohesion of the two kinds of operations, namely, addition and subtraction in an income statement.

Algorithm 7.1 was defined to construct the normative frameworks for both the balance sheet and income statement. Algorithms 7.2 and 7.3 are used to classify items in the balance sheet and the income statement, respectively.

The next chapter is the final one in this thesis. It takes a look at what has been achieved and gives some pointers for future work in this area.